EMPHASIZES THE GROUNDBREAKING NATURE OF THE PROJECTS AND THEIR POTENTIAL IMPACT ON A GLOBAL SCALE

SHIHABUL HAQ. M

PREFACE

In Today's rapidly evolving digital landscape, technology stands as both the catalyst and the cornerstone of progress. "Tech Solutions: Advancing Industries and Society" is not just a collection of chapters; it's a testament to the power of innovation in shaping the world we live in.

From automated shopping to secure cloud data deduplication, each chapter delves into a distinct realm of technological advancement, showcasing how these innovations are transforming industries and enriching lives.

In "Tech Solutions," readers will explore ground breaking concepts such as emotion recognition for autistic children, IOT-based home automation, and personality prediction through CV analysis. These topics not only highlight the ingenuity of human creativity but also underscore the profound impact that technology can have on addressing real-world challenges.

Moreover, this book underscores the importance of collaboration and interdisciplinary approaches in the realm of technology. Whether it's streamlining library management systems or empowering farmers through mobile applications, the synergy between technology and various domains is evident throughout.

As editors, we believe that "Tech Solutions" serves as a roadmap for navigating the complex landscape of modern technology. It's not just about embracing the latest trends; it's about harnessing innovation to create a brighter, more inclusive future for all.

We invite readers to embark on this journey with us, exploring the possibilities and potential that lie at the intersection of technology and society. Together, let's redefine what's possible and pave the way for a world where technology truly serves as a force for good.

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SOCIAL DISTANCE SHOPPING-AUTO CART

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ABSTRACT

It has been observed that supermarkets witness long queues during the peak of shopping period and it's a very time consuming process for both customers and staffs. Studies have shown that immediate availability when shopping for products or services dramatically increases the number of purchases or appointments. The objective of this project is to develop an auto-cart with the sole objectives of minimizing shopping time in supermarkets and malls.

INTRODUCTION

Recently shopping has become a day to day activity and people are visiting the supermarket for purchasing products for their daily needs. Whenever a person is buying products they need to search for the product in such a big store and collect all the required products and need to wait in queue for billing and payment. Since it is time consuming they will be annoyed. Our main aim in developing this product is to reduce the time consumption in searching products and waiting in queue while billing and payment thereby reducing the issues of social distancing which is the need for the hour. In this product RFID card reader is used in each product to identify it and a special RFID tag for payment and also for recharge, android app to search and locate products in store and also a payment option in application.. At present, many supermarket chains are attempting to further reduce labour costs by shifting to self-service check-out machines, where a single employee can oversee a group of four or five machines at once, assisting multiple customers at a time.This application creates an automated central bill system for supermarkets and mall.

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SYSTEM STUDY

EXISTING SYSTEM:

A supermarket is a place where customers come to purchase their daily using products and pay for that. So there is a need to calculate how many products sold and generate the bill for the customer. When we go for shopping we usually select the required products and add them into the shopping cart. But when it comes to the final billpayment there are no adequate counters in the mall that can handle all the customers.

Also scanning each and every product of all the customer becomes a huge task and leads to large queue formation.Also, after that, it is hectic to stand in line for billing all the goods Whenever a person is buying products they need to search for the product in such abig store and collect all the required products and need to wait in queue for billing and payment this is a time consuming process and the people need to wait for long time to pay their bill and likewise if people can search for product in a big store to get their required product it also take too much time

PROPOSED SYSTEM:

Market is growing day by day, everyone wants to save their time and gain profit while shopping.The system will also give suggestion Ever since the debut of wireless technology, electronic commerce has developed to such an extent to provide convenience, comfort, and efficiency in day-to-day life. The main purpose of this paper isto provide centralized and automated billing system using RFID and ZigBee communication. for products to buy based on user purchase history from a centralized system. In this system, every product in Mart will have RFID tag, and every cart will be having RFID Reader.

METHODOLOGY

AGILE methodology is a practice that promotes continuous iteration of development and testing throughout th software development lifecyle of the project.Both development and testing activities are concurrent unlike trhe waterfall model.The agile software development emphasizes on four core values

- Individual interaction over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contact negotiation
- Responding to change over following a plan

SYSTEM SPECIFICATION

Hardware and software requirements for the installation and smooth functioning of this product could be configured based on the requirements needed by the component of the operating environment that works as front-end system here we suggest minimum configurationfor the both hardware and software components. Working off with this software is requirements concrete on system environments. It includes two phases.

- Hardware Requirements
- Software Requirements

HARDWARE SPECIFICATION:

Processor : i3 or above.

System Bus : 32Bit or 64Bit

RAM : 4 GB or Above

HDD : 500 GB or Above

Monitor : 14" LCD or Above

Key Board : 108 Keys

Mouse : Any Type of mouse

SOFTWARE SPECIFICATION

Operating System : Windows 10 Any 32 bit or 64 bit platform

Front End : Python

Back End : MySQL Sever

IDE : Eclipse

: Python 3.6 or above

:PyCharm

SOFTWARE REQUIRED:

FRONTEND:

PYTHON

Python is an interpreted, high-level, general-purpose programming language. Created by Guido van Rossum and first released in 1991, Python has a design philosophy that emphasizes code readability, notably using significant whitespace. It provides constructs that enable clear programming on both small and large scales. Python is a general- purpose interpreted, interactive,

object- oriented, and high-level programming language. Guido van Rossum during 1985- 1990, created it. Like Perl, Python source code is also available under the GNU General Public License (GPL). Python is a popular programming language. Guido van Rossum created it in 1991.

It is used for:

- web development (server-side),
- software development,
- mathematics,
- System scripting.

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

- **Python is Interpreted** − Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- **Python is Interactive** −You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- **Python is Object-Oriented** − Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- **Python is a Beginner's Language** − Python is a great language for the beginner-level programmers and supports the development of a wide range of application

Python's features include:

- **Easy-to-learn** − Python has few keywords, simple structure, and a clearly defined syntax. This allows the student to pick up the language quickly.
- **Easy-to-read** − Python code is more clearly defined and visible to the eyes.
- Easy-to-ma**intain** − Python's source code is fairly easy-to-maintain.
- **A broad standard library** − Python's bulk of the library is very portable and cross-platform compatible on UNIX, Windows, and Macintosh.
- **Interactive Mode** − Python has support for an interactive mode which allows interactive testing and debugging of snippets of code.
- **Portable** − Python can run on a wide variety of hardware platforms and has the same interface on all platforms.
- **Extendable** −You can add low-level modules to the Python interpreter. These modules enable programmers to add to or customize their tools to be more efficient.

- **Databases** − Python provides interfaces to all major commercial databases.
- **GUI Programming** − Python supports GUI applications that can be created and ported to many system calls, libraries and windows systems, such as Windows MFC, Macintosh, and the X Window system of Unix.18
- **Scalable** − Python provides a better structure and support for large programs than shell scripting.

PHYCHARM IDE

- PyCharm is an integrated development environment (IDE) used in computer programming, specifically for the Python language. It is developed by the Czech company JetBrains. It provides code analysis, a graphical debugger, an integrated unit tester, integration with version control systems (VCSes), and supports web development with Django as well as data science with Anaconda.
- PyCharm is cross-platform, with Windows, macOS and Linux versions. The Community Edition
- is released under the Apache License, and there is also Professional Edition with extra features –released under a proprietary license

BOOTSTRAP

Bootstrap is a free and open-source front-end framework for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many earlier web frameworks, it concerns itself with end development only. Bootstrap, originally named Twitter Blueprint, was developed by Mark Otto and Jacob Thornton at Twitter as a framework to encourage consistency across internal tools. Before Bootstrap, various libraries were used for interface development, which led to inconsistencies and a high maintenance burden. After a few months of development by a small group, many developers at Twitter began to contribute to the project as a part ofHack Week, a hackathon-style week for the Twitter development team. It was renamed from Twitter Blueprint to Bootstrap, and released as an open source project on August 19, 2011.

STRUCTURE AND FUNCTION

``Bootstrap is modular and consists of a series of Less (Sass version 4 and onward) stylesheets that implement the various components of the toolkit. These stylesheets are

generally compiled into a bundle and included in web pages, but individual componentscan be included or removed. Bootstrap provides a number of configuration variables that control things such as color and padding of various components. Since Bootstrap 2, the

Bootstrap documentation has included a customization wizard which generates a customized version of Bootstrap based on the requested components and various settings.

As of Bootstrap 4, Sassis used instead of Less for the stylesheets. Each Bootstrap component consists of an HTML structure, CSS declarations, and in some cases accompanying JavaScript code. Grid system and responsive design comes standard with an1170-pixel-wide grid layout. Alternatively, the developer can use a variable-width layout. For both cases, the toolkit has four variations to make use of different resolutions and typesof devices: mobile phones, portrait and landscape, tablets and PCs with low and high resolution. Each variation adjusts the width of the columns.

BACKEND:

My SQL

MySQL is an open source relational database and it includes advanceddata types. MySQL operates using client/server architecture in which the server runs on the machine containing the database and client connect to the server over the network. MySQL run on all platforms supported by MySQL and provides the most direct means of interacting with the server, so it's the logical client to begin with.

- You need to have the MySQL software installed.
- You need a MySQL account so that you can connect to the server.
- You need a database to work with.

The required software includes the MySQL clients and a MySQL clients anda MySQL server. The client program must be located on the machine where you will work. The server can be located on our machine although that is not required.

As long as you have permission to connect to it the server can be located anywhere. In addition to the MySQL software you will need a MySQL account so that the server will allow you to connect and create us sample database and its table.

Microsoft SQL Server 2008 is a full-featured relational database management system (RDBMS) that offers a variety of administrative tools to ease the burdens of database development, maintenance and administration. In this article, we'll cover six of the more frequently used tool: Enterprise Manager, Query analyzer, SQL Profiler, Service Manager, Data Transformation Services andBooks Online. Let's take a brief look at each:

Enterprise Manager is the main administrative console for SQL Server installations. It provides you with a graphical "birds-eye" view of all of the SQL Server installation on your network. You can perform high-level administrative functions that affect one or more servers, schedule common maintenance tasks or create and modify the structure of individual databases.

Query Analyzeroffers a quick method for performing queries against any of your SQL Server databases. It's a great way to quickly pull information out of a database in response to a user request, test queries before implementing them in other applications, create/modify stored procedures and execute administrativetasks.

SQL Profiler provides a window into the inner workings of your database. You can monitor many different event types and observe database performance in real time. SQL Profiler allows you to capture and replay system "traces" that log various activities. It's a great tool for optimizing databases with performanceissues or troubleshooting particular problems.

Service Manager is used to control the MS SQL Server (the main SQL Server process), MSDTC (Microsoft Distributed Transaction Coordinator) and SQLSeverAgent processes. An icon for this service Manager to start, stop or pause any one of these services.

Data Transformation Services (DTS) provide an extremely flexible method for importing and exporting data between a Microsoft SQL Server installation and a large variety of other formats. The most commonly used DTS application is the "Import and Export Data" wizard found in the SQL Server program group.

SYSTEM DESIGN

System design is the process of developing specifications for a candidate system that meet the criteria established in the system analysis. Major step in system design is thepreparation of the input forms and the output reports in a form applicable to the user.

The main objective of the system design is to use the package easily by any computer operator. System Design is the creative act of invention, developing new inputs, a database, offline files, method, procedures and output for processing business to meet an organization objective. System design builds information gathered during the system analysis.

The system design is the most creative and challenging phase. The first step is to determine how the output is produced and in what format. Samples of input and output are presented. Next the input data and the master data are to be designed to meet the requirements of the proposed output. The operational phases are handled through program construction testing, including a list of programs needed to meet the system objective and completedocumentation

INPUTDESIGN

Input design is the process of converting the user originated inputs to a computer format. The input design involves determining what the inputs are, how the data should be performed, how to validate data, how to minimize data entry and how to provide a multiuser facility. The design for handling input specifies how data are accepted for computer processing. Input design is a part of overall system design that needs careful attention and if includes specifying the means by which actions are taken.

A system user interacting through a system must be able to tell the system whether to accept input produce a report or end processing. The collection of input data is considered tobe the most expensive part of the system design. Since the inputs have to be planned in such a manner so as to get the relevant information extreme care is taken to obtain the information. If the data going into the system is incorrect then processing and outputs will magnify this error. All input data are validated in the order and if any data violates any conditions, the user is warned by a message. If the data satisfies all the conditions, then it is transferred to the appropriate tables in the database.

We have to keep in mind the following things to design the system

- What data to input
- What medium to use?
- The dialogue to guide users in providing input.
- Methods for performing input validation and steps to follow when errors occur Input requirement gathering was one of the major trivial process in web or android application development. The project involves text inputs. The inputs can be entered through keyboard and mouse. The text input is gathered by forms with text boxes.

OUTPUTDESIGN

Effective output design will improve the clarity and performance of output. Output design phase of the system is concerned with the convergence of information's to the end user friendly manner. The output design should be Effective output design will improve the clarity and performance of output. Output design phase of the system is concerned with the convergence of

information's to the end user friendly manner. The output design should be efficient, intelligible so that system relationship with the end user is improved and thereby enhancing the process of decision making.

They are also used to provide a permanent copy of these results of processing to the users. They are also used to provide a permanent copy of these results for late consultation. There are various types of output required by most systems, the main onesare:

- External outputs, whose destination is outside the organization and which require special attention because they project the image of the organization.
- Internal outputs, whose destination is within the organization and which require careful design because they are the user's main interface with the computer.
- Operational outputs, whose use is purely within the computer department.
- Turn around outputs, to which the data will be added before they are returned to the computer for further processing.

SYSTEM IMPLEMENTATION

The implementation includes all those activities that take place to convert from the old systemto new. The old system consists of no filtering the contents searched by the user, which is operated in a push model manner from the proposed new system. A proper implementation is essential to provide a reliable system to meet the requirements of the customers. An improper implementation may affect the success of the application

There are several methods for handling the implementation and the consequent conversion from the old applications to the new application developed in this project.

The most secure methods for compare the old system and the new system is to run the old and new system in parallel. In this approach, a person may operate the old existing application and the new application. This method offers high reliability and security.

A working version of the system can is implemented in the website application. The website is managed by the admin, Doctor user and the user.

The implementation plan includes host the website and the application put it into its operation. The implementation plan consists of the following steps:

- List all files required for implementation.
- Host the website and put it into its operation.

The implementation plan should anticipate possible problems and must be able to deal

with them. The usual problems may be missing documents; mixed data formats between current files and errors in data translation, missing data etc.

CONCLUSION

Now a days, shopping has becoming a daily activity in today's world. We can see large queues in many shopping malls waiting for billing. The objective of our project is toovercome the problem of standing in queue and wasting time. To overcome the above problem, we are proposing a smart trolley billing system that will audit the purchased products and the payment is made online automatically using the RFID tag. It will automatically identify and scan the product,and the final billing is made from the cart itself .Sothat customers are free from waiting in a long queue at checkout. It also providesthe centralized and automated billing system using RFID.The primary goal is to provide atechnology oriented, time saving and commercial oriented system for enhanced shopping experience.

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EMOTION RECOGNITION FORAUTISTIC CHILDREN

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ABSTRACT

Assistive technology has proven to be one of the most significant inventions to aid people with Autism to improve the quality of their lives. In this study, a real-time emotion recognition system for autistic children has been developed. Emotion recognition is implemented by executing three stages: Face identification, Facial Feature extraction, and feature classification. The objective is to frame a system that includes all three stages of emotion recognition activity that executes expeditiously in real time. Thus, Affectiva SDK is implemented in the application. The propound system detects at most 7 facial emotions: anger, disgust, fear, joy, sadness, contempt, and surprise. The purpose for performing this study is to teach emotions to individuals suffering from autism, as they lack the ability to respond appropriately to others emotions. The proposed application was tested with a group of typical children aged 6–14 years, and positive outcomes were achieved.

Keywords: Autism, Emotion recognition, assistive, facial

INTRODUCTION

Autism spectrum disorder is a neurological disorder that affects communication and behavioural skills. Itwas initially discovered by Kanner in 1943 , nevertheless current understanding of ASD has advanced immensely in terms of diagnosis and treatment. Autism can manifest at any age; however, it is known asa developmental syndrome, with the first indications manifesting in early years of a child's life. According to DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) , a person with autism lacks efficiency in behavioural, social and communication

Therefore, difficulty in effective communication, emotion recognition and social

interaction are generally considered as a significant trait of individuals with ASD. All individuals with ASD experience difficulty in one of the above-mentioned social aspects, regardless of their intellectual abilities or the severity of disorder.

The ability to understand other people's emotions and reciprocate them is defined as empathy. While sympathy is the ability to share similar feelings as another person. People with ASD may not possess the capacity for either sympathy or empathy . They may show signs of joy when someone is hurt, or they respond with no emotions whatsoever. Thus, the inability to respond appropriately to others' emotions may create appearances that autistic people don't feel emotions. However, numerous studies have examined whether autistic people can truly show emotions to others or not. Understanding and interpreting other people's impressions by noticing body language, voice, facial expressions carefully is a

prerequisite to show empathy. While children learn to recognize facial expressions required to show empathy by observing and mimicking people around them, people with ASD don't have adequate social skills related to interpretation of body language and reciprocating emotions. Most social skills required to interact with others are severely compromised in people with ASD.

There is a distinct social and emotional paucity related to ASD that generally consists of impairments in socialemotive understanding, social semiotics and cognition. Generally, a person with autism is incapable of sympathizing with another person's emotions and mental state by observing facial expressions or voice intonation. Also, they may experience difficulty in anticipating other people's behaviour by interpreting their mental state. Likewise, social semiotics that refers to an individual's ability to react appropriately in a peculiar social circumstance can be challenging for a person with ASD, which may in turn lead to difficulty in maintaining positive peer relationships. The social and emotional paucity can impact the quality of life for person with ASD in diverse forms like social rejection and exclusion. It may also affect the scholastic and professional incompetence along with intellectual health issues . Emotion recognition research is extensively based on facial expressions. The ability required to detect emotions and differentiate among other facial expressions usually develops from birth . Children with ASD often exhibit no interest to facial expressions . Additionally, children with autism interpret facial expressions in an erratic manner , thus it can be deduced that they lack skills in recognizing emotions. Interpreting emotions generally entail multiple sensorial processing . Emotion can be understanding from facial, body and speech metrics as well. The potential to detect emotions requires the propensity to

split scrutiny and concentrate observance on pertinent facial information, such type of processing is mostly subliminal. People with ASD and High-functioning Autism (HFA), are identified by disability in social and behavioral skills and possess inadequate understanding of interpreting emotions of the other person.

Role of Assistive Technologies for People with ASD

Assistive technology is any equipment or device that allows people with ASD to perform activities that would not have been possible otherwise. Such technological support tools help people with disabilitiesto perform daily life activities. Recently, there has been an surge in development of technology that aids people with autism. Such technology varies from low-level to potent and evolving technologies . The main objective of assistive technology is to aid people with special needs. The use of technology for such people would contribute to the potential adoption of assistive technologies in specially designed centresor schools aiding such individuals. Combined effort between such centres, schools and government might lead to creating technology-based therapeutic rooms. The majority of researchers agree that it is essential to systematically select the appropriate assistive technology for individuals with autism depending on the severity of the disorder . Thus, not all assistive technology is suitable for every individual. Each person with ASD has their own unique set of traits. Therefore, it is apparent that a common set of assistive technology does not exist. Only experts are capable of identifying the distinctions and satisfy the requirement for appropriate assistance

Assistive technology varies from basic techniques to an advanced computing technologies . It can be classified into three main categories: basic assistive technology, where pictorial cards are used for communication between the child and the instructor, medium assistive technology refers to graphical representation systems, while advanced technology encompasses human-computer interaction applications like robots and gadgets.

Since the purpose of assistive technology is to reduce the functional restrictions of an individual with autism, various technologies fall under the definition of assistive technology. One of them is adaptable toys that allow a child to experience and control their surroundings despite.significant physical limitations . Another technological application that is used to improve communication of people with ASD is Augmented

and Alternative Communication (AAC), which consists of a plan of actions that could help a non-verbal person to interact with others . Also, use of computer-based adaptive learning can altogether enhance the methods to make such special people learn to improve their life. People with disability can familiarize themselves with computers via a distinct medium that allows for auxiliary input and output control. This medium can be hardware, software or an integration of both. Some of the advanced technological computing devices that have evolved fall within the category of dynamic assistive technology that includes control apparatus, touch screens, augmented and virtual reality applications. These technologies can be utilized both for analysis and for therapy. People with ASD have shown more interest in pictures and graphics . Pictorial cards have proved to be an effective way to make them learn how to perform daily tasks and they tend to be efficient visual learners.

