

TIMETABLE

PROJECT REPORT

Submitted in partial fulfillment of the requirements for the award
of the degree of

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

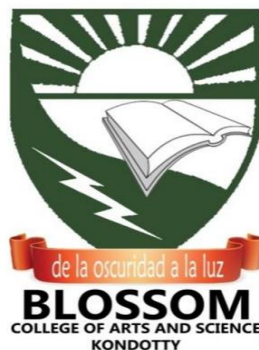
SUBMITTED BY

MOHAMMED ALFAS A (BLATSCS003)

UNDER THE GUIDANCE OF

Mr. SHARAFALI C

(Assistant Professor, Department of Computer Science)



BLOSSOM ARTS AND SCIENCE COLLEGE

KONDOTTY, VALIYAPARAMBA(P.O)

2019-2022

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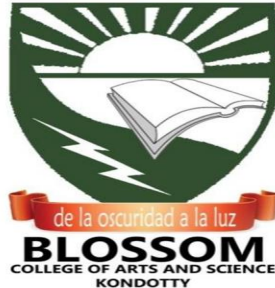
BLOSSOM ARTS AND SCIENCE COLLEGE

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2019-2022

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BONAFIED CERTIFICATE

This is to certify that the project report titled “ **Timetable**” is a benefited certificate to work done by **MOHAMMED ALFAS A** (Reg. No: **BLARSCS003**) at **BLOSSOM ARTS AND SCIENCE COLLEGE VALIYAPARAMBA, KONDOTTY** during the year 2019-2022 in a partial fulfillment for the award of the degree of BACHELOR OF COMPUTER SCIENCE.

Head of Department

Internal Guide

External Examiner

Place:

1.

Date:

2.

DECLARATION

I hereby declare that the project entitled "**Timetable**" is the project work done at the college **BLOSSOM ARTS AND SCIENCE COLLEGE** and submitted **UNIVERSITY OF CALICUT** in partial fulfillment of the requirement for the award of **BACHELORS DEGREE IN COMPUTER SCIENCE** and is original work done by me during the period of study (2019-2022) under the supervision and guidance of **Mr.SHARAFALI C** This project work has not formed the basis for the award of any degree/associate- ship/fellowship or similar title to any candidate of any University.

Place: KONDOTTY

MOHAMMED ALFAS A

Date :

ACKNOWLEDGEMENT

First of all I thank and praise the LORD ALMIGHTY, for giving me the strength and power to complete my project work without any hindrance and for molding me in to what I am.

I wish to thank our respected Principal **Dr. T.P AHAMMED** for providing all facilities to carry out this project work.

With great respect I express my sincere thanks to **Mr.SHARAFALI C, Asst Prof of the Department of Computer Science**, Blossom Arts and Science College, for providing the facilities for the successful project completion and for guidance, expert advice and valuable assistance for the successful completion of my project.

I am very much thankful to all other staff members for their valuable help. Last but not least I would like to thank all my friends who have helped for the successful completion of the project.

Place: KONDOTTY

Date:

MOHAMMED ALFAS A

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INTRODUCTION

1. INTRODUCTION

At the start of every academic year, one of the foremost responsibilities of every class teacher is to create a timetable for the students. As simple as this task sounds, in actuality, it can be a complex challenge as the teachers need to juggle the learning needs of the students with the availability of the teachers across all the standards of the school and college. Additionally, while doing this, the teachers also must ensure that the students do not find the day too exhausting or boring, hence creating a balanced daily schedule for the students of the school.

Timetable for colleges need more improvements in terms of technology. We are still stuck in the age of old timetable system that still needs correction if there is any absence of staff in a day. Substituting a staff into another period is always difficult because a small change in time table can only done by revising the time table. This is where our smart time table system reduces the complexity of substituting a teacher. Our timetable application system is very useful for substituting teachers for the free period so that we can reduce time consumption that may causes while revising the time table. Our system assigns teachers according to the priority of the subject that they take (Teachers with less attendance,how much topic covered). By this we can avoid free period occurrence. We can also include college management system which helps staff and students to interact and share information with them.

SYSTEM STUDY

2.SYSTEM STUDY

2.1 EXISTING SYSTEM

In the early system, we need to ask staffs to know about if any staff is free for substitution that is definitely a waste of time and the result may not be accurate. Nowadays few existing applications that allow only time table management.

2.2 DISADVANTAGES OF EXISTING SYSTEM

The scope of our project is mainly for teachers. Moreover, staffs or teachers must check for knowing free period..

Main disadvantages are:

- The existing systems are time consuming
- Timetables in a table format.
- Checking free period is difficult
- Principal or hod can't analyze how much topic covered

2.3 PROPOSED SYSTEM

Considering timetable application, We are still stuck in the age of old timetable system so our timetable application system is very useful for substituting teachers for the free period so that we can reduce time consumption that may causes while revising the time table

The proposed system consists of three modules: admin ,teacher and student.

The major modules included in the system are:-

- ❖ **Admin** :This module handles all activities dealt by administrator. The overall control of the app is done by the admin. Admin want to login by user name and password. In home page admin can manage and add staff,admin can add and manage course,admin can add and manage subject, view feedback, also admin can mark the staff attendance. Admin assign subject to staff,timetable

generation are the main activities controlled by this module in the system. The communication of teachers and students via the app to the system services are provided in this module. The teachers and students interact to the system by calling these services in the admin.

- ❖ **Teacher:** The functions of the teacher module are to view the timetable for respective teachers. The teacher wants to login by user name and password. Add and manage student, add notes, add class work, view student upload, doubt clearance, mark attendance. These functions are done by teacher. Teacher can view feedback and view allocated subjects. Teacher can mark how much topic covered in a subject.
- ❖ **Student:** This module completely comes under the mobile application section. The student wants to login by user name and password. After login student, the application opens his account in his/her corresponding device. A student can view attendance, view note and also view the time table. Student can ask doubt. Student can give feedback about the college.

2.4 ADVANATAGES OF PROPOSED SYSTEM

This system provides a good timetable management for teachers. And avoid the headache of creating the timetable from scratch whey teachers are not available or absent. Easily manage substitution timetables with automatically assign

In the proposed system, we are developing an timetable application for managing staffs,this system provides staff for substitution in free period and staff can check their allocated subject .In this system students can view attendance,timetable,notes and class work

Main advantages are:

- No wastage of time
- Fast response from teachers to students
- Fast completion of portions
- No free period
- Maximum time utilization
- Students can analyze how much portion completed
- More Productivity

2.5 PROBLEM DEFINITION

The Existing System suffers from a various types of disadvantages, such as integrity, consistency, reliability issues. The Timetable App overcomes all these issues and provides a more reliable and secure system. The App provides a safe and secure system for teacher and students.

SYSTEM ANALYSIS

3.SYSTEM ANALYSIS

3.1SYSTEM CONFIGURATION

3.1.1 Hardware Specification

Processor	: Intel Core i3
Ram	: 4 GB
Monitor	: 17" LCD
Mouse	: MAXICOM
Keyboard	: ZEB-KM2100
Storage	: 40GB Hard Disk

3.1.2 Software specification

Operating System	: Windows Media Center 2010
Front End	: HTML,CSS
Back End	: My SQL Server 2
IDE	: Android Studio, PyCharm IDE

3.1.3 Technologies

Coding	: Python,java
Design	: CSS
Connection	: Python flask MySQL Client
Database	: MySQL Server

3.2 SOFTWARE REQUIREMENTS SPECIFICATION

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.

- **Client Server Architecture**

Client-server architecture, Architecture of a computer network in which many clients (remote processors) request and receive service from a centralized server (host computer). Client computers provide an interface to allow a computer user to request services of the server and to display the results the server returns. Servers wait for requests to arrive from clients and then respond to them. Ideally, a server provides a standardized transparent interface to clients so that clients need not be aware of the specifics of the system (i.e., the hardware and software) that is providing the service. Today clients are often situated at workstations or on personal computers, while servers are located elsewhere on the network, usually on more powerful machines. This computing model is especially effective when clients and the server each have distinct tasks that they routinely perform. In Time Table mobile application, for example, a client computer can be running an application program for registering a new user while the server computer is running another program that manages the database in which the information is permanently stored. Many clients can access the server's information simultaneously, and, at the same time, a client computer can perform other tasks, such as sending e-mail. Because both client and server computers are considered intelligent devices, the client-model is completely different from the old "mainframe" model, which utilized a centralized mainframe computer that performed all the tasks for its associated "dumb" terminals.

- **Two Tier Architecture**

A two-tier architecture is a software architecture in which a presentation layer or interface runs on a client, and a data layer or data structure gets stored on a server. Separating these two components into different locations represents a two-tier architecture, as opposed to a single-tier architecture. Other kinds of multi-tier architectures add additional layers in distributed software design. the word "tier" commonly refers to splitting the two software layers onto two different physical pieces of hardware. Multi-layer programs can be built on one tier, but because of operational preferences, many two-tier architectures use a computer for the first tier and a server for the second tier.

- **Three Tier Architecture**

A three-tier architecture is a client-server architecture in which the functional process logic, data access, computer data storage and user interface are developed and maintained as independent modules on separate platforms. Three-tier architecture is a software design pattern and a well-established software architecture. Three-tier architecture allows any one of the three tiers to be upgraded or replaced independently. The user interface is implemented on a desktop PC and uses a standard graphical user interface with different modules running on the application server. The relational database management system on the database server contains the computer data storage logic. The middle tiers are usually multi tiered.