People with disabilities have problems with decision making, judgements, learning and a lack ability to remember . Nevertheless, assistive technology focuses on improving social and behavioural skills. It has been anticipated by several studies that autistic children are puzzled whenever a daily routine task sequence is required. To overcome this problem, picture cards are used to make them learn about task schedules. Some studies have demonstrated that autistic children have a potential to understand graphical representation better than vocal representation . Several research works have demonstrated that interactive computer games have a positive impact on improving social and behavioural skills of

autistic persons . In study , authors presented a collaborating gaming application to develop communication skills of autistic children. In this gaming application, an autistic child was asked to say the name of objects in the images shown on the screen. Results were measured on the basis of whether or not the word was named correctly by the child. However, one of the drawbacks of this study was that the child was not trained properly before using the proposed application. Another study also proposed an interactive computive application for individuals with Asperger's syndrome. Asperger's syndrome is an intellectual disorder and it is a type of Autism Spectrum Disorder (ASD). Individuals with Asperger's might be entirely speechless, some might have difficulties speaking, or lack the ability to formulate sentences. The authors have illustrated a web-based application to improve social and communicative skills of such individuals. In anothestudy , the authors proposed an application that incorporates games to enhance the learning ability of special needs children. Similarly, the authors

in study , presented an exceptional concept that will educate and help autistic children to learn about the notion of money in our society, thus improving the social skills.

Emotion Recognition techniques

A facial detection system that does not only identify faces in an image, but also calculates the type of emotions from facial features, has been long studied by researchers and technology experts. One of the first studies regarding automatic facial detection was documented in 1960 by Bledsoe for the US Department of Defence. Since then, software was built specially for the Department of Defence, however, little detail is available to the public about the product. In early 1960s, Bledsoe explained a number issues encountered by modern facial recognition systems. His concepts and techniques were later on utilized by Bell laboratories. The foremost fully functional automatic facial recognition system was accomplished by Kanade . This system was capable of measuring sixteen distinct facial features by distinguishing between the features extracted from a computer with those extracted by humans. However, the accuracy percentage for this algorithm ranged from 45 to 75% only.

A number of studies illustrated the that computer assistive learning technology acts as an efficient therapeutical tool for autistic persons, being progressively used more. One of the studies , depicts how visual presentation can aid autistic children learn about emotions. They created a number of videos and games to teach the child about different kinds of emotions and analyse their progress. Another research paper proposed a web application that provides such special children with a platform to interact by using a simulated model. Further, a project named “AURORA” incorporated the use of a robot and enabled interaction between the child and the robot, thus providing a human-computer interaction interface .Another study encourages human-computer interaction presenting a number of short videos of distinct kinds of emotions, to teach emotions to special needs children. The authors of explore different prospects of using robots as therapeutic tools.

Despite the numerous studies related to teaching emotions to autistic children, various challenges persist. It is quite difficult for an autistic person to interpret emotions from facial expressions. A study demonstrated an application providing an emotional hearing aid to special needs individual. One of the techniques used for recognizing facial expressions is the facial action coding system (FACS), proposed by Ekman and Friesian

in .The facial action coding system illustrates different types of facial expressions depending upon the facial muscular activity. This system permits the measurement and recording of facial expressions in a quantifiable manner. With the progress in developing real time machine learning algorithms, there has been substantial development of facial recognition systems. The paper provides comprehensive literature of present methods and applications of automatic facial recognition systems. The literature illustrates that the majority of the current systems recognize either the six basic facial expressions or different types of facial expressions.

The methods of recognizing emotions through both facial and verbal expressions is defined as emotion recognition. Emotional intelligence plays a vital role in identifying emotions. Understanding emotions involves biologic and physical processes, and refers to the potential of distinguishing the emotions of others [32]. An individual can accurately predict emotions by observing facial expressions and somatic changes by transforming these noted changes to their physiological presentation. According to Darwin's study, it is presumed that the process of identifying emotions involves multiple models of behaviour, thus providing a detailed classification of 40 states of emotions . However, the majority of studies related to stratification of facial attributes refers to the classification of six basic emotions presented by Ekman . The six basic emotions are: happiness, sadness, surprise, fear, disgust, and anger. Yet sometime later neutral expression was also appended with six other basic emotions. The significant benefit of implementing this model is that these sets of emotions are easy to identify.

Numerous computer-based methods have been designed to interpret human's sentiments and human feelings more accurately to enhance user experience . They predominantly rely on cameras or webcams to predict significant human facial expression. An individual can frequently infer the emotions of another individual facing the camera or webcam with moderate accuracy. Meanwhile, various research studies in machine learning and image processing show that human sentiments can be identified conspicuously by means of facial features and eye gaze behaviours.

The Facial Action Coding System (FACS) can be defined as a system to classify facial impression via the affectation on the face. It was first proposed by Ekman andFriesen in 1978, later it was updated by Hager in 2002. Variations in facial muscles, even from modest distinct changes in facial movement are computed with the help of FACS. The concept of FACS is significantly used to systematize an individual's emotions, and it has proved to be effective for therapists. FACS has been shown to be an autonomous

computing structure used to recognize faces in video streams, where the geometrical feature extraction of faces is performed followed by production of a time-based outline of facial activities called Action Units (AUs).

In FACS, every noticeable change in facial expressions is outlined through Action Units (AUs), generally defined by coders. Coders demonstrate which Action Unit is used to generate changes in facial movements; this attribute makes the concept of FACS coding entirely empirical. Also, scoring it is essential to involve frame-by-frame inspection to detect the AUs that appear frequently in real-time video streaming. In FACS, facial activities can be computed but sometimes it is not easy to categorize emotions into one of the basic six emotions, like distinguishing between genuine and fake smiles, and depression-like emotions. FACS includes code for 27 facial Action Units, 25 head and eye, and 28 auxiliary Action Units for heterogenous movements. The Action Units related to face are separated into lower and upper facial appearance. Upper facial expression includes Action Unit 1 and 2 for inner and outer brow raiser, Action Unit 4 for brow lowering and Action Unit 5 and 6 for eyelid and cheek raiser. However, lower facial expressions are quite convoluted including erect, straight, skewed and orbital Action Units. The majority of facial movements consist of a combination of upper and lower Action Units.

Proposed Assistive Tool

From a historical perspective, we can postulate that there exist several techniques for recognizing facial emotions. Corresponding systems for detecting and recognizing facial expressions autonomously include some difficulties like detecting face, facial feature extraction, and meticulous classification of emotions. There is a significant component of each of these systems whose aim is to analyse the facial expressions: facial recognition; facial feature extraction; the classification of facial features. The purpose of our application is to develop and execute real time emotion recognition by using camera, such that the application offers potential to measure the data cumulatively. Such a system would aid individuals with ASD in learning about emotions. In the near future, such applications could be incorporated in the learning environment, to address the difficulties faced by special needs children in recognizing other people's emotions. Our proposed solution can be implemented and used to deduce the degree of success in detecting emotions from face .

The question that needs to be answered is whether it is possible to recognize emotions, regardless of conditions such as distance from the face, lights affecting the background,

frequent movement of face, or any other deviations. The hypothesis can be framed as: The potential of our proposed system to recognize emotions does not depend upon the distance from the face, lighting conditions and recurrent facial motions. The concept of analysing emotion phases via facial expressions shares similarities with the concept used in face detection. The complete evaluation states can basically be broken into three successive stages. These are: detecting face in a video frame with complex background, including its standardization; extracting relevant facial features to define emotion by implementing a preferred classifier. The selection of an appropriate classifier is inevitably determined based on the method used and on the basis of required results. So, in this application we did not implement a conventional approach for recognition, extraction and classification stages while designing, rather we implemented the substantiate available open source Libraries, APIs and SDKs, as well as Affectiva SDK. The major benefit of implementing such services is that there is no need to handle training datasets eventually at the last stage of the emotion recognition procedure. The algorithm of the proposed AutisMitr is shown below:

Step 1: Capture Video from the camera, ϑT

Step 2: Extract Frames from the video ϑT ϵ {φ1, φ2, φ3, . . . φn}

Where ϑT = Video Sequence recorded at T th Second. φn = n th frame of video sequence. n =frame rate.

Step 3: Extract facial features from frame φn, namely the Action Units like eyebrow raiser, lipopening, closing, eyes opening, closing, and cheek movement and so on.

Step 4: Compute action units AU1, AU2, ... , AUn.

Step 5: Use Facial Action Coding System (FACS) to label AUs.

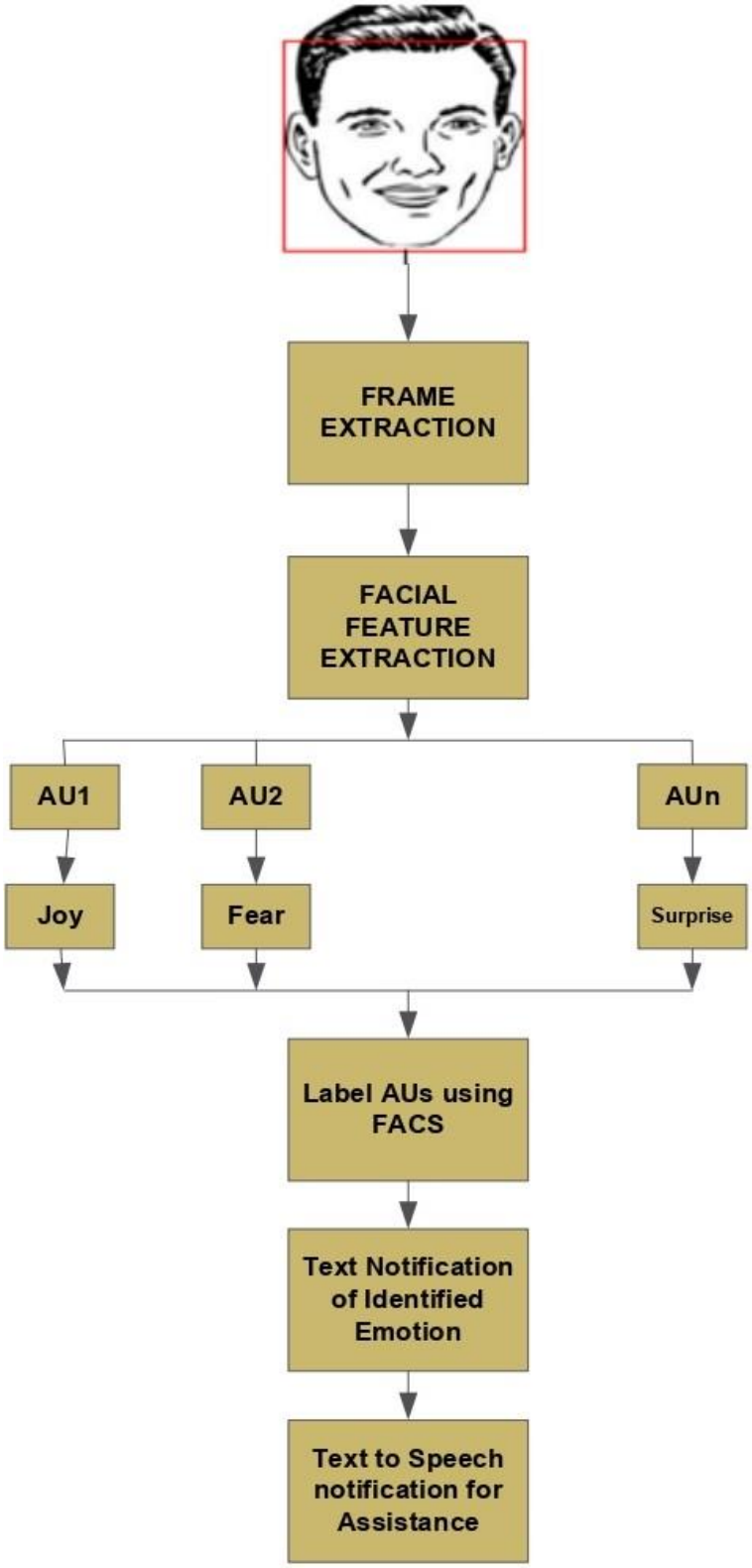
Step 6: Generate text notification like joy, anger, surprise, fear, disgust, and contempt forautistic children.

Step 7: Text to Speech conversion to assist autistic children

METHODOLOGY

In this study, an emotion recognition system was developed that renders real-time facial expressions and automatically recognizes the facial expressions captured by camera. Figure 1 presents a proposed methodology of our emotion recognition system. The

video stream is captured by camera. Once the video stream is input to the SDK, it is followed by the process of frame extraction. The Affectiva SDK supports various platforms such as Android (Java), iOS, C++, Linux, C#, JavaScript. This available SDK functions on the idea of expanded facial impression prototype at subsequent levels: detecting relevant facial features, feature extraction, feature classification, and implementing emotion facial action coding system. Facial recognition and extraction of relevant attributes is processed by implementing the Viola- Jones recognition algorithm.The Viola-Jones algorithm provides a framework for detecting objects or faces in real time. This particular algorithm was introduced to resolve the problem of face detection in images. It is implemented in our application because of its significant features such as: it is quite resilientas it has a high rate of detection; it can be used for real time detection; and it is implemented only for facial recognition and detection. The algorithm has four distinct phases, they are: Haar Feature selection, producing image representation named as integral image, adaboost training and cascading classifiers. One of the significant contributions of this study is introducing the ViolaJones algorithm to implement a group of features for image recognition. These features are a group of pixel values altogether inputted to the algorithm.



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Once the recognition is performed, it is followed by a process of landmark detection. Landmark detection is employed to every rectangle surrounding the face by almost 34 identified blocks. If the measure of detection is lower than the threshold, then the particular division is excluded. All the derived facial specks are presented by this SDK. Facial activities are detected by using Histogram of Oriented Gradient (HOG), which is widely used for object detection. It depends upon the object attributes enclosed in an image to get the classification of edge directions. Support Vector Machine algorithm (SVM), is used to produce score ranging from 0-100 for every facial activity. In this SDK, the SVM is trained on almost 10,000 physically coded images gathered from around the world. Emotional expressions produced in result like joy, sadness, anger, fear, surprise, and disgust depend on the combination of facial activities. These emotional expressions are measured on a scale from 0 (i.e., the emotion is absent) to a score of 100 (i.e. emotions are present). A huge amount of data is required for the process of classifying emotional expressions. However, for data accumulation in Affectiva SDK, participants were made to watch one of the three advertisements, while using a webcam. The database includes: All the FACS action units; head motions; facial feature extraction; and placing autonomously identified landmarks. All the information is accessible to researchers via web.

Hardware Environment

The selection of hardware is very important in the existence and proper working ofany software. Then selection hardware, the size and capacity requirements are also important.

- Input device : Mouse, Keyboard
- Output device : Monitor
- Memory : 4 GB RAM(minimum)
- Processor : Pentium IV processor &above

Software Environment

For the proposed system to work properly, it is necessary that following software are installed and running on the server / client. One of the most difficult task is selecting softwarefor the system, once the system requirements is found out then we have to determine whether a particular software package fitsfor those system requirements. The application requirement:

Operating System:Windows7/8 & above

Front End: Android,PythonBack End: MySQL

IDE: Android Studio ,JetBrains PycharmSoftwares used:SQLyog

Web browser:Internet Explorer/Google Chrome/Firefox (for webapplication)

Coding: PYTHON, ANDROID

APP FEATURES

In this publication, we have proposed an emotion recognition system for autistic children. Features of the developed application are further explicated. As, mentioned previously, Affectiva SDK is implemented in the proposed application. Affectiva is an organization, whose goal is to enable computers to learn and understand human emotions. This solution is primarily implemented in the marketing field, developed on the basis of observations made by exposing people to video advertisements and assessing their reactions to a similar advertisement in distinct statistical surroundings. Additionally, Affectiva developed a sensor that can recognize emotions depending on the reactions in the skin. Initially, Affectiva distributed its SDK in 2015.

The latest version of SDK is 4.0.0 for Windows operating system, released in October 2017. The SDK's main objective is to recognize facial expressions and classify the corresponding emotions. Our application interface is quite straightforward; it is adequate for recognizing emotions of an individual. The application's main characteristics are:

- The application can detect emotions in normal light radiance, from a distance of approximately 7meters from the device to the smallest possible distance of 15 cm.

- All the directions to modify the state of the application are present on the front screen. However, ittakes around 10 to 15 seconds to recognize and notify emotion.

- Additionally, "Start SDK" and "Stop SDK" toggle buttons are used to initiate and close SDK,respectively.

- Similarly, "Start Camera" and "Stop Camera" toggle buttons are used to initiate and turn off thecamera, respectively.

• Further, “Front” and “Back” toggle buttons signify the use of front camera or back camera as per the requirements of a testing environment.

• Since our application detects the emotions in real time, there is no need to record the video stream. In this study, the basic emotions we focused on were: Anger; Disgust; Fear; Joy; Sadness and Contempt. Affectiv SDK also provides indexing of facial expressions, however, the measuring score for expressions is disabled, i.e. the expressions are classified as “NaN”, meaning it is not considered for scoring.

CONCLUSION

The application presented here will be beneficial for individuals suffering from ASD by allowing them to learn and recognize emotions of others, as they are unable to understand their emotions on their own. The key attribute that makes this application unique is that the emotions are recognized and then communicated by speech. Thepurpose of performing this study was to teach children and individuals suffering from ASD about emotions, so that they can express their emotions to others and at the same time they can interpret the emotions of others. Since children with ASD lack social, communication and behavioural skills and they are not comfortable with unfamiliar environments and people, this application will be helpful to such children, as they are more inclined to use gadgets and digital devices. This application detects and recognizes emotion even if the face is slightly tilted. If the face of an individual is rotated less than 15 degrees, the emotion is recognized, whereas if the head or face of an individual is rotated above 15 degrees, then detection is not successful.

There are numerous emotion recognition systems available. What makes our system unique is that it was developed to help autistic children to learn about empathy. While testing our application with a group of children, the focus was not only on the successful outcome, rather it was on whether the application can recognize emotions in the image regardless of differing lighting conditions or the distance from the face. Simultaneously, it wasalso observed that the software is capable of not only recognizing emotions but also measuring the score of the recognized emotions. Therefore, the potential of our application to recognize emotions and measure the score of recognized emotions is entirely independent of the distance, light conditions and facial image. Also, it was observed that the score of facial emotion recognition was strongly influenced by the rotation and movement of the subject’s head and face. It was observed that the smallest distance for face

detection is 20 cm and the largest is approximately 7.5 meters. Thus, it was not necessary to statistically verify the outcomes of the test experiments, because the software either recognizes or doesn't recognize the emotions from a face. Moreover, the percentage of successful classifications of facial emotions is not evaluated, rather the comprehensive average percentage of successful detectionand recognition of facial emotions is measured by implementing Affective SDK, which is 85.97%.Nonetheless, if the face does not rotate above a 15-degree angle, 100% value is attained.

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LIBRARY MANAGEMENT SYSTEM

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ABSTRACT

This Library Management System can be used to maintain records of user details like registering books, checking balance penalty amount etc. This system not only works from admin side but also from user side. User can also check his/her own details and get the notification for balance amount of penalty, books returning date, can also check available books. This application also works by SMS. Users can directly send SMS to a particular phone no. with some predefined text and value. And he/she will get reply via SMS. He will be getting all kind of information via SMS, if someone wants the information only through SMS then the application is not required to be installed. In this application there are five modules namely, Admin, User, Counter staff, library staff and SMS User. Admin can register user details and provide him/her a login id and password, can also manage user search and renew activities, he/she can add books as well and can view the due dates and penalty amount. Users get login id and password, he/she can view his personal details, check for desire books and get update of due dates, issue date of books and penalty amount to be paid. Through SMS user can send text message on dedicated number and he/she can get information about books via SMS.

1. INTRODUCTION

A library management system is software that is designed to manage all the functions of a library. It helps librarian to maintain the database of new books and the books that are borrowed by members along with their due dates.

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This system completely automates all your library's activities. The best way to maintain, organize, and handle countless books systematically is to implement a library management system software.

A library management system is used to maintain library records. It tracks the records of the number of books in the library, how many books are issued, or how many books have been returned or renewed or late fine charges, etc.

You can find books in an instant, issue/reissue books quickly, and manage all the data efficiently and orderly using this system. The purpose of a library management system is to provide instant and accurate data regarding any type of book, thereby saving a lot of time and effort.

Through SMS user can send text message on dedicated number and he/she can get information about books via SMS.

2. SYSTEM STUDY AND ANALYSIS

2.1. Preliminary Investigation

System study is done in order to understand the problem and emphasize what is needed from system. The information requirements of the user for their competitive world requires such system. The various techniques used in this phase are Observations, Interviews and Discussions. A complete understanding of software requirements is essential to the success of a software development effort. System Analysis refers to an orderly structured process for identifying and solving problems using computer.

It is the most essential part of the project development. It is the process of the gathering and interpreting facts, diagnosing problems and using the information to recommend improvements to the system. Training, experience and common sense are required for the collection of the information needed to do the analysis.

2.2. Existing System

- Early days Libraries are managed manually. It required lot of time to record or to retrieve the details. The employees who have to record the details must perform their job very carefully. Even a small mistake would create a lot of problems. Security of information is very less. Report generations of all the information is very tough task.

- Maintenance of Library catalogue and arrangement of the books to the catalogue is very complex task. In addition to its maintenance of member details, issue dates and return dates etc. manually is a complex task.
- All the operations must be performed in perfect manner for the maintenance of the library with out any degradation which may finally result in the failure of the entire system.

2.3. Proposed System

- The main purpose of this online Library Management System is to provide the students an easy atmosphere to use the library facilities.
- This is helpful for users to register from anywhere since we provide an android application for the students.
- The main advantage of this system is users can check the availability of books and request them without visiting the library.
- Since there is an SMS auto reply, users don't need an active internet connection.

2.4. Feasibility Study

A feasibility study is a preliminary study undertaken to determine and document a project's viability. The results of this study are used to make a decision whether to proceed with the project. If it indeed leads to a project being approved, it will, before the real work of the proposed project starts, be used to ascertain the likelihood of the project's success. It is an analysis of possible alternative solutions to a problem and a recommendation on the best alternative. It, for example, can decide whether an order processing be carried out by a new system more efficiently than the previous one. The feasibility study proposes one or more conceptual solutions to the problem set for the project. The conceptual solution gives an idea of what the new system will look like. They define what will be done on the computer and what will remain manual. It also indicates what input will be needed by the system and what outputs will be produced. These solutions should be proven feasible and a preferred solution is accepted.

The feasibility study environment enables all alternatives to be discussed and evaluated. This phase starts with an identification of the main characteristics of the required system. During this stage it is important to collect information as much as possible about the software package that might meet the specification from as many sources as possible.

Normally, the central endeavor of a feasibility study is a cost benefit analysis of various alternatives. It can be defined as a systematic comparison between the cost of carrying out a service or activity and the value of that service or activity. The main benefits are qualitative than quantitative.

Technical Feasibility

This involves questions such as whether the technology needed for the system exists, how difficult it will be to build, and whether the firm has enough experience using that technology. The assessment is based on an outline design of system requirements in terms of Input, Output, Fields, Programs, and Procedures. This can be qualified in terms of volumes of data, trends, frequency of updating etc. in order to give an introduction to the technical system.

The system needs normal configurations of a computer system that are commonly available. The software requirements are Python and Android, Windows 8 or higher versions of OS. Thus, proposed system for our project work is technically feasible.

Operational Feasibility

This analysis involves how it will work when it is installed and the assessment of political and managerial environment in which it is implemented. People are inherently resistant to the change and the computers have been known to facilitate change. The new proposed system is very much useful to the users and there for it will accept a broad audience.

The proposed system offers:

- Greater user friendliness
- Better output which can be easily interpreted.
- Higher speed
- Meets the requirements of the passengers.

Economic Feasibility

This involves questions such as whether the firm can afford to build the system, whether its benefits should substantially exceed its costs, and whether the project has higher priority and profits than other projects that might use the same resources. This study presents tangible and intangible benefits from the project by comparing the developments and operational costs. The technique of cost benefit analysis is often used as a basis for assessing economic feasibility. This

system needs some more initial investment than the existing system, but it can be justifiable that it will improve the quality of service.

Thus, feasibility study should center along the following points:

- Improvement resulting over the existing method in terms of accuracy and timeliness.
- Cost comparison.
- Estimate on the life expectancy of the hardware.
- Overall objective.

Behavioral Feasibility

It involves evaluating whether the project is acceptable and practical to stakeholders, and whether it can be implemented effectively in the context of the organization or community. The project must have the support of key stakeholders, including those who will be directly impacted by the project, as well as those who will be responsible for implementing it. This requires effective communication and engagement throughout the project development process. The project must be compatible with the culture and norms of the organization or community in which it will be implemented. This requires an understanding of the values, beliefs, and practices of the organization or community, and ensuring that the project aligns with these. It must be feasible given the resources available, including financial, human, and material resources. This requires a realistic assessment of the resources required and an understanding of the constraints that may impact the project. Legal and regulatory requirements: It must comply with legal and regulatory requirements, such as environmental regulations, health and safety standards, and labor laws. This requires an understanding of the relevant regulations and ensuring that the project is designed to meet these requirements.

Legal Feasibility

Determines, whether the proposed system conflicts with legal requirements. E.g. a data processing system must comply with the local Data Protection Acts.

Schedule Feasibility

A project will fail if it takes too long to be completed before it is useful. Typically this means estimating how long the system will take to develop, and if it can be completed in a given time period using some methods like payback period. Schedule feasibility is a measure of how

reasonable the project timetable is given our technical expertise and are the project deadlines reasonable? Some projects are initiated with specific deadlines. We need to determine whether the deadlines are mandatory or desirable.

2.5. Project Planning and Scheduling

For the successful completion of every project there must have a detailed scheduling. The software development has different participating steps. First of all, we have done the requirement analysis phase. For this, we visited different sites which helped us to continue our project, visited different business websites and we discussed with my friends and project guide.

After collecting the requirements, a detailed study of preliminary investigation has done.

3. SYSTEM REQUIREMENT SPECIFICATION

3.1. Introduction

A software requirements specification (SRS) is a description of a software system to be developed, laying out functional and non-functional requirements. (Non-functional requirements impose constraints on the design or implementation such as performance engineering requirements, quality standards, or design constraints.) The specification may include a set of use cases that describe interactions the users will have with the software. The software requirements specification document enlists enough and necessary requirements that are required for the project development. To derive the requirements, we need to have clear and thorough understanding of the products to be developed or being developed. This is achieved and refined with detailed and continuous communications with the project team and customer till the completion of the software.

3.2. Purpose

The purpose of this project is to develop an application that will automate the whole procedure of a library. The software that would be developed should have facilities like Add / Delete Members, Add / Delete Books, Issue & Return. The application should be secured, as well as with limited access. The main requirement of the project will be the ease of use, besides being the most efficient and effective tool for the purpose. The application should be user friendly. It should be robust and scalable. An automated solution would be very beneficial to the organization, as it would bring structure to the whole process so that it can be traced for any kind of query. Also, an automated solution will lead to optimal utilization of the available resources,

reducing duplication of effort, increasing efficiency and minimizing time-delays. Following are the main purpose of computerization:

- To provide services to the staffs of library for issue, return & search etc. at one place.
- To improve co-ordination in staff.
- To reduce paper filling work.
- To reduce risk of fraud.
- To reduce chances of information leaking.

3.3. Scope

There is a future scope of this facility that many more features such as online lectures video tutorials can be added by teachers as well as online assignments submission facility , a feature Of group chat where students can discuss various issues of engineering can be added to this project thus making it more interactive more user friendly and project which fulfills each users need in the best way possible.

3.4. System Requirements

Hardware Specification

The selection of hardware is very important in the existence and proper working of any of the software. When selecting hardware, the size and capacity requirements are also important. The hardware must suit all application developments.

- Processor : i3 orabove.
- System Bus : 32Bit or 64Bit
- RAM : 2 GB orAbove
- HDD : 1 TB orAbove
- Monitor : 14” LCD or Above
- Key Board : Any type of keyboard
- Mouse : Any Type of mouse

- Mobile : Android supported mobile phone

Software Specification

One of the most difficult tasks is selecting software, once the system requirement is find out then we have to determine whether a particular software package fits for those system requirements. This section summarizes the application requirement.

- OS : Windows 10 And 32 bit or 64 bit platform
- Front End : Android, Python
- Back End : MySQL Server
- IDE : Eclipse or Android studio

  Python 3.6 or above, PyCharm

4. SYSTEM DESIGN

The most creative and challenging phase of the system life cycle is system design. The term design describes a final system and the process by which it is developed. It refers to the technical specification that will be applied in implementing the candidate system. It also include the construction of the program and the program testing. the key question involved here is “how the problem should be solved”.

System design is a solution for the question of how to the approach to the creation of a new system. This important phase is composed of several steps. It provides the understanding and procedural details necessary for implementing the system recommended feasible study. Emphasis is on translating the performance requirements into design specifications. Design goes through logical and physical system; prepare input and output specification; make credit, security and control specification; details the implementation plan; prepare a logical design walk. Physical design maps out the physical system, plans the system implements, devices a test and implementation plan and specifies any new hardware and software.

The first most is to determine how the output is to be produced and in what format. Samples of output and input are presented. Second, input data and master files have to be designed to meet the requirements of the proposed output. The operational phases are handled through program construction and testing, including a list of programs needed to meet the system’s objectives and complete documentation. Finally, details related to justification of the

system and estimate of the impact of the candidate system on the user and organization are documentation and evaluated by management as a step towards implementation. The final report prior to the implementation phases includes procedural flowcharts, record layouts and workable plan for implementing the candidate system.

4.1. Module Description

Admin

The admin can log in to the webapp using a unique username and a password. Admin can verify student request, send notification, manage counter staff, library staff and books. The admin can view book request, damage info, fine info. The admin is responsible to manage the whole library.

Library Staff

The Library Staff can log in to the webapp using a unique username and a password. Library Staff can manage shelf, report damage, verify book request, view category and books.

Counter Staff

The Counter Staff can log in to the webapp using a unique username and a password. Counter Staff can issue/return book, view student history, notification and fine info, view/add damage info.

User

User uses an android application. Users need to register one time with their username, and they can login with the username and password. User can view category and shelf, browse based on book name/author/publisher/language. User can view history, fine information and notification. She/he can change password.

SMS User

Users can directly send SMS to a dedicated phone number with text of some predefined text and value.

5. CODING AND IMPLEMENTATION

5.1. Coding Environment

Front End

An Integrated Development Environment (IDE) (also known as Integrated Design Environment or Integrated Debugging Environment) is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of:

- A source code editor
- A compiler and/or an interpreter
- Build automation tools
- A debugger

Pycharm

PyCharm is an integrated development environment (IDE) used in computer programming, specifically for the Python language. It is developed by the Czech company JetBrains. It provides code analysis, a graphical debugger, an integrated unit tester, integration with version control systems (VCSes), and supports web development with Django as well as Data Science with Anaconda.

PyCharm is cross-platform, with Windows, macOS and Linux versions. The Community Edition is released under the Apache License, and there is also Professional Edition with extra features – released under a proprietary license.

Features

- Coding assistance and analysis, with code completion, syntax and error highlighting, linter integration, and quick fixes
- Project and code navigation: specialized project views, file structure views and quick jumping between files, classes, methods and usages
- Python refactoring: includes rename, extract method, introduce variable, introduce constant, pull up, push down and others
- Support for web frameworks: Django, web2py and Flask [professional edition only]
- Integrated Python debugger
- Integrated unit testing, with line-by-line code coverage
- Google App Engine Python development [professional edition only]

- Version control integration: unified user interface

for Mercurial, Git, Subversion, Perforce and CVS with change lists and merge

- Support for scientific tools like matplotlib, numpy and scipy [professional edition only]

It competes mainly with a number of other Python-oriented IDEs, including Eclipse's PyDev, and the more broadly focused Komodo IDE.

Eclipse IDE

Google provides an integrated development environment (IDEs) to develop new applications. The Android Developer Tools (ADT) are based on the Eclipse IDE. ADT is a set of components (plug-ins), which extend the Eclipse IDE with Android development capabilities. Eclipse is an integrated development environment (IDE).it contains a base workspace and an extensible plug-in system for customizing the environment. It is written mostly in java. Eclipse can be used to develop applications. Eclipse sometimes performs multiple commands within a single connection to the server. This may cause problems with servers that are servers that are running server scripts in response to certain commands. Eclipse IDE contains all required functionality to create, compile, debug and deploy Android applications. This also allows the developer to create and start virtual Android devices for testing. Both tools provide specialized editors for Android specific files. Most of Android's configuration files are based on XML. In this case these editors allow you to switch between the XML representation of the file and a structured user interface for entering the data. Eclipse uses plug-ins to provide all the functionality within and on top of the runtime system.

The plug-in architecture supports writing any desired extension to the environment, such as for configuration management. Java and CVS support is provided in the Eclipse SDK, with support for other version control systems provided by third-party plug-ins. The Eclipse SDK includes the Eclipse Java development tools (JDT), offering an IDE with a built- in incremental Java compiler and a full model of the Java source files. This allows for advanced refactoring techniques and code analysis. The IDE also makes use of a workspace, in this case a set of metadata over a flat file space allowing external file modifications as long as the corresponding workspace "resource" is refreshed afterwards. Eclipse implements use the graphical control elements of the Java toolkit called SWT, whereas most Java applications use the Java standard Abstract Window Toolkit (AWT) or Swing. Eclipse's user interface also uses an intermediate graphical user interface layer called JFace, which simplifies the

construction of applications based on SWT. Eclipse was made to run on Wayland during a GSoC-Project in 2014.

Back End

Database Servers

A database server is used to store data in a database. Users can access the data and manipulate it. There are many types of databases. The most popular among them is the Relational Database Management System (RDBMS).

RDBMS

RDBMS is a type of database management system that stores data in the form of related tables. Relational database are powerful because they require few assumptions about how data is related or how it will be extracted from the database. As a result, the same database can be viewed in many different ways. An important feature of relational systems is that a single database can be spread across several tables. This differs from flat-file database, in which each database is self-contained in a single table.

MySQL

MySQL is an open source relational database and it includes advanced data types. MySQL operates using client/server architecture in which the server runs on the machine containing the database and client connect to the server over the network. MySQL run on all platforms supported by MySQL and provides the most direct means of interacting with the server, so it's the logical client to begin with.

- You need to have the MySQL software installed.
- You need a MySQL account so that you can connect to the server.
- You need a database to work with.

The required software includes the MySQL clients and a MySQL clients and a MySQL server. The client program must be located on the machine where you will working. The server can be located on our machine although that is not required. As long as you have permission to connect to it the server can be located anywhere. In addition to the MySQL software you will need a MySQL account so that the server will allow you to connect and create us sample database and its table.

Microsoft SQL Server 2008 is a full-featured relational database management system (RDBMS) that offers a variety of administrative tools to ease the burdens of database development, maintenance and administration. In this article, we'll cover six of the more frequently used tool: Enterprise Manager, Query analyzer, SQL Profiler, Service Manager, Data Transformation Services and Books Online. Let's take a brief look at each:

Enterprise Manager is the main administrative console for SQL Server installations. It provides you with a graphical "birds-eye" view of all of the SQL Server installation on your network. You can perform high-level administrative functions that affect one or more servers, schedule common maintenance tasks or create and modify the structure of individual databases.

Query Analyzer offers a quick method for performing queries against any of your SQL Server databases. It's a great way to quickly pull information out of a database in response to a user request, test queries before implementing them in other applications, create/modify stored procedures and execute administrative tasks.

SQL Profiler provides a window into the inner workings of your database. You can monitor many different event types and observe database performance in real time. SQL Profiler allows you to capture and replay system "traces" that log various activities. It's a great tool for optimizing databases with performance issues or troubleshooting particular problems.

Service Manager is used to control the MS SQL Server (the main SQL Server process), MSDTC (Microsoft Distributed Transaction Coordinator) and SQLServer– Agent processes. An icon for this service Manager to start, stop or pause any one of these services.

Data Transformation Services (DTS) provide an extremely flexible method for importing and exporting data between a Microsoft SQL Server installation and a large variety of other formats. The most commonly used DTS application is the "Import and Export Data" wizard found in the SQL Server program group.

Programming Languages

Python

Python is a widely used general-purpose, high level programming language. It was initially designed by Guido van Rossum in 1991 and developed by Python Software Foundation. It was mainly developed for emphasis on code readability, and its syntax allows programmers to express concepts in fewer lines of code.

Python is a programming language that lets you work quickly and integrate systems more efficiently.

There are two major Python versions- Python 2 and Python 3. Both are quite different.

HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a web server or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document

5.2. Implementation

Implementation of the system refers to the final installing of the package in its real environment , to the satisfaction of the indeed users and the operation of the system. It is the process of converting a new or revised system design to operation. It is the key stage in achieving successful new system. The process of putting the developed system in actual use is called system implementation. This includes all those activities that take place to convert from the old system to new system. It must therefore be carefully planned and controlled. Proper guidance should be imparted to the users so that he is comfortable in using the application.

Implementation Plan

The transformation from theoretical designs to working system is done in this stage. Developed package of system is tested with simple data, accurate error identification and then through proposed change from the user etc. a dress rehearsal working of system is done, so as the system is scrutinized, for pointing out errors and modifications required if any keeping in mind the expectations and specifications from the system.

Education And Training

The expectations from the system are achived by the people who will be involved to be confident of their role in the new system. The complexity of the system is directly proportional to the amount of training and education given for the user .Education is different from the training, as

the user through education can be a part of development of the system. Education has the capability to make training more interesting and important contributions in the system changes.

Training just means to give user specific skills in order to meet their new job requirements. The role of system analyst in training will make it more understandable and effective. Training provides a better overview of new system and its present objectives.

Training of the Application Software

Awareness about the new system is made to the users through training, and with the underlying philosophy of the system (screen design, flow, error types during inputs, validation checks etc.) application use the system, as the users of the system may be of at different levels of hierarchy.

Post Implementation Review

System performance v/s expected requirements are evaluated. The implementation problems if any is taken seriously and taken care of along with admiring the achievements, failures etc. The works done here are used to improve the efficiency and user friendliness of the system.

Security

System security is a branch of technology known as information security as applied to computers and networks. The objective of system security includes protection of information and property from theft, corruption, or natural disaster, while allowing the information and property to remain accessible and productive to its intended users. The term system security, means the collective processes and mechanisms by which sensitive and valuable information and services are protected from publication, tempering or collapse by unauthorized activities or untrustworthy individuals and unplanned events respectively. The technologies of system security are based on logic. As security is not necessarily the primary goal of most computer applications, designing a program with security in mind often imposes restrictions on that program's behavior.

Maintenance

Maintenance is making adaptation of the software for external changes (requirements changes or enhancements) and internal changes (fixing bugs). When changes are made during the maintenance phase all preceding steps of the model must be revisited.

There are three types of maintenance:

1. Corrective (Fixing bugs/errors)

2. Adaptive(Updates due to environment changes)

3. Perfective (Enhancements, requirements change

Maintenance is enigma of the system development. The definition of the software maintenance can be given describing four activities that are undertaken after the program is released for use.

The maintenance activity occurs since it is unreasonable to assume that software testing will uncover all in a large system. The second activity that contributes the definition of maintenance occurs since rapid changes are encountered in every aspects of computing. The third activity involves recommendation for new capabilities, modification to the existing functions and general enhancements when the software is used. The fourth maintenance activity occurs when software is changed to improve future maintainability or reliability.

6. TESTING

6.1. Testing Objectives

Testing is an important step in the software engineering process that could view rather than constructive. Testing is the process of executing a program with the intent of finding an error . a good test is that has probability to find an as yet undiscovered error.

- A good case is one that has a high probability of finding an unpredictable error.
- A successful case is one that has a high probability of finding an unpredictable error.
- A good test case is one that provides solution to that unpredictable error.
- A test plan entailed the following activities. We prepare list plan.
- We specified condition for users acceptance testing.
- We prepared list data for program testing .
- Also we prepared list data transaction plan testing.
- Then we planned user training.
- Our programs were compiled and assembled.
- Job performance aids were prepared.

Need For Testing

Software testing is a critical element of software quality assurance and represents the ultimate review of specification , design and coding . testing includes the verification of the basic logic of each program and verifies that the entire system works properly. Testing the individual program involves and attempt to be sure of the most likely possible. Test case design focuses on asset of technique for the creation test the cases that meet over all testing objectives.

Test Results

Test results emphasize how the actual results differed from the expected results. This suggests the need for re-testing, and to discover the source of differences. The test phase of systems development process involves the defining of the criteria by which the system will be tested and measuring the criteria against the acceptable failure rate. Individual modules are tested during the development itself. Errors detected are corrected and re-tested, and the project leader has verified the compliance. Each input, output and processes are tested to verify that it performs as specified in the design. The units in the system are re-compiled and errors found are corrected as indicated by the compiler. The tests are repeated until all known errors are eliminated and the program matched the design specifications. Separate tests are performed to ensure that program units are properly interfaced with each other to form a complete system.

6.2.Testing Strategy

Software testing determines the correctness, completeness, and quality of software being developed. Validation refers to the process of checking that the developed software meets the requirements specified by the user. The activities involved in the testing phase basically evaluate the capability of that system meets its requirements. The main objective of software testing is to detect errors in the software. Errors occur if some part of the developed system is found to be incorrect, incomplete or inconsistent. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs (errors or other defects).It involves the execution of a software component or system to evaluate one or more properties of interest. In general, these properties indicate the extent to which the component or system under test:

- meets the requirements that guided its design and development,
- responds correctly to all kinds of inputs,

- performs its functions within an acceptable time,
- is sufficiently usable,
- can be installed and run in its intended environments, and
- achieves the general result its stake holders desire.

As the number of possible tests for even simple software components is practically infinite, all software testing uses some strategy to select tests that are feasible for the available time and resources. As a result, software testing typically (but not exclusively) attempts to execute a program or application with the intent of finding software bugs (errors or other defects).Software testing can provide objective, independent information about the quality of software and risk of its failure to users and/or sponsors. Software testing can be conducted as soon as executable software (even if partially complete) exists. The overall approach to software development often determines when and how testing is conducted. For example, in a phased process, most testing occurs after system requirements have been defined and then implemented in testable programs. In contrast, under an Agile approach, requirements, programming, and testing are often done concurrently.

White-box Testing

Tests are performed to ensure that all internal operations of the software are performed according to the specifications of the client. This is called White box testing. White-box testing (also known as clear box testing, glass box testing, transparent box testing, and structural testing) is a method of testing software that tests internal structures or workings of an application, as opposed to its functionality (i.e. black-box testing). In white-box testing an internal perspective of the system, as well as programming skills, are used to design test cases.