3.3 FEASIBILITY STUDY

Feasibility is defined as the practical extent to which a project can be performed successfully. The objective of feasibility study is to establish the reasons for developing the software that is acceptable to the users, adaptable to changes and conformable to the established standards.

Feasibility study lets the developer to foresee the future of the project and its usefulness.

- Finding out whether a new system is required or not.
- Determining the potentials and drawbacks of the existing system.

- Identification of user requirements and the benefits expected by the user from the resulting system.
- Finding out the various alternatives available.
- Knowing what should be incorporated in the new system.
- Defining the ingredients and objectives involved in the project.
- Identifying whether the proposed system could meet the end needs of the users.
- Providing technical, economic, operational feasibility of the proposed system.

Various types of feasibility that are commonly considered include :

- (1) Economic feasibility
- (2) Operational feasibility
- (3) Technical feasibility

Economic Feasibility

Economic feasibility determines whether the proposed system is capable of generating financial gains for an organization. It involves cost incurred on the software development team, estimated cost of hardware, and cost of performing feasibility study and so on. The proposed system is economically feasible since the cost incurred for the development of the system produces long term gains.

It is necessary to consider the benefits that can be achieved by developing the system after installation of the final software product. Hence the proposed system is economically feasible.

Operational Feasibility

Operational Feasibility assess the extent to which the required software system performs a series of steps to solve business problems and user requirements. This feasibility is dependent on human resources and involves visualizing whether the software will operate after it is developed and be operative once it is installed. It also analyses whether users will adapt to new software. Since Time Table App is a mobile application, the operations are mainly concerned and are completely depended on the users. The system is developed by

giving prime importance to the ease with which the end users can operate on the system. Any person or user who installs the application on the phone is able to use it conveniently without the help of another person and becomes able to use the services of the application with more ease.

Technical Feasibility

Technical feasibility assess the current resources (includes hardware and software) and technology which are required to accomplish the user requirements in the system within the allocated time and budget. It is concerned with the existing computer system (hardware and software) and to what extent it can support the proposed system. The proposed system requires a mobile device which works on the android (any version above 2.2) operating system. A user who owns a mobile with the appropriate technology can access the application anywhere.

SYSTEM DESIGN

4.SYSTEM DESIGN

4.1 INITIAL DESIGN

Admin

- Login
- Add and manage Staff
- Add and manage course
- Add and manage subject
- Assign subject to staff
- Staff attendance
- Time table generation
- View feedback

Teacher

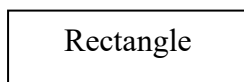
- Login
- Add and manage student
- View allocated subjects
- Add notes
- Add class work
- View student uploads
- Doubt clearance
- Mark attendance
- Checking Timetable
- Mark topics covered in a subject
- Feedback

Student

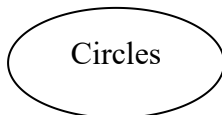
- Login
- View notes
- View attendance
- Check timetable
- Ask Doubt
- View class work upload works
- Feedback

4.2 DATA FLOW DIAGRAM

Generally, DFD's are used as a design notation to represent architectural design (External design) and top level design(internal design) specifications. DFD's represent the system in hierarchical manner with one top level and many lower level diagrams with each representing separate parts of the system. A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of processes, or information about whether processes will operate in sequence or in parallel. Since diagrammatic representations are easier to interpret as compared to the technical descriptions, the non-technical users can also understand the system details clearly. DFD consists of four basic notations which help to depict the information in the system. These notations are rectangle, circle, open-ended rectangle, and arrows.



Represents an external entity that is the source or destination of data within the system. Each external entity is represented by a meaningful and unique name.



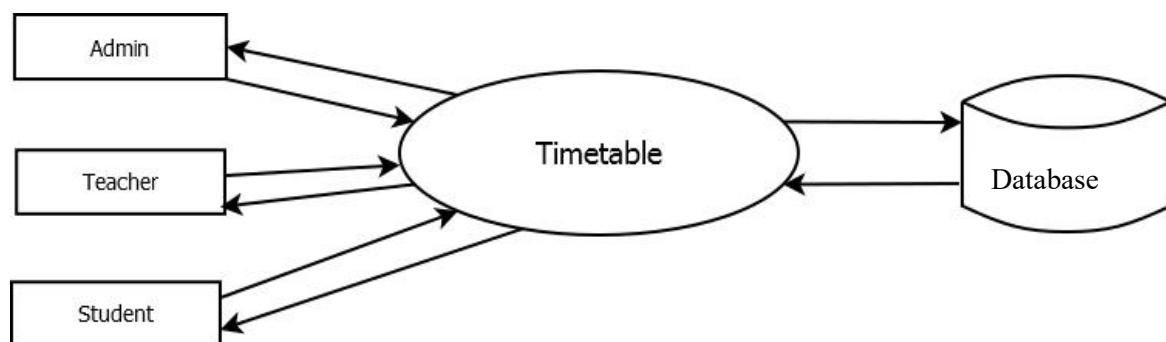
Represent processes that show transformation or manipulation of data within the system.

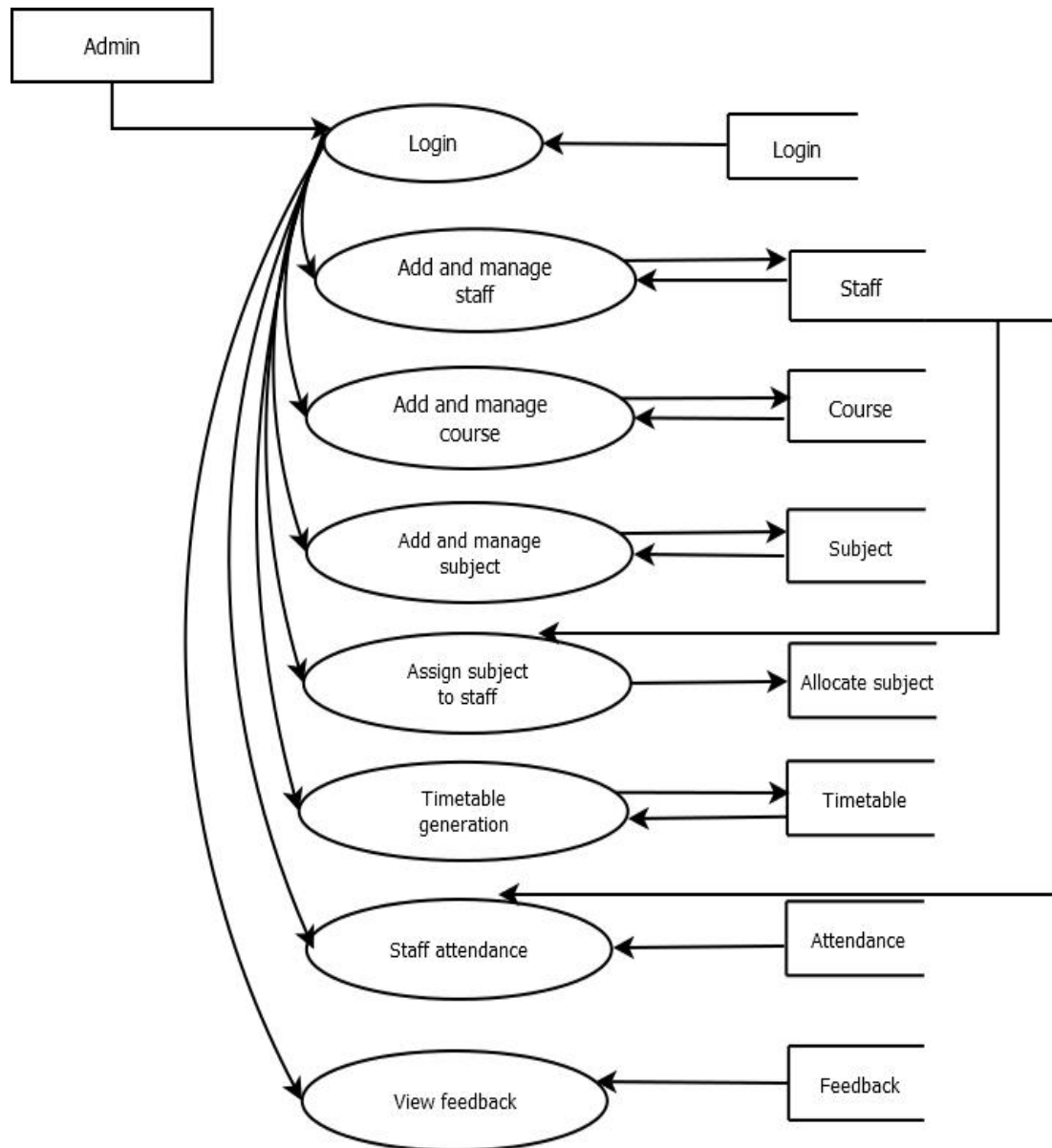


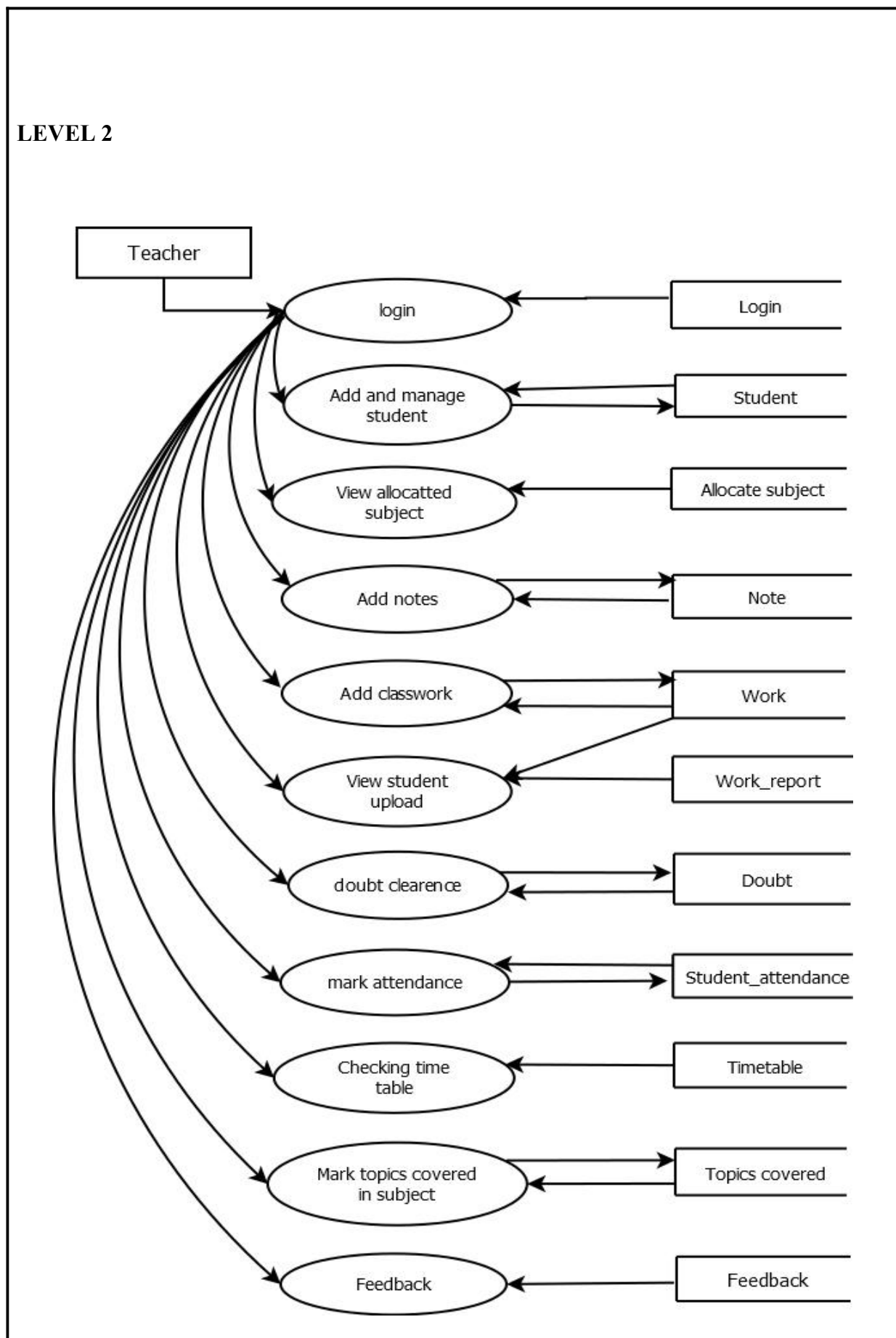
Represent data stores that indicate the place for storing information within the system.