White-box testing can be applied at the unit, integration and system levels of the software testing process. Although traditional testers tended to think of white-box testing as being done at the unit level, it is used for integration and system testing more frequently today. It can test paths within a unit, paths between units during integration, and between subsystems during a system–level test. Though this method of test design can uncover many errors or problems, it has the potential to miss unimplemented parts of the specification or missing requirements. The details entered by the administrator are saved and stored in the database, and testing is done to verify whether the control of each form or action is working in the exact way.

Black-box Testing

Tests are performed to ensure that each function is working properly. This is referred to as Black-box testing. Black-box testing is a method of software testing that examines the functionality of an application (e.g. what the software does) without peering into its internal structures or workings. This method of test can be applied to virtually every level of software testing: unit, integration, system and acceptance. It typically comprises most if not all higher level testing, but can also dominate unit testing as well. Test cases are built around specifications and requirements, i.e., what the application is supposed to do. Test cases are generally derived from external descriptions of the software, including specifications, requirements and design parameters. Although the tests used are primarily functional in nature, non-functional tests may also be used. The test designer selects both valid and invalid inputs and determines the correct output without any knowledge of the test object's internal structure. Testing is conducted in the system so that the functions namely Login, sending requests, searching the nearest donor, getting routes to the nearest blood banks etc. are done properly.

Condition Testing

Test cases are derived to determine whether the logic conditions and decision statements are free from errors. Condition testing strategy is used to check if the operators used are correct and to verify conditions such as if an error message is displayed if a non registered user is signed in to the app, or a user is registered without providing his body mass index value.

Loop Testing

This testing is used to check the variety of loops present in programming. The working of the loops such as while, for and do while are checked for its proper execution. The statements inside the loop body are executed line by line for every condition that satisfies the loop.

Unit Testing

Unit testing focused verification efforts on the smallest unit of software design, the module. This is also known as “module testing”. The modules are tested separately. This testing is carried out during programming stage itself. In this testing step each module is found to be working satisfactorily as regard to the expected output from the module.

Project Aspect: User interfaces are tested for data acceptance. Each of the modules such as Login, item add modules etc are tested individually and found error free.

Integration Testing

Data can be lost across the interfaces; one module can have an adverse effect on the other; sub functions when combined, may not produce the desired major functions. The integration testing is a systematic testing for constructing the programs structure, while at the same time conducting tests to uncover errors associated within the interface. The objective is to take unit tested modules and build a program structure. All the modules are combines and tested as a whole. Here correction is difficult because the vast expenses of the entire program complicate the isolation of causes. Thus in the integration testing step, all the errors uncovered are corrected for the next testing steps.

Project aspect: Using integrated test plans prepared in the design phase of the system developed as a guide, the integration test was carried out. The modules are integrated and tested and all the errors found in the system were corrected for the next testing steps.

Output Testing

After performing the validation testing, the next step is output testing of the proposed system since no system could be useful if it does not produce the required output in specific format. Asking the users about the format required by them tests the outputs generated or displayed by the system under consideration. The output format of the screen is found to be correct as the format was designed in the system design phase according to the user needs. For the hard copy also, output comes out as the specified requirements by the user. Hence output testing does not result in any correction in the system. Various reports are generated in graphical output format and being pictorial representation it is found more convenient to understand by the users of the system.

User Acceptance Testing

User acceptance testing of a system is the key factor for the success of any system. The system under consideration is tested for user acceptance by constantly keeping in touch with the prospective system users at the time of developing and making changes wherever required. This is done with regard to the following points.

Objectives

- A good case is one that has a high probability of finding an unpredictable error.
- A successful case is one that has a high probability of finding an unpredictable error.

- A good test case is one that provides solution to that unpredictable error.
- A test plan entailed the following activities. We prepare list plan.
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Test Results

Test results emphasize how the actual results differed from the expected results. This suggests the need for re-testing, and to discover the source of differences. The test phase of systems development process involves the defining of the criteria by which the system will be tested and measuring the criteria against the acceptable failure rate. Individual modules are tested during the development itself. Errors detected are corrected and re-tested, and the project leader has verified the compliance. Each input, output and processes are tested to verify that it performs as specified in the design. The units in the system are re-compiled and errors found are corrected as indicated by the compiler. The tests are repeated until all known errors are eliminated and the program matched the design specifications. Separate tests are performed to ensure that program units are properly interfaced with each other to form a complete system.

7. FUTURE ENHANCEMENT

In future, can add more features to this proposed system. There is a future scope of this facility that many more features such as online lectures video tutorials can be added by teachers as well as online assignments submission facility , a feature Of group chat where students can discuss various issues of engineering can be added to this project thus making it more interactive more user friendly and project which fulfills each users need in the best way possible.

8. CONCLUSION

This website provides a computerized version of library management system which will benefit the students as well as the staff of the library.

It makes entire process online where student can search books, staff can generate reports and do book transactions. It also has a facility for student login where student can login and can see status of books issued as well request for book or give some suggestions. It has a facility of teacher's login where teachers can add lectures notes and also give necessary suggestion to library and also add info about workshops or events happening in our college or nearby college in the online notice board.

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LET'S GO EVERYWHERE

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ABSTRACT

Public transport is the cheapest and has therefore, always been popular with the masses. The advancement in transport system has been increasing in day-to-day life. The transport plays a vital role in individual's life and for making it efficient we are introducing an android application. The android application has the message notification system based on location. The android mobile has a great part in human life; it helps the people be stay connected with travel updates. Users can also track current location of the bus using the app. During the travel time, by entering their location details alert will be notified to the passenger before destination to be reached. By this application, we can minimize the usage of the paper and there will not be confusion in the destination place.

1. INTRODUCTION

A bus terminal, or terminus, is the point where a bus route starts or ends, where vehicles stop, turn or reverse, and wait before departing on their return journeys. It's also where the passengers board and alight from vehicles. It also often provides a convenient point where services can be controlled from.

The size and nature of a terminal may vary, from a roadside bus stop with no facilities for passengers or bus crews, to a purpose built off-road bus station offering a wide range of facilities. If the number of vehicles arriving and departing is low, a roadside bus stop, with no facilities, will normally be adequate. With a large number of vehicles arriving and departing, it may be necessary to provide off-road bus station facilities for the convenience of passengers and to reduce traffic congestion.

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When a bus is delayed or detoured due to roadwork or other causes, customers will be able to track the bus's progress on the route. Passengers will also be able to receive text alerts notifying them of an upcoming bus departure, making trip planning easier than ever before.

With Track-it, information for every bus in service is transmitted to AVTA Operations through cellular communications. This information is immediately available to provide real-time departure information and is archived for scheduling, route planning, reporting, and performance analysis.

2. 2SYSTEM STUDY AND ANALYSIS

2.1. Preliminary Investigation

System study is done in order to understand the problem and emphasize what is needed from system. The information requirements of the user for their competitive world requires such a system. The various techniques used in this phase are Observations, Interviews and Discussion. A complete understanding of software requirements is essential to the success of a software development effort. System Analysis refers to an orderly structured process for identifying and solving problems using computer.

It is the most essential part of the project development. It is the process of the gathering and interpreting facts, diagnosing problems and using the information to recommend improvements to the system. Training, experience and common sense are required for the collection of the information needed to do the analysis.

2.2. Existing System

For the most part, in the transportation framework, the procedure of knowing bus routes, bus schedules, and bus location is difficult. In the current system, the bus info details will get from our friends or relatives. Such that it will take long time for knowing the details. Sometimes bus schedules will be printed and it will show near to the bus stops. To get the information about time, they must go to bus stops as there is no way to know the information earlier .If any break down or any issues to the bus users can't track or can't know about the bus status. And there is no an alert system to be notified to the passenger before destination to be reached and so the passenger always want to aware of destination places.

2.3. Proposed System

Reliability in public transport is of great importance today. This project provides a good solution for public transportation to know about bus info using an android application. Our system has three login modules, one for the user one for bus and the third for admin .This system provides

an android application for users to know about bus routes, schedules, bus stops, and also track bus location. This system is helpful to reduce the printed bus schedules; time consumption and user to get the bus info in simple and faster way. While entering into a bus a users give stop details, and then they can get alert about bus stops.

Advantages of Proposed System

- This system is helpful to reduce the printed bus schedules; time consumption and user to get the bus info in simpler and faster way.
- While entering into a bus if a user hass entered stop details they can get alert about bus stops. Thus, they get a notification while travelling if the stop has been reached or not.

3. FEASIBILITY STUDY

A feasibility study is a preliminary study undertaken to determine and document a project's viability. The results of this study are used to make a decision whether to proceed with the project. If it indeed leads to a project being approved, it will, before the real work of the proposed project starts, be used to ascertain the likelihood of the project's success. It is an analysis of possible alternative solutions to a problem and a recommendation on the best alternative. It, for example, can decide whether an order processing be carried out by a new system more efficiently than the previous one. The feasibility study proposes one or more conceptual solutions to the problem set for the project. The conceptual solution gives an idea of what the new system will look like. They define what will be done on the computer and what will remain manual. It also indicates what input will be needed by the system and what outputs will be produced. These solutions should be proven feasible and a preferred solution is accepted.

The feasibility study environment enables all alternatives to be discussed and evaluated. This phase starts with an identification of the main characteristics of the required system. During this stage it is important to collect information as much as possible about the software package that might meet the specification from as many sources as possible.

Normally, the central endeavor of a feasibility study is a cost benefit analysis of various alternatives. It can be defined as a systematic comparison between the cost of carrying out a service or activity and the value of that service or activity. The main benefits are qualitative than quantitative.

Technical Feasibility

This involves questions such as whether the technology needed for the system exists, how difficult it will be to build, and whether the firm has enough experience using that technology. The assessment is based on an outline design of system requirements in terms of Input, Output, Fields, Programs, and Procedures. This can be qualified in terms of volumes of data, trends, frequency of updating etc. in order to give an introduction to the technical system.

The system needs normal configurations of a computer system that are commonly available. The software requirements are Python and Android, Windows 8 or higher versions of OS. Thus, proposed system for our project work is technically feasible.

Operational Feasibility

This analysis involves how it will work when it is installed and the assessment of political and managerial environment in which it is implemented. People are inherently resistant to the change and the computers have been known to facilitate change. The new proposed system is very much useful to the users and there for it will accept a broad audience.

The proposed system offers:

- Greater user friendliness
- Better output which can be easily interpreted.
- Higher speed
- Meets the requirements of the passengers.

Economic Feasibility

This involves questions such as whether the firm can afford to build the system, whether its benefits should substantially exceed its costs, and whether the project has higher priority and profits than other projects that might use the same resources. This also includes whether the project is in the condition to fulfill all the eligibility criteria and the responsibility of both sides in case there are two parties involved in performing any project.

This study presents tangible and intangible benefits from the project by comparing the developments and operational costs. The technique of cost benefit analysis is often used as a basis for assessing economic feasibility. This system needs some more initial investment than the existing system, but it can be justifiable that it will improve the quality of service.

Thus, feasibility study should center along the following points:

- Improvement resulting over the existing method in terms of accuracy and timeliness.
- Cost comparison.
- Estimate on the life expectancy of the hardware.
- Overall objective.

Legal Feasibility

Determines, whether the proposed system conflicts with legal requirements. E.g. a data processing system must comply with the local Data Protection Acts.

Schedule Feasibility

A project will fail if it takes too long to be completed before it is useful. Typically this means estimating how long the system will take to develop, and if it can be completed in a given time period using some methods like payback period.

Schedule feasibility is a measure of how reasonable the project timetable is given our technical expertise and are the project deadlines reasonable? Some projects are initiated with specific deadlines. We need to determine whether the deadlines are mandatory or desirable.

4. PROJECT PLANNING AND SCHEDULING

4.1. Project Planning

For the successful completion of every project there must have a detailed scheduling. The software development has different participating steps. First of all, we have done the requirement analysis phase. For this, we visited different sites that offer resume writing helps, visited different business websites and we discussed with my friends and project guide.

After collecting the requirements, a detailed study of preliminary investigation has done. It includes six major questions.

1. What is being done?
2. How it is being done?
3. Does a problem exist?
4. If a problem exists how severe it is?
5. How frequently does it occur?
6. What is the main reason for that problem?

After the analysis phase the requirement is divided into modules. The design document is divided into modules. The document is created, which includes data flow diagrams, ER diagrams etc.

As the next step, the actual development of the system takes place. The design representations are translated into the codes. Documentation of codes are done by providing an explanation of how procedures are used. Documentation is essential to test the program and carry on maintenance once the application has been installed.

And then the testing is done. Once a system has been developed it is very important to check if it fulfills the customer requirements.

Implementation of the system means putting up system on users' side. Like any other system there is an aging process. Therefore, the system requires periodic maintenance for software or hardware.

5. SYSTEM REQUIREMENT SPECIFICATION

5.1. Introduction

A software requirements specification (SRS) is a description of a software system to be developed, laying out functional and non-functional requirements. (Non-functional requirements impose constraints on the design or implementation, such as performance, engineering requirements, quality of standards, or design constraints). The specification may include a set of use cases that describe interactions the users will have with the software. The software requirements specification document enlists enough and necessary requirements that are required for the project development. To derive the requirements, we need to have clear and thorough understanding of the products to be developed or being developed. This is achieved and refined with detailed and continuous communications with the project team and the customer until the completion of the software.

5.2. Purpose

The transport plays a vital role in individual's life. Very often we are unaware of the schedules of the bus transportation. This project provides an effective solution for public transport to know about bus info using an android application. It helps the people to stay connected with travel updates, know about bus routes, schedules, bus stops. Here we provide a booking service, where a user can book. Hence a voice alert is generated few minutes before the bus reaches the stop. Bus service provider can update bus timings in case of variation in bus timing. Users can send

complaints on the bus about the rude behavior, rash driving, etc. Users can also track current location of the bus using the app.

5.3. Scope

For the most part, in the transportation framework, the procedure of knowing bus routes, bus schedules, and bus location is difficult. . If any break down or any issues to bus users can't track or can't know about the bus status. This system provides an android application for users to know about bus routes, schedules, bus stops, and also track bus location. The application provides real-time information about bus routes and schedules, including information about upcoming and past bus arrivals and departures. It is also able to manage changes to the bus routes and schedules in real-time. The application tracks the bus location in real-time and display information on google map so users can see where the bus is and how long it will take to arrive at their location. Overall, the scope of this project involves designing and developing an android application that provides a comprehensive and user-friendly system for public transport users, allowing them to easily access bus info in real-time.

5.4. System Requirements

Hardware Specification

The selection of hardware is very important in the existence and proper working of any of the software. When selecting hardware, the size and capacity requirements are also important. The hardware must suit all application developments.

- Processor : I3 or above.
- System Bus : 32Bit or 64Bit
- RAM : 2 GB or Above
- HDD : 1 TB or Above
- Monitor : 14" LCD or Above
- Key Board : Any type of keyboard
- Mouse : Any Type of mouse
- Mobile : Android supported mobile phone

Software Specification

One of the most difficult tasks is selection of the software. Once the hardwareneeds are met, we have to determine whether a particular software package fits for those system requirements.

This section summarizes the application requirement.

- Operating System : Windows 10 And 32 bit or 64 bit platform
- Front End : Android, Python
- Back End : SQLyog
- IDE : Android studio
  : Python 3.6 or above, Pycharm

6. MODULE DESCRIPTION

1. Admin

The admin can log in to the web using a unique username and a password. Admin can view complaint, view/block bus, view bus time, view feedback, view passenger. Admin can add and manage stop, bus registration approval and track bus.

2. Passenger

Passenger uses an android application. Passenger need to register once and they can login with the username and password. They can know about bus routes, view bus schedule, view alert, send feedback, post complaint and view reply. User can also track live location of bus. During the travel time, by entering their location details, alert will be notified to the passenger before the destination reached.

3. Bus

Bus uses an android application. Bus also needs to register once and they can login with the username and password. They can view route, add and manage time according to stop, view complaint and give reply. Bus can update their location automatically.

7. SYSTEM DESIGN

The most creative and challenging phase of the system life cycle is system design. The term design describes a final system and the process by which it is developed. It refers to the technical specification that will be applied in implementing the candidate system. It also includes the

construction of the program and the program testing. The key question involved here is “how the problem should be solved”.

System design is a solution for the question of how to approach to the creation of a new system. This important phase is composed of several steps. It provides the understanding and procedural details necessary for implementing the system recommended feasible study. Emphasis is on translating the performance requirements into design specifications. Design goes through logical and physical system; prepare input and output specification; make credit, security and control specification; details the implementation plan; prepare a logical design walk. Physical design maps out the physical system, plans the system implements, devices a test and implementation plan and specifies any new hardware and software.

The first most is to determine how the output is to be produced and in what format. Samples of output and input are presented. Second, input data and master files have to be designed to meet the requirements of the proposed output. The operational phases are handled through program construction and testing, including a list of programs needed to meet the system’s objectives and complete documentation. Finally, details related to justification of the system and estimate of the impact of the candidate system on the user and organization are documentation and evaluated by management as a step towards implementation. The final report prior to the implementation phases includes procedural flowcharts, record layouts and workable plan for implementing the candidate system.

8. CODING AND IMPLEMENTATION

8.1. Coding Environment

Front End

An Integrated Development Environment (IDE) (also known as Integrated Design Environment or Integrated Debugging Environment) is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of:

- A source code editor
- A compiler and/or an interpreter
- Build automation tools
- A debugger

Pycharm

PyCharm is an integrated development environment (IDE) used in computer programming, specifically for the Python language. It is developed by the Czech company Jet Brains. It provides code analysis, a graphical debugger, an integrated unit tester, integration with version control systems (CVSs), and supports web development with Django as well as Data Science with Anaconda.

PyCharm is cross-platform, with Windows, macOS and Linux versions. The Community Edition is released under the Apache License, and there is also Professional Edition with extra features – released under a proprietary license.

Features

- Coding assistance and analysis, with code completion, syntax and error highlighting, linter integration, and quick fixes
- Project and code navigation: specialized project views, file structure views and quick jumping between files, classes, methods and usages
- Python refactoring: includes rename, extract method, introduce variable, introduce constant, pull up, push down and others
- Support for web frameworks: Django, web2py and Flask [professional edition only]
- Integrated Python debugger
- Integrated unit testing, with line-by-line code coverage
- Google App Engine Python development [professional edition only]
- Version control integration: unified user interface for Mercurial, Git, Subversion, Perforce and CVS with change lists and merge
- Support for scientific tools like matplotlib, NumPy and SciPy [professional edition only]

It competes mainly with a number of other Python-oriented IDEs, including Eclipse's PyDev, and the more broadly focused Komodo IDE.

Eclipse IDE

Google provides an integrated development environment (IDEs) to develop new applications. The Android Developer Tools (ADT) are based on the Eclipse IDE. ADT is a set of components (plug-ins), which extend the Eclipse IDE with Android development capabilities. Eclipse is an integrated development environment (IDE).it contains a base workspace and an extensible plug-in system for customizing the environment. It is written mostly in java. Eclipse can be used to develop applications. Eclipse sometimes performs multiple commands within a single connection to the server. This may cause problems with servers that are servers that are running server scripts in response to certain commands. Eclipse IDE contains all required functionality to create, compile, debug and deploy Android applications. This also allows the developer to create and start virtual Android devices for testing. Both tools provide specialized editors for Android specific files. Most of Android's configuration files are based on XML. In this case these editors allow you to switch between the XML representation of the file and a structured user interface for entering the data. Eclipse uses plug-ins to provide all the functionality within and on top of the runtime system.

The plug-in architecture supports writing any desired extension to the environment, such as for configuration management. Java and CVS support is provided in the Eclipse SDK, with support for other version control systems provided by third-party plug-ins. The Eclipse SDK includes the Eclipse Java development tools (JDT), offering an IDE with a built-in incremental Java compiler and a full model of the Java source files. This allows for advanced refactoring techniques and code analysis. The IDE also makes use of a workspace, in this case a set of metadata over a flat file space allowing external file modifications as long as the corresponding workspace "resource" is refreshed afterwards. Eclipse implements use the graphical control elements of the Java toolkit called SWT, whereas most Java applications use the Java standard Abstract Window Toolkit (AWT) or Swing. Eclipse's user interface also uses an intermediate graphical user interface layer called JFace, which simplifies the construction of applications based on SWT. Eclipse was made to run on Wayland during a GSoC-Project in 2014.

Back End

Database Servers

A database server is used to store data in a database. Users can access the data and manipulate it. There are many types of databases. The most popular among them is the Relational Database Management System (RDBMS).

RDBMS

RDBMS is a type of database management system that stores data in the form of related tables. Relational database are powerful because they require few assumptions about how data is related or how it will be extracted from the database. As a result, the same database can be viewed in many different ways. An important feature of relational systems is that a single database can be spread across several tables. This differs from flat-file database, in which each database is self-contained in a single table.

MySQL

MySQL is an open source relational database and it includes advanced data types. MySQL operates using client/server architecture in which the server runs on the machine containing the database and client connect to the server over the network. MySQL run on all platforms supported by MySQL and provides the most direct means of interacting with the server, so it's the logical client to begin with.