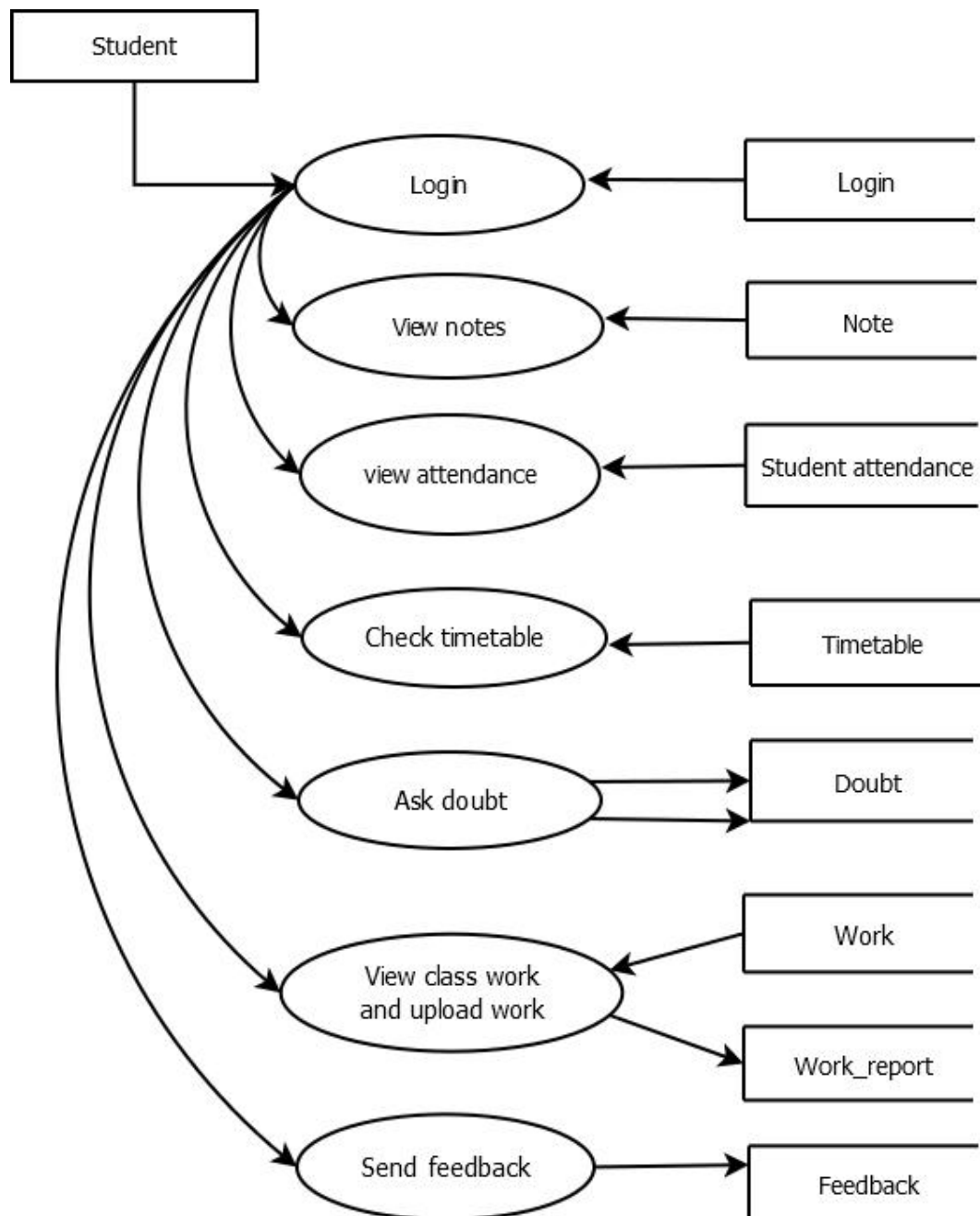


They are used to represent data flows that show the movement of data from its source to destination within the system.

LEVEL 0

LEVEL 1

LEVEL 2

LEVEL 3

4.3 DATABASE DESIGN

Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database. The term database design can be used to describe many different parts of the design of an overall database system. Principally, and most correctly, it can be thought of as the logical design of the base data structures used to store the data. In the relational model these are the tables and views. In an object database the entities and relationships map directly to object classes and named relationships. However, the term database design could also be used to apply to the overall process of designing, not just the base data structures, but also the forms and queries used as part of the overall database application within the database management system. The process of doing database design generally consists of a number of steps which will be carried out by the database designer.

Usually, the designer must:

- Determine the relationships between the different data elements.
- Superimpose a logical structure upon the data on the basis of these relationships

The Time table mobile and web application uses project as its database for storing all the data in tables for data processing.

4.3.1 NORMALIZATION

Normalization is the process of decomposing a set of relations with anomalies to produce smaller and well structured relations that contain minimum redundancy. It is a formal process of deciding which attributes should be grouped together in a relation. The proposed system has the following relations