• You need to have the MySQL software installed.

• You need a MySQL account so that you can connect to the server. • You need a database to work with.

The required software includes the MySQL clients and a MySQL clients and a MySQL server. The client program must be located on the machine where you will working. The server can be located on our machine although that is not required. As long as you have permission to connect to it the server can be located anywhere. In addition to the MySQL software you will need a MySQL account so that the server will allow you to connect and create us sample database and its table.

Microsoft SQL Server 2008 is a full-featured relational database management system (RDBMS) that offers a variety of administrative tools to ease the burdens of database development, maintenance and administration. In this article, we'll cover six of the more frequently used tool: Enterprise Manager, Query analyzer, SQL Profiler, Service Manager, and Data

Transformation Services and Books Online. Let's take a brief look at each:

Enterprise Manager is the main administrative console for SQL Server installations. It provides you with a graphical "birds-eye" view of all of the SQL Server installation on your network.

You can perform high-level administrative functions that affect one or more servers, schedule common maintenance tasks or create and modify the structure of individual databases.

Query Analyzer offers a quick method for performing queries against any of your SQL Server databases. It's a great way to quickly pull information out of a database in response to a user request, test queries before implementing them in other applications, create/modify stored procedures and execute administrative tasks.

SQL Profiler provides a window into the inner workings of your database. You can monitor many different event types and observe database performance in real time. SQL Profiler allows you to capture and replay system "traces" that log various activities. It's a great tool for optimizing databases with performance issues or troubleshooting particular problems.

Service Manager is used to control the MS SQL Server (the main SQL Server process), MSDTC (Microsoft Distributed Transaction Coordinator) and SQLServer– Agent processes. An icon for this service Manager to start, stop or pause any one of these services.

Data Transformation Services (DTS) provide an extremely flexible method for importing and exporting data between a Microsoft SQL Server installation and a large variety of other formats.

The most commonly used DTS application is the "Import and Export Data" wizard found in the SQL Server program group.

Programming Languages

Python

Python is a widely used general-purpose, high level programming language. It was initially designed by Guido van Rossum in 1991 and developed by Python Software Foundation. It was mainly developed for emphasis on code readability, and its syntax allows programmers to express concepts in fewer lines of code.

Python is a programming language that lets you work quickly and integrate systems more efficiently.

There are two major Python versions- Python 2 and Python 3. Both are quite different.

HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a web server or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document

8.2. Implementation

Implementation of the system refers to the final installing of the package in its real environment, to the satisfaction of the indeed users and the operation of the system. It is the process of converting a new or revised system design to operation. It is the key stage in achieving successful new system. The process of putting the developed system in actual use is called system implementation. This includes all those activities that take place to convert from the old system to new system. It must therefore be carefully planned and controlled. Proper guidance should be imparted to the users so that he is comfortable in using the application.

Implementation Plan

The transformation from theoretical designs to working system is done in this stage. Developed package of system is tested with simple data, accurate error identification and then through proposed change from the user etc. a dress rehearsal working of system is done, so as the system is scrutinized, for pointing out errors and modifications required if any keeping in mind the expectations and specifications from the system.

Education and Training

The expectations from the system are achieved by the people who will be involved to be confident of their role in the new system. The complexity of the system is directly proportional to the amount of training and education given for the user. Education is different from the training, as the user through education can be a part of development of the system. Education has the capability to make training more interesting and important contributions in the system changes.

Training just means to give user specific skills in order to meet their new job requirements. The role of system analyst in training will make it more understandable and effective. Training provides a better overview of new system and its present objectives.

Training Of the Application Software

Awareness about the new system is made to the users through training, and with the underlying philosophy of the system (screen design, flow, error types during inputs, validation checks etc.) application use the system, as the users of the system may be of at different levels of hierarchy.

Post Implementation Review

System performance v/s expected requirements are evaluated. The implementation problems if any is taken seriously and taken care of along with admiring the achievements, failures etc. The works done here are used to improve the efficiency and user friendliness of the system.

Security

System security is a branch of technology known as information security as applied to computers and networks. The objective of system security includes protection of information and property from theft, corruption, or natural disaster, while allowing the information and property to remain accessible and productive to its intended users. The term system security, means the collective processes and mechanisms by which sensitive and valuable information and services are protected from publication, tempering or collapse by unauthorized activities or untrustworthy individuals and unplanned events respectively. The technologies of system security are based on logic. As security is not necessarily the primary goal of most computer applications, designing a program with security in mind often imposes restrictions on that program's behavior.

Maintenance

Maintenance is making adaptation of the software for external changes (requirements changes or enhancements) and internal changes (fixing bugs). When changes are made during the maintenance phase all preceding steps of the model must be revisited.

There are three types of maintenance:

1. Corrective (Fixing bugs/errors)

2. Adaptive (Updates due to environment changes)

3. Perfective (Enhancements, requirements changes

Maintenance is enigma of the system development. The definition of the software maintenance can be given describing four activities that are undertaken after the program is released for use.

The maintenance activity occurs since it is unreasonable to assume that software testing will uncover all in a large system. The second activity that contributes the definition of maintenance occurs since rapid changes are encountered in every aspects of computing. The third activity involves recommendation for new capabilities, modification to the existing functions and general enhancements when the software is used. The fourth maintenance activity occurs when software is changed to improve future maintainability or reliability.

9. TESTING

9.1. Testing Objectives

Testing is an important step in the software engineering process that could view rather than constructive. Testing is the process of executing a program with the intent of finding an error. A good test is that has probability to find an as yet undiscovered error.

• A good case is one that has a high probability of finding an unpredictable error.

• A successful case is one that has a high probability of finding an unpredictable error.

• A good test case is one that provides solution to that unpredictable error.

• A test plan entailed the following activities. We prepare list plan.

• We specified condition for users acceptance testing.

• We prepared list data for program testing.

• Also we prepared list data transaction plan testing.

• Then we planned user training.

• Our programs were compiled and assembled.

• Job performance aids were prepared.

Need For Testing

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. Testing includes the verification of the basic logic of each program and verifies that the entire system works properly. Testing the individual program involves and attempt to be sure of the most likely possible. Test case design focuses on asset of technique for the creation test the cases that meet over all testing objectives.

9.2. Testing Strategy

Software testing determines the correctness, completeness, and quality of software being developed. Validation refers to the process of checking that the developed software meets the requirements specified by the user. The activities involved in the testing phase basically evaluate the capability of that system meets its requirements. The main objective of software testing is to detect errors in the software. Errors occur if some part of the developed system is found to be incorrect, incomplete or inconsistent. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs (errors or other defects).It involves the execution of a software component or system to evaluate one or more properties of interest. In general, these properties indicate the extent to which the component or system under test:

• meets the requirements that guided its design and development,

• responds correctly to all kinds of inputs,

• performs its functions within an acceptable time,

• is sufficiently usable,

• can be installed and run in its intended environments, and

• achieves the general result its stake holders desire.

As the number of possible tests for even simple software components is practically infinite, all software testing uses some strategy to select tests that are feasible for the available time and resources. As a result, software testing typically (but not exclusively) attempts to execute a program or application with the intent of finding software bugs (errors or other defects).Software testing can provide objective, independent information about the quality of software and risk of its failure to users and/or sponsors. Software testing can be conducted as soon as executable software (even if partially complete) exists. The overall approach to software development often determines when and how testing is conducted. For example, in a phased process, most testing occurs after system requirements have been defined and then implemented in testable programs. In contrast, under an Agile approach, requirements, programming, and testing are often done concurrently.

Test Results

Test results emphasize how the actual results differed from the expected results. This suggests the need for re-testing, and to discover the source of differences. The test phase of systems development process involves the defining of the criteria by which the system will be tested and measuring the criteria against the acceptable failure rate. Individual modules are tested during the development itself. Errors detected are corrected and re-tested, and the project leader has verified the compliance. Each input, output and processes are tested to verify that it performs as specified in the design. The units in the system are re-compiled and errors found are corrected as indicated by the compiler. The tests are repeated until all known errors are eliminated and the program matched the design specifications. Separate tests are performed to ensure that program units are properly interfaced with each other to form a complete system.

10. FUTURE ENHANCEMENT

In future, can add more features to this proposed system. This real-time mechanism helps people to know the arrival time of respective stops. The basic objective of the system is to provide a convenient and easy navigation to the people who widely uses Public Transportation. We are doing this project in an android supported mobile phone. In future we can implement this application used by the passenger and bus which helps people to know the exact time of bus arrival in respective stops and also they can know whether the bus is running or not by tracking the bus. In addition to providing information about buses, the application could be enhanced to integrate with other mode of transportation, such as trains, taxis, and subways. The application could be enhanced to provide personalized recommendations based on user's location, travel history, and preferences. We can add real-time information about traffic congestion and road condition, which allow user to adjust their travel plan. Also it can be enhanced to provide augmented reality features, such as using user's camera to display real-time information about bus stops and routes in their immediate surroundings. It also can be integrated with payment systems, allowing users to purchase tickets or passes directly from app. We can add online ticket booking system as well as passengers can know number of seats available in the bus. All these future enhancements could provide additional value to users and improve the overall functionality of application, making it a more comprehensive and user-friendly transportation solution.

11. CONCLUTION

The application provides an effective solution for public transportation system to improve its service delivery to the community. The application has made it easier for commuters to plan their trips, check schedules and track bus location in real-time. This has resulted in reduction of waiting time and has improved experience of using public transportation. Moreover, the application has provided a more efficient way for bus drivers to manage their routes and schedules, and has allowed transportation companies to optimize their fleet management. In short, the application has provided an efficient solution for public transportation, which has enhanced the experience for both commuters and transportation companies. It is expected that the adoption of this technology will continue to grow, resulting in a more efficient and reliable public transportation system.

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EASY TIMETABLE

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Abstract

Most of the colleges have number of different courses and each course has a number of subjects. Now there are limited faculties, each faculty teaching more than one subjects. So now the time table needed to schedule the faculty at provided time slots in such ways that their timings do not overlap and the time table schedule makes best use of all faculty subject demands. We use genetic algorithm for this purpose. In our Timetable Generation algorithm we propose to utilize a timetable object. This object comprises of Classroom objects and the timetable for them likewise a fitness score for the timetable. Fitness score relates to the quantity of crashes the timetable has regarding alternate calendars for different classes. Classroom-object comprises of week objects. Week objects comprise of Days, Days also comprises of Timeslots. Timeslot has an address in which a subject, student gathering and going to the address and educator showing that the subject is related. Also further on discussing the imperatives, we have utilized composite configuration design, which make it well extendable to include or uproot as numerous obligations. In every obligation class the condition as determined in the inquiry is now checked between two timetable objects. On the off chance that condition is fulfilled i. e. there is a crash is available then the score is augmented by one.

Introduction

Timetables are an important part of an educational institution. The daily schedule of teaching courses or subjects for different classes is known as a timetable. Currently timetable is generated manually. Generating timetable is a hazardous job. It is very difficult, time consuming and confusing. Easy timetable is a Python based software for generating timetable automatically. The traditional manual method of producing timetable can be made easy by using Easy timetable

software. It will help manage all the periods automatically and also will be helpful for students to get timetable in their phone by using application. This will also manage timetable when any teacher is absent. This software also helps the faculty for marking attendance of the students.

By using this software faculties can apply for leave by providing leave required date and reason for leave. When the Head of The Department accepts the leave request, then the timetable will automatically schedule according to that. It is a comprehensive timetable management solution for College which help to overcome the challenges in manually setting the timetable.

Problem Definition

This project is aimed at simplifying the process of timetable generation in an educational institution mainly Colleges. Nowadays, timetable generation is done mainly by manually , by a faculty ,taking course ,subjects under the course, number of periods and faculties under consideration. The faculty should need to check whether each subject is getting the provided number of periods in the syllabus . This approach is time-consuming, confusing and difficult. Another problem of a teacher is taking attendance of the students. The teacher need to write down the absentees and calculate the attendance percentage of each student at the end of the semester for internals. But, with this developed software, timetable can be generated automatically and attendance can also be marked.

Project Overview

Here we are introducing a web and android based application for automatic timetable generation and attendance marking. In the application, users are students. Staff will add the students and provide username and password for the student. In the software the admin will be the Head of The Department. Admin adds the staff and provide them username and password. Admin can sent notifications, accept or reject the leave request of the staff, add and manage subject and create timetable. Staff can add students, view timetable, add attendance, request for leave, view notification and view student details. Students can add complaints, view timetable, view attendance and view notification. When a leave request of a staff is accepted by the admin the timetable will change automatically arrange according to that change. The student can view the changed timetable.

Methodology

The methodology implemented here is the Build and Fix model. In the **build and fix model** (also referred to as an **ad hoc model**), the software is developed without any specification or design. An initial product is built, which is then repeatedly modified until it (software) satisfies the user. That is, the software is developed and delivered to the user. The user checks whether the desired functions 'are present. If not, then the software is changed according to the needs by adding, modifying or deleting functions. This process goes on until the user feels that the software can be used productively. However, the lack of design requirements and repeated modifications result in loss of acceptability of software. Thus, software engineers are strongly discouraged from using this development approach.

This model includes the following two phases.

- Build: In this phase, the software code is developed and passed on to the next phase.
- Fix: In this phase, the code developed in the build phase is made error free. Also, in addition to the corrections to the code, the code is modified according to the user's requirements.

Purpose

The timetable plays a vital role in scheduling a department's syllabus. It is time consuming to create a timetable manually. This project provides an effective solution for creating timetable fast and organized. It helps the HOD to create timetable easily without any clash by fixing all the static or complimentary hours unchanged. Here we provide six options, to create the timetable of each six semesters. The HOD can choose which semester and with a click the timetable is get generated. And this timetable will automatically change when a staff takes a leave. The staffs and students will get notified automatically after the timetable changes.

Scope

Providing a automatic time table generator will help to generate time table automatically. Proposed system of our project will help to generate it automatically also helps to save time. It avoids the complexity of setting and managing Timetable manually.

Existing System

The existing system of timetable generation and attendance marking can vary depending on the organization or educational institution in question. However, in general, the following are some common approaches:

Timetable Generation: In educational institutions, timetables are often generated using a software system specifically designed for this purpose. These systems take into account various factors, such as the availability of teachers and classrooms, the number of students in each class, and the subjects being taught. The timetable is usually created by the school or college administration, and it is shared with the teachers and students.

Attendance Marking: Attendance can be marked manually, where teachers take attendance in class and record it in a register or on a paper sheet. In recent years, many educational institutions have switched to electronic attendance systems, where students scan their ID cards or use biometric systems to mark their attendance. These systems can also generate reports for teachers and administrators to track attendance.

Some educational institutions also use hybrid systems where attendance is marked manually but recorded electronically. In this case, teachers mark attendance on a paper sheet, which is later entered into an electronic system.

Overall, the system of timetable generation and attendance marking can vary based on the organization's needs, resources, and technology available to them.

Proposed System

To generate a timetable and mark attendance, you can develop a software application that automates the process. Here is a proposed system that can generate timetables and mark attendance.

1-Database Creation: The first step is to create a database that contains information about the courses, professors, and students. The database should include details such as course codes, course names, class timings, professor names, and student names.

2.Timetable Generation: The next step is to develop an algorithm that can generate a timetable based on the information in the database. The algorithm should consider the availability of professors and classrooms to schedule classes at suitable times. It should also ensure that there are no clashes between classes.

3.Timetable Display: Once the timetable is generated, it should be displayed to the students and professors. This can be done through a web portal or mobile application where students and professors can log in and view their respective schedules.

4.Attendance Marking: To mark attendance, you can use an RFID-based attendance system. Each student can be given an RFID tag that can be scanned when they enter the classroom. The system will automatically mark the attendance of the student and update the database. The attendance records can be viewed by the professors and students through the web portal or mobile application.

5.Attendance Reports: The attendance records can also be used to generate reports for the professors and the administration. The reports can provide insights into the attendance patterns of the students, and identify any trends or issues that need to be addressed.

Overall, this system will automate the process of timetable generation and attendance marking, reducing the workload of the professors and the administration. It will also ensure that the attendance records are accurate and up-to-date.

Advantages of proposed system

1.The advantages of a timetable generation and attendance marking project include:

2.Improved organization and time management: With a timetable generation system, it becomes easier for administrators to create schedules that are optimized for maximum efficiency. This helps to ensure that classes are conducted on time and students can easily plan their schedules around their classes. Additionally, attendance marking can help ensure that students attend classes regularly, which can lead to better academic performance.

3.Reduction of errors and workload: By automating the process of timetable generation and attendance marking, the chances of errors and inconsistencies are greatly reduced. This not only saves time but also reduces the workload for teachers and administrators, allowing them to focus on other important tasks.

4.Better communication: The use of an online system for timetable generation and attendance marking allows for better communication between teachers, students, and administrators. For example, students can easily view their class schedules and receive notifications of any changes, while teachers can quickly mark attendance and communicate with students and parents.

5.Increased accountability: With an attendance marking system in place, students are held accountable for their attendance, which can help motivate them to attend classes regularly. Additionally, the system can help identify students who are consistently absent or tardy, allowing teachers and administrators to intervene and provide support.

6.Data collection and analysis: A timetable generation and attendance marking system can provide valuable data on attendance patterns and student performance, which can be used to inform decision-making and improve educational outcomes. For example, administrators can use attendance data to identify areas of concern and develop targeted interventions to improve student attendance and engagement.

Environmental Details

The environmental details of timetable generation and attendance marking can have a significant impact on the environment. Here are some key factors to consider:

Paper usage: Timetable generation and attendance marking often involve the use of paper, which can have a significant impact on the environment, particularly if the process is paper-based. To reduce the environmental impact, schools and institutions can move towards digital processes that minimize paper usage.

Energy usage: Generating timetables and marking attendance often requires the use of electronic devices such as computers and printers, which consume energy. To minimize the environmental impact, institutions can use energy-efficient devices, turn off electronics when not in use, and consider using renewable energy sources such as solar or wind power.

Transportation: Attendance marking and timetable generation may require teachers or staff to travel to different locations, increasing carbon emissions from transportation. Institutions can reduce transportation-related emissions by encouraging carpooling or using public transportation where feasible.

Waste generation: The process of generating timetables and marking attendance can result in the generation of waste materials such as paper, ink cartridges, and electronic devices. Institutions can minimize waste generation by implementing recycling and composting programs, and by properly disposing of hazardous waste materials.

By taking these environmental factors into account, schools and institutions can minimize the environmental impact of the timetable generation and attendance marking processes.

Hardware Specification

- Processor : Core 2 Duo at 2.0GHz
- RAM : 1GB DDR2 RAM [Minimum]
- Monitor : Any Colour
- Keyboard : Standard Keyboard (120 keys)
- Mouse : Any
- Hard disk : 500GB [Minimum]
- Storage : 20 MB
- Network speed: 1 MBPS
- Android device

Software Specification

IDE:-Android Studio, PyCharm

Frame work:-Django

Coding language:-python

Operating system :-windows 11

Webserver:-

Database:-MySQL

System Design

The main users of the system are:

• Sole Admin

• Staff

• Students

Sole Admin

This module will have the provision to do the following after the login process:

• Can create timetable.

• Add and manage staff, course, subject.

• Allocate subject to staff.

• Send general notification.

• View complaint and send reply.

• View students.

Staff

They are added by the admin. After login, they can do the following :

• Add and manage student, attendance.

• View timetable, notification, leave status, attendance percentage, student details.

• Notify leave.

Student

This module will have the provision to do the following after the login process:

• View timetable, notification, attendance.

• Send complaint and view reply.

Conclusion

In general, the process of timetable generation and attendance marking are both important aspects of academic administration.

Timetable generation involves creating schedules for courses, exams, and other academic activities, and ensuring that they don't overlap with each other. It requires careful planning and coordination with various departments and faculty members to ensure that the timetable is feasible and efficient.

Attendance marking, on the other hand, involves keeping track of the attendance of students in various classes and ensuring that they are meeting the required attendance criteria. This process helps to ensure that students are actively participating in their education and can identify students who may need additional support or intervention.

In conclusion, both timetable generation and attendance marking are crucial aspects of academic administration that play a significant role in ensuring the smooth running of educational institutions. Efficient and accurate timetable generation and attendance marking can help to create a positive and productive learning environment for students, faculty, and staff.

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FARMER'S APP

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ABSTRACT

Farmers are the backbone of any country, in fact, the main proportion of the Economy is covered by the farming sector. There are varieties of farming apart from customary farming people now peregrinate to poultry farming, cattle farming, bee farming, etc.

As time changes and the population increases expeditiously, the farming business is also growing at a pace, as people are becoming more health-conscious therefore eating more healthy food. Recently dairy products are in huge demand not even in pizza and burgers of the market but also for the personal diet regime of the people they are demanding more and more dairy products which include cheese, butter, etc. Also People are tend to eat more chemical free and fresh foods like vegetables and meat. But many of the food items that have been selling for years in our markets are not healthy and fresh at all. The main reason behind this is in order to get profit from their business retailers are often spray chemical in food which is really bad for our health. If we introduced this system, it can be useful to users in a way that they can eat fresh and chemical free food. This system predict that which crop is best for their land based on the features. Also, it may encourage young people towards farming if they make enough profit from their farming.

1 INTRODUCTION

Farming is the Prime Occupation in India in spite of this, today the people involved in farming belongs to the lower class and is in deep poverty. The Advanced techniques and the Automated machines which are leading the world to new heights, is been lagging when it is concerned to Farming, either the lack of awareness of the advanced facilities or the unavailability leads to the poverty in Farming. Even after all the hard work and the production done by the farmers, in today's market the farmers are cheated by the Agents, leading to the poverty. Agro- marketing

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would make all the things automatic which make easier serving as a best solution to all the problems.

E-farming will serve as a way for the farmers to sell their products across the country just with some basic knowledge about how to use the website. The site will guide the farmers in all the aspects, the current market rate of different products, the total sale and the earned profit for the sold products, access to the new farming techniques through e- learning and centralized approach to view different government's agriculture schemes including the compensation schemes for farming. Getting availed to the required information related to the markets and different products can be made possible through the SMS facility provided by the system.

2. SYSTEM STUDY AND ANALYSIS

2.1. Preliminary Investigation

System study is done in order to understand the problem and emphasize what is needed from system. The information requirements of the user for their competitive world requires such a system. The various techniques used in this phase are Observations, Interviews and Discussion. A complete understanding of software requirements is essential to the success of a software development effort. System Analysis refers to an orderly structured process for identifying and solving problems using computer.

It is the most essential part of the project development. It is the process of the gathering and interpreting facts, diagnosing problems and using the information to recommend improvements to the system. Training, experience and common sense are required for the collection of the information needed to do the analysis.

2.2. Existing System

In the current scenario, Farmer harvest his crops and sell it to a retailer and retailer increases the price of the product. Farmer only get small amount of profit from his product sometimes the profit will be none. And from increasing the productivity farmer tends to use more fertilizer and pesticides it may cause fertility loss in soil in long term. And there may not enough knowledge for farmers in this. By this system farmer can decide that which crop give more profit and productivity from their land.

2.3. Proposed System

By this system we can solve most of the problem that we face in existing system. User can directly purchase products from farmer. Farmers can interact with agricultural officer in any case of doubts in use of fertilizer and pesticides. Farmers can view if they are eligible for subsidy and other supports from government.

Advantages of Proposed System

Access to information: A farmer's app can provide farmers with information on weather patterns, crop diseases, pest management, soil health, market prices, and other important information that can help them make informed decisions about their farming practices.

Increased productivity: By providing farmers with access to real-time information, a farmer's app can help them optimize their crop yields and increase their productivity. This can help farmers grow more crops in less time and with fewer resources, leading to increased profits.

Improved communication: A farmer's app can provide a platform for farmers to communicate with each other, as well as with agricultural experts and government officials. This can help farmers share information, collaborate on projects, and access support and resources more easily.

Cost savings: A farmer's app can help farmers save money by providing them with information on cost-effective farming practices, as well as by helping them access government subsidies, loans, and other financial support.

Sustainability: A farmer's app can promote sustainable farming practices by providing farmers with information on organic farming, water conservation, and other environmentally friendly practices. This can help farmers reduce their impact on the environment and preserve natural resources for future generations

3. FEASIBILITY STUDY

A feasibility study is a preliminary study undertaken to determine and document a project's viability. The results of this study are used to make a decision whether to proceed with the project. If it indeed leads to a project being approved, it will, before the real work of the proposed project starts, be used to ascertain the likelihood of the project's success. It is an analysis of possible alternative solutions to a problem and a recommendation on the best alternative. It, for example, can decide whether an order processing be carried out by a new system more efficiently than the previous one. The feasibility study proposes one or more conceptual solutions to the problem set for the project. The conceptual solution gives an idea of what the new system will look like. They define what will be done on the computer and what will remain manual. It also indicates what input will be needed by the system and what outputs will be produced. These solutions should be proven feasible and a preferred solution is accepted.

The feasibility study environment enables all alternatives to be discussed and evaluated. This phase starts with an identification of the main characteristics of the required system. During this stage it is important to collect information as much as possible about the software package that might meet the specification from as many sources as possible.

Normally, the central endeavor of a feasibility study is a cost benefit analysis of various alternatives. It can be defined as a systematic comparison between the cost of carrying out a service or activity and the value of that service or activity. The main benefits are qualitative than quantitative.

Technical Feasibility

This involves questions such as whether the technology needed for the system exists, how difficult it will be to build, and whether the firm has enough experience using that technology. The assessment is based on an outline design of system requirements in terms of Input, Output, Fields, Programs, and Procedures. This can be qualified in terms of volumes of data, trends, frequency of updating etc. in order to give an introduction to the technical system.

The system requires normal configuration computer system that are commonly available. The software requirements are Python and Android, Windows 8 or higher versions of OS. Thus proposed system is technically feasible.

Operational Feasibility

This analysis involves how it will work when it is installed and the assessment of political and managerial environment in which it is implemented. People are inherently resistant to change and computers have been known to facilitate change. The new proposed system is very much useful to the users and there for it will accept a broad audience.

The proposed system offers:

- Greater user friendliness
- Better output which can be easily interpreted.
- Higher speed.
- Meets the requirements of the organizations.

Economic Feasibility

This involves questions such as whether the firm can afford to build the system, whether its benefits should substantially exceed its costs, and whether the project has higher priority and profits than other projects that might use the same resources. This study presents tangible and intangible benefits from the project by comparing the developments and operational costs. The technique of cost benefit analysis is often used as a basis for assessing economic feasibility. This

system needs some more initial investment than the existing system, but it can be justifiable that it will improve the quality of service.

Legal Feasibility

Determines, whether the proposed system conflicts with legal requirements. E.g. a data processing system must comply with the local Data Protection Acts.

Schedule Feasibility

A project will fail if it takes too long to be completed before it is useful. Typically this means estimating how long the system will take to develop, and if it can be completed in a given time period using some methods like payback period.

Schedule feasibility is a measure of how reasonable the project timetable is . given our technical expertise, are the project deadlines reasonable? Some projects are initiated with specific deadlines. You need to determine whether the deadlines are mandatory or desirable.

4. PROJECT PLANNING AND SCHEDULING

4.1. Project Planning

For the successful completion of every project there must have a detailed scheduling. The software development has different participating steps. First of all, we have done the requirement analysis phase. For this, we visited different sites which helped us to continue our project, visited different business websites and we discussed with my friends and project guide.

After collecting the requirements, a detailed study of preliminary investigation has done.

After the analysis phase the requirement is divided into modules. The design document is divided into modules. The document is created, which includes data flow diagrams, ER diagrams etc.

As the next step, the actual development of the system takes place. The design representations are translated into the codes. Documentation of codes are done by providing an explanation of how procedures are used. Documentation is essential to test the program and carry on maintenance once the application has been installed.

And then the testing is done. Once a system has been developed it is very important to check if it fulfills the customer requirements.

Implementation of the system means putting up system on users' side. Like any other system there is an aging process. Therefore, the system requires periodic maintenance for software or hardware.

5. SYSTEM REQUIREMENT SPECIFICATION

5.1. Introduction

A software requirements specification (SRS) is a description of a software system to be developed, laying out functional and non-functional requirements. (Non-functional requirements impose constraints on the design or implementation, such as performance, engineering requirements, quality of standards, or design constraints). The specification may include a set of use cases that describe interactions the users will have with the software. The software requirements specification document enlists enough and necessary requirements that are required for the project development. To derive the requirements, we need to have clear and thorough understanding of the products to be developed or being developed. This is achieved and refined with detailed and continuous communications with the project team and the customer until the completion of the software.

5.2. Purpose

The main purpose of the project is to help the fully or half blind persons to live like a normal person .The life of a blind is very difficult compared with others. They can't walk alone on a street or a path. They cannot purchase anything itself. But the proposed system solves this limitation of a blind person. This system helps to identify obstacles in blinds path. So, the blinds can avoid it. The system provides a barcode reader to help the blind to purchase

5.3. Scope

1) Crop management: Farmers could use the app to track crop growth, record planting and harvesting dates, monitor irrigation and fertilization schedules, and identify pest and disease outbreaks**.**

2) Market information: The app could provide farmers with real-time information on market prices for crops, helping them make informed decisions on when to sell their produce.

3) Weather information: Farmers could use the app to access weather forecasts, allowing them to plan their operations accordingly and mitigate the risks of weather-related damage.

4) Financial management: The app could help farmers track their expenses and revenue, and assist with financial planning and budgeting.

5) Communication and collaboration: The app could serve as a platform for farmers to connect with other farmers in their area, exchange information and tips, and share resources.

6) Education and training: The app could provide farmers with educational resources and training on various topics related to farming, such as crop rotation, soil management, and sustainable practices.

Overall, the scope of a farmers app would depend on the specific needs of farmers in the region where the app is being developed, as well as the features and functionality that the app developers choose to include.

6. FUTURE ENHANCEMENT

There are a variety of ways in which a farmer's app could be enhanced in the future, depending on the specific needs of farmers and the goals of the app. Here are a few potential ideas:

Integration with IoT devices: The use of Internet of Things (IoT) devices can help farmers gather data about their crops and livestock in real time. By integrating with IoT sensors and devices, a farmer's app could provide farmers with up-to-date information about things like temperature, humidity, soil moisture levels, and more.

Predictive analytics: With access to a large dataset of farming-related data, a farmer's app could use predictive analytics to provide farmers with insights about when to plant crops, when to expect a harvest, and when to expect weather-related risks.

Crop management tools: A farmer's app could include a variety of tools to help farmers manage their crops. This could include features like tracking the growth of plants, monitoring the use of pesticides and fertilizers, and predicting yield.

Marketplace: A farmer's app could include a marketplace where farmers can buy and sell goods, including crops, livestock, and equipment. This could help farmers connect with potential buyers and sellers, and provide a platform for farmers to manage their sales and purchases.

Weather forecasting: Weather plays a critical role in farming, and a farmer's app could include weather forecasting tools to help farmers plan their work around expected weather patterns. This could include features like alerts for extreme weather events, long-term forecasts, and historical weather data.Community forums: A farmer's app could include community forums where farmers can connect with one another to ask questions, share advice, and discuss issues related to farming. This could help create a sense of community among farmers, and provide a platform for knowledge-sharing.

Data visualization: A farmer's app could include data visualization tools to help farmers understand and interpret data about their farms. This could include charts and graphs that show trends over time, maps that show crop yields by region, and other visualizations that help farmers make sense of their data.

These are just a few potential ideas for how a farmer's app could be enhanced in the future. The specific features and functionality of such an app would depend on the needs of farmers and the goals of the app.

11. CONCLUSION

In conclusion, a farmer's app has the potential to be a valuable tool for farmers, providing them with access to real-time data, predictive analytics, crop management tools, marketplaces, weather forecasting, community forums, and data visualization. By enhancing the app with these features, farmers can better manage their crops and livestock, make more informed decisions, and connect with other farmers. The success of a farmer's app, however, depends on its ability to meet the needs of farmers, provide reliable and accurate information, and be user-friendly. Overall, a farmer's app has the potential to revolutionize farming and improve the lives of farmers around the world.

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PERSONALITY PREDICTION THROUGH CV ANALYSIS

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Abstract

Personality prediction through CV analysis refers to the process of using a candidate's resume or curriculum vitae to predict their personality traits. This is typically done through the use of natural language processing and machine learning algorithms, which analyse the language used in the CV to identify patterns and characteristics that are associated with specific personality traits. The goal of this type of analysis is to provide insights
into a candidate's suitability for a role, their work style, and their potential to fit into a company's culture. Some of the most commonly predicted personality traits include extroversion , neuroticism , agreeableness , openness and conscientiousness. However, it is important to note that CV analysis is just one tool among many for predicting personality, and its results should be interpreted with caution.

Introduction

Personality prediction through CV (Curriculum Vitae) analysis is a project that aims to analyse the text of a job applicant's CV and predict their personality traits. The goal of this project is to automate the process of screening job applicants based on their CVs and to provide hiring managers

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with insights into the candidate's personality before the interview stage.The project will involve using natural language processing (NLP) techniques to extract relevant information from the CV, such as education, work experience, skills, and achievements. Then, machine learning algorithms will be used to analyse the extracted data and predict the candidate's personality traits, such as extroversion, conscientiousness, openness, agreeableness, and emotional stability.The project will require a large dataset of CVs and corresponding personality assessments to train the machine learning models. The accuracy of the predictions will depend on the quality and quantity of the data used to train the models. The project could be useful for companies looking to streamline their hiring process and make more informed decisions about job applicants.

Problem Definition

Companies typically receive thousands of applications per job opening and have a dedicated team of screeners to select qualified candidates. It is very difficult for human beings to manually go through the CV of all applicants. Many candidates get filtered out in the first round itself on the basis of suitability, improper CV, not being skilled enough. Hiring the right candidate is a very difficult task as no candidate is perfect, some might not be skilled enough or some might not have the right personality. Hence, we propose a way in which the process of shortlisting gets streamlined and faster by personality prediction.

Project Overview

Personality prediction through CV analysis is a project that aims to predict an individual's personality traits by analyzing their CV or resume. The project involves using data analysis and machine learning techniques to extract relevant features from the CV, which are then used to predict the individual's

personality traits.The project typically involves collecting CV data from various sources such as job portals or company websites. The data is then preprocessed to extract relevant information such as education, work experience, skills, and personal interests. Natural Language Processing (NLP) techniques can also be used to analyze the text in the CV and extract additional information such as language proficiency, communication skills, and job responsibilities.The preprocessed data is then used to train a machine learning model that can predict an individual's personality traits. The machine learning model can be of various types such as regression, classification, or clustering. Regression models are used to predict continuous variables such as the level of extroversion or introversion, while classification models are used to predict categorical variables such as the Big Five personality traits.The results of the personality prediction project can have various applications such as in the field of human resources. For example, it can be used to identify the best candidates for a particular job based on their personality traits or to identify individuals who are a good fit for a particular company culture.

Methodology

The methodology of personality prediction through CV analysis implements spiral model of SDLC and involves several steps:

- Data Collection:The first step is to gather the individual's CV, which includes their personal information, educational background, work experience, and other relevant details.
- Text Pre-processing:In this step, the CV is cleaned, and irrelevant information is removed. This includes removing stop words, punctuations, and transforming the text into numerical representations.

- Feature Extraction:In this step, important features are extracted from the text. This includes keywords, phrases, and patterns that can give insights into the individual's personality.
- Personality Modeling:In this step, the extracted features are fed into a machine learning algorithm to predict the individual's personality traits. The algorithm uses previously trained data to determine the most likely personality type based on the features.
- Personality Evaluation:The final step is to evaluate the results of the personality prediction. This includes comparing the predicted personality traits with the individual's self-reported personality and evaluating the accuracy of the prediction.

Purpose

- Recruitment: The results of personality prediction can be used to evaluate an applicant's suitability for a particular job role. This can help employers make informed decisions about who to hire, and improve the chances of finding a good fit for the company culture.
- Personal Development: The results of personality prediction can help individuals understand their own strengths, weaknesses, and tendencies, which can be useful for personal growth and development.
- Conflict Resolution: Understanding an individual's personality traits can help in resolving conflicts and improving communication between team members in a workplace.

Scope

model or tool that can predict potential areas of workplace performance and derailment based on the analysis of a candidate's CV. The project team would need to define the specific research questions and hypotheses that will guide the project.

Identifying the data sources: The project would require a large dataset of CVs and validated personality assessments to train and test the prediction model. The data sources could include publicly available datasets, data purchased from third-party vendors, or data collected by the project team.

Developing the prediction model: The project team would need to select and develop a validated personality assessment model that can be used to predict potential areas of workplace performance and derailment based on the information extracted from the CVs. The team would need to identify the most relevant variables that will be used in the prediction model and develop an algorithm that can effectively predict personality traits.

Developing the software tool: The project would require the development of a software tool or application that can automate the process of CV analysis and personality prediction using the selected personality assessment model. The tool should be user-friendly and capable of generating reports that are easily interpretable by HR professionals.

Validating the model: The project team would need to validate the prediction model by testing it on a dataset of CVs with known personality assessments. The team would need to evaluate the performance of the prediction model using various performance metrics such as accuracy, precision, and recall.

Piloting the software tool: The project team would need to pilot the software tool in real-world recruitment and selection processes to evaluate its effectiveness in predicting potential areas of workplace performance and derailment. The team would need to gather feedback from HR professionals and make necessary modifications to the tool.

Finalizing the project: The final step would involve finalizing the project deliverables, documenting the project outcomes, and preparing the project for dissemination to stakeholders.

Existing System

A traditional or non-automated approach to personality prediction through CV analysis, then it would typically involve manual review and analysis of the candidate's CV by a human hiring manager or recruiter.This manual approach would typically involve looking for specific keywords or phrases that may indicate certain personality traits, such as leadership experience, teamwork skills, or attention to detail. The hiring manager would also consider other factors such as the candidate's education, work experience, and accomplishments.Based on this analysis, the hiring manager would make a subjective judgment about the candidate's personality traits and whether they would be a good fit for the role. While this approach can be effective in certain cases, it is time-consuming and can be subject to biases or errors in judgment.

Disadvantages Existing System

- Bias and Subjectivity: The traditional system relies heavily on the judgment of the interviewer or assessor, which can introduce bias and subjectivity into the assessment. Different assessors may interpret the same behaviors or responses differently, leading to inconsistent results.
- Cost and Time: The traditional system can be costly and time-consuming, as it often involves multiple assessments and interviews. This can make it difficult to assess a large number of candidates quickly and efficiently.

- Limited Scope: The traditional system may only focus on certain aspects of a person's personality, such as their behavior in specific situations, and may not provide a comprehensive picture of their overall personality traits and characteristics.
- Invasive Nature: Some people may feel uncomfortable or intimidated by the traditional assessment process, which may involve personal questions and detailed analyses of their behavior and thought processes.
- Potential for Error: The traditional system is not foolproof and can sometimes produce inaccurate results. Assessors may misinterpret behaviors or make errors in their judgments, which can lead to incorrect predictions about a person's personality.
- Ethical Concerns: There are ethical concerns related to the traditional system, including issues of privacy, confidentiality, and discrimination. It is important to ensure that assessments are conducted in a fair and ethical manner, and that the results are not used to discriminate against certain groups of people.

Proposed System

A proposed system for personality prediction through CV analysis would involve the use of artificial intelligence and machine learning algorithms to analyze data from a person's CV and make predictions about their personality traits and characteristics.

The system would be designed to identify patterns and correlations between the information provided in a person's CV and their personality traits, using advanced algorithms to make accurate predictions. The system could take into account factors such as a person's job experience, educational background, and skillset, as well as any other relevant information that may be available.

One potential advantage of such a system is that it would be highly efficient and cost-effective, allowing for large-scale personality assessments to be conducted quickly and easily. It could also be designed to be highly accurate and objective, avoiding some of the biases and subjectivity that can be associated with traditional assessment methods.

However, there are also potential drawbacks to this proposed system. For example, there may be limitations to the amount and type of data that can be extracted from a person's CV, which could lead to incomplete or inaccurate predictions. Additionally, there may be concerns related to privacy and data security, as personal information is used to make predictions about a person's personality.

Overall, a proposed system for personality prediction through CV analysis would need to carefully balance the potential benefits with the potential drawbacks, and should be designed and implemented in a responsible and ethical manner.

Advantages of proposed system

- Efficient and Cost-Effective:

  Using CV analysis for personality prediction can be more efficient and cost-effective than traditional methods of personality assessment, such as interviews or psychometric tests, which can be time-consuming and expensive.

- Objective and Standardized:

  Personality prediction through CV analysis can provide an objective and standardized method for evaluating job candidates, as it uses data-driven algorithms that are less prone to biases and inconsistencies that can arise in subjective assessments.

- More Comprehensive:

  Personality prediction through CV analysis can provide a more comprehensive assessment of a candidate's personality traits by analyzing a wide range of CV features, such as education, work experience, and extracurricular activities, which can reveal insights that may not be captured by traditional methods.

- Improved Hiring Outcomes:

  By providing more accurate and comprehensive assessments of candidates' personality traits, CV analysis for personality prediction can lead to improved hiring outcomes, such as better job performance and higher job satisfaction, which can benefit both the employer and the employee.

- Scalable:

  CV analysis for personality prediction can be easily scaled to analyze a large number of job candidates, making it a practical solution for organizations with high volumes of applicants.

Environmental Details

Environmental requirements for the smooth functioning of this product could be configured based on the requirement needed by the component of the operating environment that works as front – end system. Here we suggest minimum configuration for both hardware and software components.

Hardware Specification

- Processor : Core 2 Duo at 2.0GHz
- RAM : 1GB DDR2 RAM [Minimum]
- Monitor : Any Colour
- Keyboard : Standard Keyboard (120 keys)

- Mouse : Any
- Hard disk : 500GB [Minimum]
- Storage : 20 MB
- Network speed : 1 MBPS
- Android device

Software Specification

- IDE: Pycharm, Android Studio,Sqlyog
- Frond End: Android, html
- Framework: Django
- Back End: MySQL
- Coding Language: HTML, CSS,js, Python, Java
- Operating System: Windows 10
- Web Server: Localhost

System Design

The main users of the system are:

- Admin
- Company
- Candidate

Admin

This module will have the provision to do the following after the login process:

- Can access the entire database.
- Verifying the given information at the time of registration.
- Ensure that the database should be compatible to withstand the network traffic when multiple users access the database at a time.