- (1) LOGIN(LOGIN_ID,USER_NAME,PASSWORD,USER_TYPE)
- (2) ALLOCATE_SUBJECT(ALLOCATE_ID,SUBJECT_ID,STAFF_ID)
- (3) COURSE(COURSE_ID,COURSE)
- (4) DOUBT(DOUBT_ID,DOUBT,DOUBT_REPLY,STD_ID,STAFF_ID)
- (5) FEEDBACK(FEEDBACK_ID,FEEDBACK,SID,DATE)
- (6) LEAVE_APPROCH(LEAVE_ID,STAFF_ID,DATE,LEAVE_DATE,REASON,STATUS)
- (7) NOTE(NOTE_ID,NOTE,SUBJECT_ID)
- (8) STAFF(SID,LOGIN_ID,FIRST_NAME,LAST_NAME,GENDER,PHONE_NUMBER,EMAIL,DEPT)
- (9) STUDENT(STD_ID,LOGIN_ID,FNAME,LNAME,COURSE_ID,SEMESTER,GENDER,PHONE,PARENT_PHONE,EMAIL)
- (10) STUDENT_ATTENDANCE(ATTENDANCE_ID,STD_ID,SUBJECT_ID,ATTENDANCE,DATE)
- (11) SUBJECT(SUBJECT_ID,COURSE_ID,SUBJECT_CODE,SUBJECT,SEMESTER)
- (12) TIME_TABLE(ID,COURSE_ID,SEMESTER,DAY,HOUR,SUBJECT_ID)
- (13) TOPIC_COVERED(TOPIC_ID,STAFF_ID,SUBJECT_ID,TOPIC_COVERED,MODULE)
- (14) WORK(WORK_ID,WORK,STAFF_ID)
- (15) WORK_REPORT(WORK_REPORT_ID,WORK_REPORT,WORK_ID,STD_ID)

First Normal Form

First Normal form (1NF) is now considered to be part of the formal definition of relational model. 1NF is designed to disallow multi valued attribute, composite attributes, and their combinations. It states that the domain of an attribute must include only atomic values. A domain is atomic, if elements of the domain are considered to be indivisible units.

We say that a relational schema R is in 1NF if the domain of all attributes of 'R' is atomic. The tables included in developing the TIME TABLE contain atomic values and hence it is in 1NF.

Second Normal Form

Second Normal form (2NF) is based on the concept of functional dependency. A relation R is in 2NF if it is in 1NF and every non key attribute A of R is fully dependent on the primary key. That is, relation is said to be in 2NF if each attribute A in R meets one of the following criteria:

- (a) It appears in the primary key.
- (b) It is fully functionally dependent on the primary key.

The tables designed in the proposed system, contain a primary key for uniquely identifying each user. For e.g.: table L_ID has user_id has a primary key for unique identification of the user.

Third Normal Form

Third Normal form (3NF) is based on the concept of transitive dependency. A relation is said to be in 3NF if it is in 2NF and has no transitive dependencies. That is all the non key attribute should be functionally determined by the primary key. In the proposed system all attributes of tables are fully depends on the primary key only that is all non key attributes are mutually independent.

4.4.TABLE DESIGN

Table: LOGIN

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
LOGIN_ID	Integer	11	Primary Key
USER NAME	Varchar	25	-
PASSWORD	Varchar	15	-
TYPE	Varchar	20	-

Table: STAFF

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
SID	Integer	11	Primary Key
LOGIN_ID	Integer	11	-
FIRST_NAME	Varchar	20	-
LAST_NAME	Varchar	20	-
GENDER	Varchar	20	-
PHONE_NO	Big Integer	20	-
EMAIL	Varchar	50	-
DEPT	Varchar	20	-

Table: COURSE

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
COURSE_ID	Integer	11	Primary Key
COURSE	Varchar	25	-

Table: SUBJECT

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
SUBJECT_ID	Integer	11	Primary Key
COURSE_ID	Varchar	11	-
SUBJECT_CODE	Varchar	20	-
SUBJECT	Varchar	20	-
SEMESTER	Varchar	11	-

Table: FEEDBACK

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
FEEDBACK_ID	Integer	11	Primary Key
FEEDBACK	Varchar	300	-
SID	Integer	11	-
DATE	Date	20	-

Table: NOTE

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
NOTE_ID	Integer	11	Primary Key
NOTE	Varchar	500	-
SUBJECT_ID	Integer	11	-

Table: STUDENT

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
STD_ID	Integer	11	Primary Key
LOGIN_ID	Integer	11	-
REG_NO	Integer	11	-
FNAME	Varchar	20	-
LNAME	Varchar	20	-
COURSE_ID	Integer	11	-
SEMESTER	Varchar	25	-
GENDER	Varchar	20	-
PHONE_NO	Big Integer	20	-
PARENT_PHONE	Big Integer	20	-
EMAIL	Varchar	50	-

Table: WORK

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
WORK_ID	Integer	11	Primary Key
WORK	Varchar	300	-
STAFF_ID	Integer	11	-

Table: WORK_REPORT

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
WORK_REPORT_ID	Integer	11	Primary Key
WORK_REPORT	Varchar	300	-
WORK_ID	Integer	11	-
STD_ID	Integer	11	-

Table: DOUBT

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
DOUBT_ID	Integer	11	Primary Key
DOUBT	Varchar	500	-
DOUBT_REPLY	Varchar	500	-
STD_ID	Integer	11	-
STAFF_ID	Integer	11	-

Table: ALLOCATE_SUBJECT

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
ALLOCATE_ID	Integer	11	Primary Key
STAFF_ID	Integer	11	-
SUBJECT_ID	Integer	11	-