Company

They should register themselves with the administrator's database with proper documents to verify themselves. After login, they can do the following

- Add and Manage Job Vacanices
- Add Aptitude Questions
- View Prediction And shortlist Candidates
- View feedback
- Verify Job Request

Candidate

This module will have the provision to do the following after the login process:

- Search For Companies and send Job Requests
- Check Request Status
- Upload CV
- Send Feedback
- View Shortlist
- Update Profile

CONCLUSION

In conclusion, personality prediction through CV analysis can provide valuable insights into a candidate's personality traits. By analyzing the candidate's CV, we can identify patterns and behaviors that are indicative of certain personality traits, such as extraversion, conscientiousness, openness, agreeableness, and neuroticism.However, it is important to keep in mind that personality is a complex and multifaceted trait, and it is always advisable to

use multiple sources of information when evaluating candidates. CV analysis can be a useful tool in the hiring process, but it should not be the sole basis for making hiring decisions.Furthermore, it is important to ensure that the CV analysis process is fair and unbiased. Unconscious biases can affect the evaluation of personality traits, and it is important to minimize the impact of biases to ensure that the hiring process is fair and equitable.Overall, personality prediction through CV analysis can be a useful tool in the hiring process, but it should be used in conjunction with other sources of information and with an awareness of potential biases.

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DEPARTMENTAL DOCUMENT SOFTWARE USING OCR

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ABSTRACT

This system aims at providing an application for the college departments. The system provides a document processing which aims at entering the university result details by scanning the file and read the contents by using the OCR and prepare an excel sheet automatically, based on that excel sheet the department can analyse the performance of the students based on the auto generated excel sheet and can generate an analysis report ofeach students, currently the office staff are manually entering the result details of the students into the excel sheets, so this system can reduce the work done by teachers usingthis document processing.

This system is also used to generate a consolidated report of the attendance of the studentsbased on the daily attendance registration by the teachers. And also the teachers will createan assignment folder in the system so that the students can submit their assignments, based on the submission date and time the teachers can analyse the punctuality of the students,they can get to know who all submitted the assignments on the correct date before due date. By taking the performance analysis of the exam results, attendance and assignments, thesystem makes it easier for the teachers to calculate the internal marks of the students.

This system also has the provision to enter the fee details of the students according to thecommunity and quota. So that the students can come to know about their scholarships or any other advantages for them if any. And also they can view the college bus fees details, the

number of students using the college bus and any pending fee details etc. The library details of the students can also visible in the system weather they have any fine or any book return or any dues can managed here.

INTRODUCTION

The design and implementation of a College Department Software is to replace the current paper records.The system provides a document processing which aims at entering the university result details by scanning the image formatted file and read the contents by using the OCR and prepare an excel sheet automatically, based on that excelsheet ,the office staff can analyse the performance of the students based on the auto generated excel sheet and can generate an analysis report of each students.Based on department, subjects, year, sem, mark... etc analysis can be done.Office staff is able to access all details of the student.Currently teachers manually enters the result details of the students into the excel sheets, so this system can reduce the work done by teachers using this document processing.The student registeration, adding of fee details, university result, file uploading and it's analysis are done by office staff registered by the admin. Admin can register department,office staff, Teacher and Librarian.This system is also used to generate a consolidated report of attendance of the students, based on the daily attendance registration by the teachers. And also the teachers will create an assignment folder in the system so that the students can submit their assignments, based on the submission date and time.The teachers can analyse the punctuality of the students, they can get to know the students who submitted the assignments on the correct date before the due date. By taking the performance of analysisof the exam result, attendance and assignments, the system makes it easier for the teachers to calculate the internal marks of the students.This system also has the provision to enter the fee details of the students according to the admission process (community).The library details of the students are also visible in the system whether they have any fine or any book return or any dues can managed here. Librarian is adding the library details of each student.The details of each student can be viewed by the given teachers, librarian & also office staff in the software.

SYSTEM STUDY

EXISTING SYSTEM

In existing system the office staffs are manually entering the mark details into the system which indeed puts more effort, since they have to enter each student's mark details. Student's

will have to visit the office and department to get to know their results.Teacheralso needs to manually add internals and assignment marks into papers and they have to add students attendance into records which takes time and effort.Likewise, librarian also needs to enter the fine and book due details of the student's manually in records which also takes time and effort and which is difficult to sort out a particular student and their fine aswell.

Limitation

- Needs lots of time and effort.

PROPOSED SYSTEM

The office staffs have less effort and save time to add marklist because of using Department Software. They can add marklist into the system by using OCR method , which automatically scan the documents and display the image formatted file into Excel sheet. Students do not need to visit office they are likely to know information quickly.Teacher manually adds internalsand assignment marks then the system automatically calculates the total mark of the student..when using this technich ,we could find the highest mark students per year and also get subject wise top scorers.

METHODOLOGY

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SYSTEM SPECIFICATION

Hardware and software requirements for the installation and smooth functioning of this product could be configured based on the requirements needed by the component of the operating

environment that works as front-end system here we suggest minimum configuration for the both hardware and software components. Working off with this software is requirements concrete on system environments. It includes two phases.

- Hardware Requirements
- Software Requirements

HARDWARE SPECIFICATION

- Processor : i3 or above.
- System Bus : 32Bit or 64Bit
- RAM :4 GB or Above
- HDD :500 GB or Above
- Monitor :14" LCD or Above
- Key Board : 108 Keys Any Type of
- Mouse :mouse

SOFTWARE SPECIFICATION

- Operating System: Windows 10 Any 32 bit or 64 bit platform
- Front End : Python
- Back End : MySQL Sever
- IDE : Eclipse

SOFTWARE REQUIRED:

FRONTEND:

PYTHON

Python is an interpreted, high-level, general-purpose programming language.Created by Guido van Rossum and first released in 1991, Python has a design philosophy that emphasizes code readability, notably using significant whitespace. It provides constructs that enable clear

programming on both small and large scales. Python is a generalpurpose interpreted, interactive, object- oriented, and high-level programming language. Guido van Rossum during 1985-1990, created it. Like Perl, Python source code is also available under the GNU General Public License (GPL). Python is a popular programming language. Guidovan Rossum created it in 1991.

It is used for:

- web development (server-side),
- software development,
- mathematics,
- System scripting.

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

- Python is Interpreted − Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP. ▪ Python is Interactive −You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- Python is Object-Oriented − Python supports Object-Oriented style or techniqueof programming that encapsulates code within objects.
- Python is a Beginner's Language − Python is a great language for the beginner-levelprogrammers and supports the development of a wide range of application.

Python's features include:

- Easy-to-learn − Python has few keywords, simple structure, and a clearly definedsyntax. This allows the student to pick up the language quickly.
- Easy-to-read − Python code is more clearly defined and visible to the eyes.
- Easy-to-maintain − Python's source code is fairly easy-to-maintain.
- A broad standard library − Python's bulk of the library is very portable and crossplatform compatible on UNIX, Windows, and Macintosh.
- Interactive Mode − Python has support for an interactive mode which allowsinteractive testing and debugging of snippets of code.
- Portable − Python can run on a wide variety of hardware platforms and has the sameinterface on all platforms.

- Extendable −You can add low-level modules to the Python interpreter. Thesemodules enable programmers to add to or customize their tools to be more efficient.
- Databases − Python provides interfaces to all major commercial databases.
- GUI Programming − Python supports GUI applications that can be created andported to many system calls, libraries and windows systems, such as WindowsMFC, Macintosh, and the X Window system of Unix.
- Scalable − Python provides a better structure and support for large programs than shell scripting.
-

PHYCHARM IDE

PyCharm is an integrated development environment (IDE) used in computer programming, specifically for the Python language. It is developed by the Czech company JetBrains. It provides code analysis, a graphical debugger, an integrated unit tester, integration with version control systems (VCSes), and supports web development with Django as well as data science with Anaconda.

PyCharm is cross-platform, with Windows, macOS and Linux versions. The Community Edition is released under the Apache License, and there is also Professional Edition with extra features – released under a proprietary license

BOOTSTRAP

Bootstrap is a free and open-source front-end framework for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many earlier web frameworks, it concernsitself with end development only. Bootstrap, originally named Twitter Blueprint, wasdeveloped by Mark Otto and

Jacob Thornton at Twitter as a framework to encourage consistency across internal tools. Before Bootstrap, various libraries were used for interface development, which led to inconsistencies and a high maintenance burden. After a few months of development by a small group, many developers at Twitter began to contribute to the project as a part of Hack Week, a hackathon-style week for the Twitter development team. It was renamed from Twitter Blueprint to Bootstrap, and released as an open source project on August 19, 2011.

STRUCTURE AND FUNCTION

` *Bootstrap is modular and consists of a series of Less (Sass version 4 andonward)*

stylesheets that implement the various components of the toolkit. Thesestylesheets are generally compiled into a bundle and included in web pages, but

individual components can be included or removed. Bootstrap provides a number of configuration variables that control things such as color and padding of various components. Since Bootstrap 2, the Bootstrap documentation has included a customization wizard which generates acustomized version of Bootstrap based on the requested components and various settings. As of Bootstrap 4, Sassis used instead of Less for the stylesheets. Each Bootstrap component consists of an HTML structure, CSS declarations, and in some cases accompanying JavaScript code. Grid system and responsive design comes standard with an 1170-pixel-wide grid layout. Alternatively, the developer can use a variable-width layout. For both cases, the toolkit has four variations to make use of different resolutions and types of devices: mobile phones, portrait and landscape, tabletsand PCs with low and high resolution. Each variation adjusts the width of the columns.

BACKEND

My SQL

MySQL is an open source relational database and it includesadvanced data types. MySQL operates using client/server architecture inwhich the server runs on the machine containing the database and clientconnect to the server over the network. MySQL run on all platforms supported by MySQL and provides the most direct means of interacting withthe server, so it's the logical client to begin with.

- You need to have the MySQL software installed.
- You need a MySQL account so that you can connect to the server.
- You need a database to work with.

The required software includes the MySQL clients and a MySQLclients and a MySQL

server. The client program must be located on the machine where you will work. The server can be located on our machine although that is not required.

As long as you have permission to connect to it the server can be locatedanywhere. In addition to the MySQL software you will need a MySQL account so that the server will allow you to connect and create us sampledatabase and its table.

Microsoft SQL Server 2008 is a full-featured relational database management system (RDBMS) that offers a variety of administrative tools to ease the burdens of database development, maintenance and administration. In this article, we'll cover six of the more frequently used tool: Enterprise Manager, Query analyzer, SQL Profiler, Service Manager, Data Transformation Services and Books Online. Let's take a brief look ateach:

Enterprise Manager is the main administrative console for SQL Server installations. It provides you with a graphical "birds-eye" view of all of theSQL Server installation on your network. You can perform high-level administrative functions that affect one or more servers, schedule common maintenance tasks or create and modify the structure of individual databases.

Query Analyzeroffers a quick method for performing queries against any of your SQL Server databases. It's a great way to quickly pull information outof a database in response to a user request, test queries before implementing them in other applications, create/modify stored proceduresand execute administrative tasks.

SQL Profiler provides a window into the inner workings of your database.You can monitor many different event types and observe databaseperformance in real time. SQL Profiler allows you to capture and replay system "traces" that log various activities. It's a great tool for optimizing databases with performance issues or troubleshooting particular problems.

Service Manager is used to control the MS SQL Server (the main SQL Server process), MSDTC (Microsoft Distributed Transaction Coordinator) and SQLSeverAgent processes. An icon for this service Manager to start, stop orpause any one of these services.

Data Transformation Services (DTS) provide an extremely flexible methodfor importing and exporting data between a Microsoft SQL Server installation and a large variety of other formats. The most commonly used DTS application is the "Import and Export Data" wizard found in the SQL Server program group.

SYSTEM DESIGN

System design is the process of developing specifications for a candidate system that meet the criteria established in the system analysis. Major step in system design is the

preparation of the input forms and the output reports in a form applicable to the user.

The main objective of the system design is to use the package easily by any computer operator. System Design is the creative act of invention, developing newinputs, a database, offline files, method, procedures and output for processing business to meet an organization objective. System design builds information gathered during the system analysis.

The system design is the most creative and challenging phase. The first step isto determine how the output is produced and in what format. Samples of input andoutput are presented. Next the input data and the master data are to be designed tomeet the requirements of the proposed output. The operational phases are handledthrough program construction testing, including a list of programs needed to meet the system objective and complete documentation.

INPUT DESIGN

Input design is the process of converting the user originated inputs to a computer format. The input design involves determining what the inputs are, how thedata should be performed, how to validate data, how to minimize data entry and howto provide a multiuser facility. The design for handling input specifies how data areaccepted for computer processing. Input design is a part of overall system design that needs careful attention and if includes specifying the means by which actions are taken.

A system user interacting through a system must be able to tell the system whether to accept input produce a report or end processing. The collection of inputdata is considered to be the most expensive part of the system design. Since the inputs have to be planned in such a manner so as to get the relevant information extreme care is taken to obtain the information. If the data going into the system isincorrect then processing and outputs will magnify this error. All input data are validated in the order and if any data violates any conditions, the user is warned by amessage. If the data satisfies all the conditions, then it is transferred to the appropriate tables in the database.

We have to keep in mind the following things to design the system

- What data to input?
- What medium to use?
- The dialogue to guide users in providing input.
- Methods for performing input validation and steps to follow when errors occur

Input requirement gathering was one of the major trivial process in web or android application

development. The project involves text inputs. The inputs can be entered throughkeyboard and mouse. The text input is gathered by forms with text boxes.

OUTPUT DESIGN

Effective output design will improve the clarity and performance of output. Output design phase of the system is concerned with the convergence of information'sto the end user friendly manner. The output design should be efficient, intelligible so that system relationship with the end user is improved and thereby enhancing the process of decision making. .

They are also used to provide a permanent copy of these results of processing to theusers. They are also used to provide a permanent copy of these results for late consultation. There are various types of output required by most systems, the mainones are:

- External outputs, whose destination is outside the organization and which requirespecial attention because they project the image of the organization.
- Internal outputs, whose destination is within the organization and which require careful design because they are the user's main interface with the computer. Operational outputs, whose use is purely within the computer department.
- Turn around outputs, to which the data will be added before they are returned to the computer for further processing.

SYSTEM IMPLEMENTATION & MAINTANANCE

The implementation includes all those activities that take place to convert from the old system to new. The old system consists of no filtering the contents searched by the user,which is operated in a push model manner from the proposed new system. A proper implementation is essential to provide a reliable system to meet the requirements of the customers. An improper implementation may affect the success of the application.There are several methods for handling the implementation and the consequentconversion from the old applications to the new application developed in this project. The most secure methods for compare the old system and the new system is to run the old and new system in parallel. In this approach, a person may operate the oldexisting application and the new application. This method offers high reliability andsecurity.A working version of the system can is implemented in the website application. The website is managed by the admin, Doctor user and the user.The implementation plan

includes host the website and the application put it into its operation. The implementation plan consists of the following steps:

- List all files required for implementation.
- Host the website and put it into its operation.

The implementation plan should anticipate possible problems and must be able to deal with them. The usual problems may be missing documents; mixed data formats between current files and errors in data translation, missing data etc.User Training

The implementation of the proposed system includes the training of system operators. Training the system operators includes not only instructions in how touse the equipment, but also in how to diagnose malfunctions and in what steps totake when they occur. So proper training should be provided to the system operators. No training is complete without familiarizing users with simple systemmaintenance activities. Since the proposed system is developed in a GUI, trainingwill be comparatively easy than systems developed in a non-GUI. There are differenttypes of training. We can select off-site to give depth knowledge to the system operators.

Success of the system depends on the way in which it is operated and used. Therefore, the quality of training given to the operating person affects thesuccessful implementation of the system. The training must ensure that the person can handle all the possible operations.Training must also include data entry personnel. They must also be giventraining for the installation of new hardware, terminals, how to power the system, how to power it down, how to detect the malfunctions, how to solve the problemsetc. the operators must also be provided with the knowledge of trouble shootingwhich involves the determination of the cause of the problem.

The proposed system requires trained personnel for operating the system.This will reduce the data entry errors considerably. It is preferable to provide the person with some kind of operating manuals that will explain all the details of the system.For the purpose of training we have improved our user interface for a guiding styleof use and we are providing and intuitive interface for users. Along with all the simplicity we are providing a help section for users of the application with a detailed description of how each module are working and feature wise specialtiesand benefits.

System Maintenance

Maintenance of the software is one of major step in the development of the computer system. Software, which is developed by the engineer, should undergo maintenance process in a regular interval of time as time on new problem arises and it must be corrected accordingly Maintenance and enhancement are a long- term process.

In this project, the maintenance is carried over by the staff. Since they are thekey persons to develop this project they know clearly about the project and coding structured. So, they will change the coding whenever required. Regarding the project maintenance, the changes will occur then and there according to the conditions.

Various types of maintenance that can be made are:

- Corrective maintenance: reactive modification (or repairs) of a software product performed after delivery to correct discovered problems. Included in this category is emergency maintenance, which is an unscheduled modification, performed to temporarily keep a software product operational pending corrective maintenance.
- Adaptive maintenance: modification of a software product performed after delivery to keep a software product usable in a changed or changing environment. For example, the operating system might be upgraded and some changes to the software may be necessary.
- Perfective maintenance: modification of a software product after delivery toprovide enhancements for users, improvement of program documentation, and recoding to improve software performance, maintainability, or other softwareattributes.
- Preventive Maintenance: modification of a software product after delivery to detect and correct latent faults in the software product before them become operational faults.

The staff in the concern takes part in each and every level of the project. So they don't need any training of the software. During the development process they sat and entered each and every entry to test the project. They themselves used this is an opportunity to take training is not needed for the users.

CONCLUSION

The project named Department Software is developed as a web application for scanning and displaying the image formatted University marklist into the Excel sheet and it's analysis is done at office .This software provides information of a particular student as well.Admin will registers office , teacher and librarian to give information to the particular student to view

his/her academic performance. Students views the assignment, internal and attendance provided by the teacher.And also the student's can know the library fine and book due details provided by the librarian.Thereby each students come to know their information.The project is developed using Python, Django and Sqlite as back end. This language selection is based on the requirement specification of the user and analysis of the existing system, with flexibility for future enhancement. Since the system is developed in modules, future enhancement is very easy.

FUTURE ENHANCEMENT

This Department software is a web application has been designed and developed according to the current techniques and scopes of designing and development tools. This system is veryflexible so that the maintenance and further amendments based on the changing environment and requirements can be made easily with adding further information. Further enhancement ispossible to updating evaluating tools. This can be restructured as required.We can do future enhancements mainly on followingfields of the product

- Chat: Real time chat between admin and users.
- In further enhancement we aims at introducing text formatted files along with image formatted files .Thus it supports text formatted files to be scanned by OCR method provided.Files can be analysed in many ways based on new features of analysis.
- Office, We will implement updation regarding information given to students on scholarshipdetails and bus fee details rather than fee details.
- The librarian can give information to students about the availability of books, whether the requested book is currently available or not.

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FACE RECOGNITION BASED ATTENDANCE

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ABSTRACT

In present academic system, regular class attendance of students' plays a significant role in performance assessment and quality monitoring. The conventional methods practised in most of the institutions are by calling names or signing on papers, which is highly time-consuming and insecure. This article presents the automatic attendance management system for convenience or data reliability. The system is developed by the integration of ubiquitous components to make a portable device for managing the students' attendance using Face Recognition technology.

INTRODUCTION

Automatic face recognition (AFR) technologies have made many improvements in the changing world. Smart Attendance using Real-Time Face Recognition is a real-world solution which comes with day to day activities of handling student attendance system. Face recognition-based attendance system is a process of recognizing the students face for taking attendance by using face biometrics based on high - definition monitor video and other information technology.

The concept of face recognition is to give a computer system the ability of finding and recognizing human faces fast and precisely in images or videos. Numerous algorithms and techniques have been developed for improving the performance of face recognition. Human brain can automatically and instantly detect and recognize multiple faces. But when it comes to computer, it is very difficult to do all the challenging tasks on the level of human brain. The

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face recognition is an integral part of biometrics. In biometrics, basic traits of human are matched to the existing data. Facial features are extracted and implemented through algorithms, which are efficient and some modifications are done to improve the existing algorithm models. Computers that detect and recognize faces could be applied to a wide variety of practical applications including criminal identification, security systems, identity verification etc.

The face recognition system generally involves two stages:

- Face Detection – where the input image is searched to find any face, then image processing cleans up the facial image for easier recognition.
- Face Recognition – where the detected and processed face is compared to the database of known faces to decide who that person is.

AIMS OF THE PROJECT

i. Direct Face scanning.
ii. Make easy for Teachers to record the Students Attendance.
iii. Faster processing and accurate results.
iv. Time consumption is very less in marking Attendance.
v. Make Teacher Student communication more easier.

EXISTING SYSTEM

Existing systems are based on finger print, magnetic cards. They are not efficient to handle complex systems. Most of them are costly.

Drawbacks of Existing System

i. Time Consuming
ii. Less accurate
iii. Devices is very expensive

PROPOSED SYSTEM

Proposed system is an android and python based application. The system mainly includes a security concepts based on Face Recognition.

All the students of the class must be registered by entering the required details and then their images will be captured and stored in the dataset. During each session, faces will be detected from the entry. The faces detected will be compared with images present in the dataset. If match found, attendance will be marked for the respective student. At the start of each session, list of absentees will be reported to the respective parents and teachers.

Advantage of Proposed System

i. More accurate.
ii. Speed.
iii. Time and cost efficient.
iv. Increased Security
v. It is very comfortable for using and carry.

Functions are**:** Staff Management, Student management, Attendance Management, Mark management, Notification management, Face recognition

PROBLEM DEFINITION

At present the Attendance are marked by individually by concerned teachers or by using Fingerprints. The present system is more time consuming. Face Recognition Based Attendance system uses the face to record the Attendance and it is more fast and accurate. Face Recognition Attendance overcome all the present crisis and helps the educational institute for marking their students attendance.

HARDWARE SPECIFICATION

The minimum hardware requirement is

i. Processor : Intel Core i3 or above.
ii. Primary Memory : 4GB RAM and above
iii. Storage : 500 GB hard disk and above
iv. Display : VGA Color Monitor
v. Standard Camera

SOFTWARE SPECIFICATION

The minimum software requirement is

i. Operating system : Windows 7 or Above & android

ii. Front End : Python, Android

iii. Back End : MySQL Server

iv. IDE : Android Studio, PyCharm

v. Other Softwares : Adobe Dreamweaver, SqlYog

METHODOLOGY

There are various project management methodologies . We choose the traditional and sequential methodology " Water fall " for doing our project . With this methodology , the tasks are sequenced that lead to a final deliverable product . With this , one task must be completed before the next one begins , in a connected sequence of items that add up to the overall deliverable . The reason behind the selection of this method was that every step is preplanned and laid out in the proper sequence .

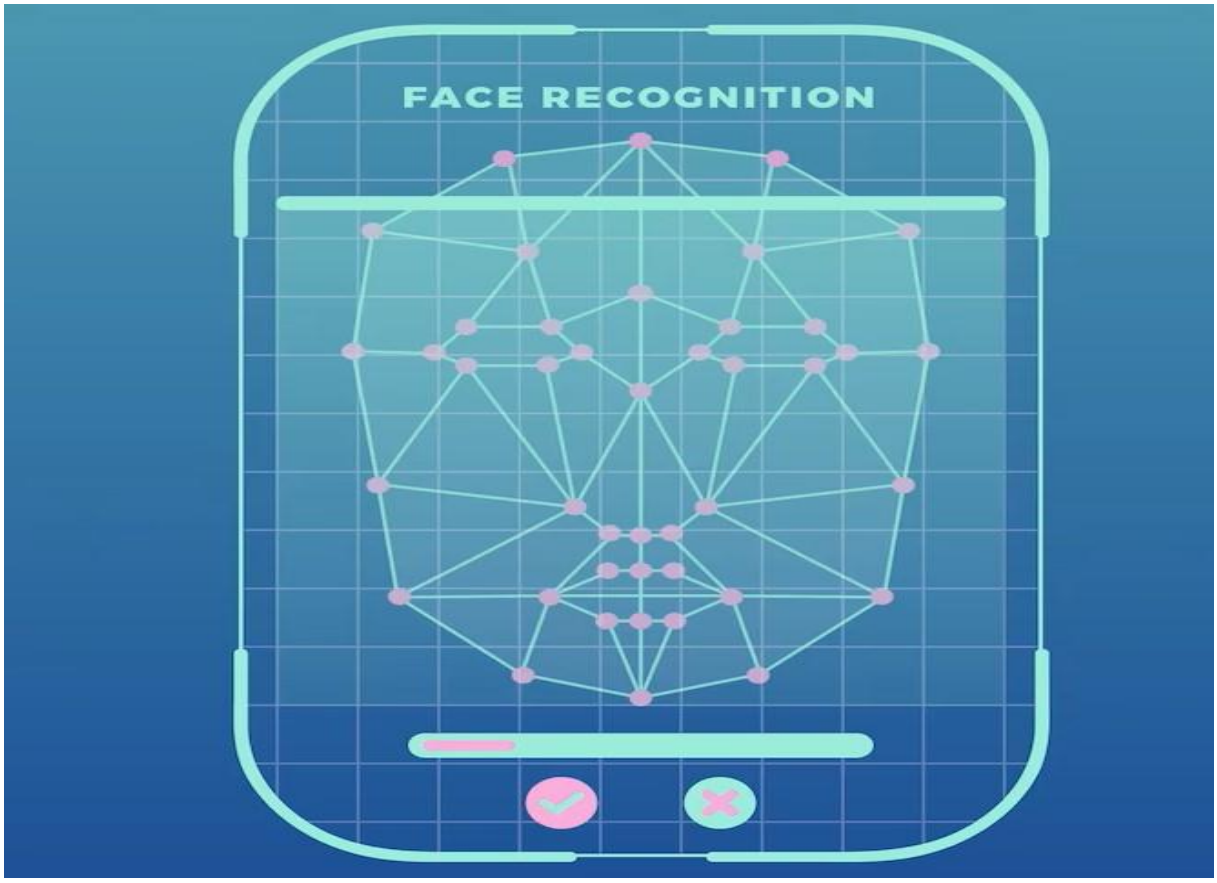
The waterfall model is a relatively linear sequential design approach for certain areas of engineering design . In software development , it tends to be among the less iterative and flexible approaches , as progress flows in largely one direction through the phases of that are part of waterfall model includes many , they are initiation , analysis , design , construction , testing , deployment and maintenance.

SYSTEM IMPLEMENTATION

The implementation phase of a project covers the period from the acceptance of the tested design to its satisfactory operations, supported by the appropriated user and the operation manual. It is major operation across the whole organization structure and requires the great deal of planning. Planning of implementation must begin from initial conception of the project. It require a thorough knowledge of the new system, its personal need, hardware and software requirements, file and procedure conversion activities and of the current system where interface with the new, the change to it, the job that will be superseded, etc. Only the analyst responsible for creation the new system wills possess this knowledge. The new system analyst can plan, schedule and coordinate, but has no executive power. Planning must cover the following aspects.

- Organization of implementation.
- Control of resources.
- Motivation of the users.

- Training and production manuals.
- Change over.



CONCLUSION

This package has been developed to handling student attendance system.. This system is designed using a generalized application and is also a highly user-friendly one. The system is more effective. Less time and paper work is required. No chance of error. User can generate the report as per requirement or in middle of the session. Student can improve their attendance. Work can be done speedly and in time.

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IOT BASED HOME AUTOMATION AND SECURITY SYSTEM

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ABSTRACT

Home Automation industry is growing rapidly, this is fulfilled by the need to provide supporting systems for the elderlyand the disabled, especially those who live alone. Coupled with this, the world population is confirmed to be getting older. Home automation systems must comply with the household standards and convenience of usage. Home automation is one of the major growing industries that can change the way people live. Some of these home automation systems target those seeking luxury and sophisticated home automation platforms; others target those with special needs like the elderly and the disabled. Typical wireless home automation system allows one to control household appliances from a centralized control unit which is wireless. These appliances usually have to be specially designed to be compatible with each other and with the control unit for most commercially available home automation systems..The developed system can be integrated as a single portable unit and allows one to wirelessly control lights, fans, air conditioners, television sets, security cameras, electronic doors, computer systems, audio/visual equipment's etc. and turn ON or OFF any appliance that is plugged into a wall outlet, get the status of different sensors and take decision accordingly. The system is portable and constructed in a way that is easy to install, configure, run, and maintain. The perfect user interface still does not exist at present and to build a good interface requires knowledge of both sociology and technology fields. The problem lies with

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the situation of the elderly or disabled people, who cannot usually help themselves to move around, and might require external assistance. People who live alone might also need a helping hand at home. Therefore An android app controlled home automation system is designed, so that the users can perform certain tasks by just the use of their phones. Having a phone as a remote will make the system more user-friendly and portable.

Keywords: Home Automation, Smart Home, Wireless Home Automation.

INTRODUCTION

This project presents the overall design of Home Automation System with low cost and wireless system. It specifically focuses on the development of an IOT based home automation system that is able to control various components via internet or be automatically programmed to operate from ambient conditions.A smart-house developed on the basis of the Internet of Things (IoT) can save more energy, where IoT is a network system consisting of electronic devices, software, sensors and networks that connect all concerned network entities together to make the system more valuable and able to provide many more services to users. Managing all of your home devices from one place,the convenience factor here is enormous. Being able to keep all of the technology in your home connected through one interface is a massive step forward for technology and home management.Also When you incorporate security and surveillance features in your smart home network, your home is protected and safe This IoT project focuses on building a smart wireless home security system which sends alerts to the owner by using Internet in case of any trespass and turn on the lights automatically after a specific time. Besides, the

same can also be utilized for home automation by making use of the same set of sensors. The leverage obtained by prefering this system over the similar kinds of existing systems is that the alerts and the status sent by the wifi connected microcontroller managed system can be received by the user on his phone from any distance irrespective of whether his mobile phone is connected to the internet.

METHODOLOGY

In this proposed system we are including security and device control together which is not common in home automation system in today's market. Also we introduce wireless control of home appliances and monitoring status of those appliances. A list of familiar persons are added along with their contact and other details which notifies us on android phone when they are detected in the camera. The equipment are switched on automatically at specific time(night) if an unknown person is detected. The appliances in the above mentioned environment can be controlled in intra-network, so range issues are solved. The system can be implemented in homes, small offices and malls as well. With a strong existing possibility of adding and integrating more features and appliances to the system, the designed system is highly extensible in nature

AGILE methodology is a practise that promotes continuous iteration of development and testing throughout the software development lifecycle of the project .Both development and testing activities are concurrent unlike the waterfall model.The agile software development emphasizes on four core values.

REQUIREMENT SPECIFICATION

EXISTING SYSTEM

The existing infra-red (IR) or Blue-tooth remote controls present in the market are in general appliance specific and the same cannot be used interchangeably. Electrical appliances connected through Bluetooth making use of Blue-tooth enabled smart phones cannot be managed from a distant location. Thus functions such as being able to turn on an air-conditioner while returning home cannot be done with such systems

PROPOSED SYSTEM

In the proposed system we are including security and device control together which is not common in home automation system in today's market. Also we introduce wireless control of home appliances and monitoring status of those appliances. A list of familiar persons are added along with their contact and

other details which notifies us on android phone when they are detected in the camera. The equipment are switched on automatically at specific time(night) if an unknown person is detected. The appliances in the above mentioned environment can be controlled in intra-network, so range issues are solved. The system can be implemented in homes, small offices and malls as well. With a strong existing possibility of adding and integrating more features and appliances to the system, the designed system is highly extensible in nature

SYSTEM REQUIREMENT SPECIFICATION

The following requirements are only the minimal requirements to run this utility more successfully and efficiently, there should sufficient memory and software tools for efficient processing.

HARDWARE REQUIREMENTS:

- Processor : 64 bit
- RAM : Min 3 GB
- Hard Disk : 320 GB
- Embedded device : Integrated with Microcontroller Adruino Uno
- Web cam

SOFTWARE REQUIREMENTS:

- Operating system : Windows 7 or above, Android
- Technology Used : Python , Embedded , android(application)
- Languages Used : Python ,C program, java
- IDE : PyCharm / Android Studio
- Framework : Flask
- Database : MySQL

SYSTEM IMPLEMENTATION

The implementation phase of a project covers the period from the acceptance of the tested design to its satisfactory operations, supported by the appropriated user and the operation

manual. It is major operation across the whole organization structure and requires the great deal of planning. Planning of implementation must begin from initial conception of the project. It require a thorough knowledge of the new system, its personal need, hardware and software requirements, file and procedure conversion activities and of the current system where interface with the new, the change to it, the job that will be superseded, etc. Only the analyst responsible for creation the new system wills possess this knowledge. The new system analyst can plan, schedule and coordinate, but has no executive power. Planning must cover the following aspects:

- Organization of implementation.
- Control of resources.
- Motivation of the users.
- Training and production manuals.
- Change over.

CONCLUSION

It is evident from this project work that an individual control home automation system can be cheaply made from low-cost locally available components and can be used to control multifarious home appliances ranging from the security lamps, the television to the air conditioning system and even the entire house lighting system. And better still, the components required are so small and few that they can be packaged into a small inconspicuous container. Looking at the current situation we can build cross platform system that can be deployed on various platforms like iOS, Windows. Limitation to control only several devices can be removed by extending automation of all other home appliances. This project is beneficial for elderly people who struggle to get up themselves and those who moves far from home for various reasons. This system provides security surveillance along with device control. Scope of this project can be expanded to many areas by not restricting to only home, but to small offices and other institutions

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SECURE CLOUD DATA DEDUPLICATION WITH EFFICIENT RE-ENCRYPTION

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ABSTRACT

Data deduplication technique has been widely adopted by commercial cloud storage providers, which is both important and necessary in coping with the explosive growth of data. To further protect the security of users sensitive data in the outsourced storage mode, many secure data deduplication scheme have been designed and applied in various schemes. Among these schemes, secure and efficient re-encryption for encrypted data deduplication is the best technique.

INTRODUCTION

After the emergence of the cloud architecture, many companies migrate their data from conventional storage i.e., on bare metal to the cloud storage. Since then huge amount of data was stored on cloud servers, which later resulted in redundancy of huge amount of data. Hence in this cloud world, many data de-duplication techniques has been widely used. Not only the redundancy but also made data more secure and privacy of the existing data were also increased. Some techniques got limitations and some have their own advantages based on the requirements. Some of the attributes like data privacy, tag regularity and interruption to brute force attacks. To make data reduplication technique more efficient based on the requirements. This paper will discuss schemes that brace user-defined access control, by allowing the service provider to get information of the information owners. Thus our scheme eliminates redundancy of the data without breaching the privacy and security of clients that depends on service providers. Our latest deduplication scheme after performing various algorithms resulted in conclusion and producing more efficient data confidentiality and tag consistency. This paper has discussion on various techniques and their drawbacks for the effectiveness of the reduplication.

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METHODOLOGY

AGILE methodology is a practice that promoted continuous iteration of development and testing throughout the software development lifecycle of the project. Both development and testing activities are concurrent unlike the Waterfall model. Agile software development emphasizes in four values.

SYSTEM ANALYSIS

System analysis is a general term that refers to an orderly, structured process for identify and solving a problem. The system analysis process is calling the life cycle methodology, since it relates to four significant phases in the life cycle of all business information system: study, design, development and operation. The definition of system analysis includes not only the process but also the process of putting together to form a new system. A system analyst is an individual who performs system analysis during any, or all, of the life cycle phases of a businessinformation system. The system analyst not analyses business information system problems, butalso synthesizes new to solve those problem or to meet other information needs.

The various techniques used in the study of the present system are:

- Observation
- Interviews
- Site visits
- Discussion

EXISTING SYSTEM

A number of deduplication systems have been proposed based on various reduplication strategiessuch as client-side or server-side reduplications, file-level or block-level reduplications. Bellaire et al formalized this primitive as message-locked encryption, and explored its application in space efficient secure outsourced storage. There are also several implementations of convergent implementations of different convergent encryption variants for secure deduplication. Li addressed the key-management issue in block-level deduplication by distributing these keys across multiple servers after encrypting the files. Showed how to protect data confidentiality by transforming the predictable message into a unpredictable message. Data reliability is actually a very critical issue in a deduplication storage system because there is only one copy for each file stored in the server shared by all the owners. Most of the previous deduplication systems have only been considered in a single-server setting.

The traditional deduplication methods cannot be directly extended and applied in distributed and multi-server systems.

PROPOSED SYSTEM

Our proposed constructions support both file-level and block-level deduplications. Security analysis demonstrates that the proposed deduplication systems are secure in terms of the definitions specified in the proposed security model. In more details, confidentiality, reliability and integrity can be achieved in our proposed system. Two kinds of collusion attacks are considered in our solutions. These are the collusion attack on the data and the collusion attack against servers. In particular, the data remains secure even if the adversary controls a limited number of storage servers.

SYSTEM REQUIREMENT SPECIFICATION

Requirement analysis is a software engineering task that bridges the gap between system level software designs. We have done the requirement analysis in order to understand the problem faced in our objectives. The emphasis in requirement analysis is on identifying from the system, not how the system will achieve this goal.

SYSTEM SPECIFICATION

Hardware Specification

The selection of hardware is very important in the existence and proper working of any of the software. When selecting hardware, the size and capacity requirements are also important. The hardware must suit all application developments.

Processor : i3 or above.

System Bus : 32Bit or 64Bit

RAM : 4 GB or Above

HDD : 500 GB or Above

Monitor : 14” LCD or Above

Key Board : 108

Keys Mouse : Any Type of mouse

Software specification

One of the most difficult tasks is selecting software, once the system requirement is find out then we have to determine whether a particular software package fits for those system requirements. This system summarizes the application requirement.

Operating System : Windows 10 Any 32 bit or 64 bit platform

Front End : Python

Back End : My SQL Sever

IDE :Python 3.6 or Above

:PyCharm

SYSTEM DESIGN

System design is the second phase of the system lifecycle. The detailed design of the system selected in the study phase is accomplished in the design phase. The principal activity performed during this phase includes allocation of function between computer programs equipment and manual tasks and data base design and test requirement definition. In the course of design phase, the performance specification is expanded into the design specification. The user oriented baseline prepared in study phase becomes a base line document, oriented to the needs of the programmers and other professional who will actually develop the system. A design phase report is prepared after the completion of design phase activities and the review is held with the user organization in order to determine whether or not the computer based business information system project is ready to the development phase.

INPUT DESIGN

Input design is a part of the overall system design, which requires very careful attention. Often the collection of input data is the most expensive part of the system, in terms of both the equipment used and people involved. If the data going into the system is incorrect, then the processing and out put will magnify the errors. Thus the clear objectives of input design are:

To produce a cost-effective method of input.

To achieve the highest possible level of accuracy.

To ensure that the input is acceptable to and understood by the user.

OUTPUT DESIGN

The output design is done so that the result of processing could be committed to the user and to

provide a hard copy of these results and evaluations for later consultations. Effective output design will improve the clarity and performance of outputs. Output design phase of the system is concerned with the convergence of information' s to the end user friendly manner. The output design should be efficient, intelligible so that system relationship with the end user is improved and there by enhancing the process of decision making. Outputs from the computer systems are

required primarily to communicate the results of the processing to the users. They are also used to provide a permanent copy of these results of processing to the users. They are also used to provide a permanent copy of these results for late consultation. There are various types of output

required by most systems, the main ones are:

External outputs: whose destinations outside the organization and which require special attention because they project the image of the organization, Internal outputs: whose destination is within the organization and which require careful design because they are the user's main interface with the computer. Operational outputs: whose use is purely within the computer department. Turn around outputs, to which the data will beaded before they are returned to the computer for further processing.

FRONT END

- Python
- HTML
- PyCharm

BACK END

- My SQL

SYSTEM IMPLEMENTATION

System implementation is the final stage of software development life cycle. For the successful implementation and cooperation of new systems users must be selected, educated and trained. Unless the users are not trained, the system will become complex it will become feel as a burden for them. A software implementation method is a systematically structured approach to

effectively integrate software based service or component into the workflow of an organizational structure or an individual end-user. A software implementation method is a blueprint to get users and/or organizations running with a specific software product. The method is a set of rules and views to cope up with the most common issues that occur when implementing a software product: business alignment from the organizational view and acceptance from human view. It is stated that the implementation of software consumes up to 1/3 of the budget of a Software purchase. The complexity of implementing product differs on several issues. Examples are: the number of end users that will use the product, the effects that the implementation has on changes of tasks and responsibilities for the end user, the culture and the integrity of the organization where the software is going to be used and the budget get available for acquiring the software. The implementation stage of the system being by preparing a plan for implementation of the system. According to this plan, activities are to be carried out, discussions are to be made regarding the equipment to be required, resources and additional facilities required implementing the system. The most critical stage in achieving a successful system is by giving users confidence that the system will work based on their requirements and be effective. This method also offers the greatest securities since the old system can take over if the errors are found or inability to handle certain transactions while using the new system.

The implementation involves the following formalities:

- Carefull planning
- Investigation of the system and constraints
- Design the methods to achieve the changes
- Training the staffs in the changed phase
- Evaluation of the changeover method

IMPLEMENTATION

Implementation of the system refers to the final installing of the package in its real environment , to the satisfaction of the indeed users and the operation of the system. It is the process of converting a new or revised system design to operation. It is the key stage in achieving successful new system. The process of putting the developed system in actual use is called system implementation. This includes all those activities that take place to convert from the old system to new system. It must therefore be carefully planned and controlled. Proper guidance should be imparted to the users so that he is comfortable in using the application.

CONCLUSION

We proposed the distributed de duplication systems to improve the reliability of data while achieving the confidentiality of the users outsourced data without an encryption mechanism. Four constructions were proposed to support file level de duplication. The security of tag consistency and integrity were achieved.

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