Table: TOPIC_COVERED

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
TOPIC_ID	Integer	11	Primary Key
STAFF_ID	Integer	11	-
SUBJECT_ID	Integer	11	-
TOPIC_COVERED	Integer	11	-
MODULE	Integer	11	-

Table: LEAVE_APPROACH

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
LEAVE_ID	Integer	11	Primary Key
STAFF_ID	Integer	11	-
DATE	Date	-	-
LEAVE_DATE	Date	-	-
REASON	Varchar	300	-
STATUS	Varchar	300	-

Table:STUDENT_ATTENDANCE

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
ATTENDANCE_ID	Integer	11	Primary Key
STD_ID	Integer	11	-
SUBJECT_ID	Integer	11	-
ATTENDANCE	Integer	11	-
DATE	Date	-	-

Table:TIME_TABLE

FIELD NAME	DATATYPE	LEN	CONSTRAINTS
ID	Integer	11	Primary Key
COURSE_ID	Integer	11	-
SEMESTER	Integer	11	-
DAY	Varchar	20	-
HOURL	Integer	11	-
SUBJECT_ID	Integer	11	-

4.5 INPUT DESIGN

Input design is the process of converting a user – oriented description of the inputs to a computer based business system into a programmer – oriented specification. The goal of designing input data is to make data entry as easy, logical and free from errors as possible. Input design is a part of the overall system design, which requires carefully attention. If the data going into the system is incorrect, then the processing and output will magnify these errors.

The proposed system satisfies the following input design objectives:

- A cost effective method of input

- The highest possible level of accuracy

- The input is acceptable to and understood by the user staff and student.

Input Objectives are:

- Controlling the amount of input:** Wherever user input is required, the number of key strokes is reduced by giving possible input values as default in that area. The viewer can select the answer in single click. The amount of information entered by the viewer using the keyboard is reduced to the maximum and the software is made very user friendly.
- Avoiding Delay:** A processing delay resulting from data preparation or data entry operations is called a bottleneck. Such bottlenecks are avoided to the maximum. The only time the viewer has to wait is when the file is uploaded or downloaded. Progress bar or progress meters are displayed to keep the user waiting and also to show the speed and amount of download.
- Avoiding Errors in Data:** The rate at which errors occur depends on the quantity of data. Here the quantity of data is reduced to the lowest, and a text file is easily manageable.
- Avoiding Extra Steps:** The viewer can quit at any point of time. Even at the time of upload or download the viewer can quit. The viewer need not wait for any specific event to happen for quitting the process.

v. **Keeping the process Simple:** This implies that the system has all the measure to keep the errors out even if the user is giving wrong data. It handles the situation with grace and doesn't create much hype about the situation to the user.

Several activities done in the input stages are:

Data recording → collection of data at its source

Data transcription → transcription of data to an input form

Data conversion → conversion of the input data to a computer acceptable medium

Data verification → checking the conversion

Data control → checking the accuracy and controlling the flow of the data to the computer

Data transmission → transmitting or transporting, the data to the computer.

Data validation & correction → checking & correcting the errors the input data by program when it enters the computer system.

4.6 OUTPUT DESIGN

The output from an information system should accomplish one or more of the following objectives:

Convey information about past activities, current status or projections in future.

Signal important events, opportunities, problems or warnings.

Trigger an action.

Confirm the action.

Output Types:

External Outputs, whose destination is outside the organization and is the main image of the organization.

Internal Outputs, whose destination is within the organization and which require careful design because it is user's main interface with the computer.

Operational Outputs, whose use is purely within the computer departments.

Interactive outputs, which involve the user in communicating directly with the computer.

Turn round Outputs, i.e.; re – entrant documents, to which data will be added before they are returned to the computer for further processing.

SYSTEM DEVELOPMENT

5.SYSTEM DEVELOPMENT

5.1 FEATURES OF FRONT END AND BACK

➤ PyCharm IDE

PyCharm is one of the most widely used IDEs for Python programming language. At present, the Python IDE is being used by large enterprises like Twitter, Pinterest, HP, Symantec and Groupon.

JetBrains has developed PyCharm as a cross-platform IDE for Python. In addition to supporting versions 2.x and 3.x of Python, PyCharm is also compatible with Windows, Linux, and macOS. At the same time, the tools and features provided by PyCharm help programmers to write a variety of software applications in Python quickly and efficiently. The developers can even customize the PyCharm UI according to their specific needs and preferences. Also, they can extend the IDE by choosing from over 50 plug-ins to meet complex project requirements.

Overview of Important Features and Tools Provided by PyCharm

- Code Editor

The intelligent code editor provided by PyCharm enables programmers to write high quality Python code. The editor enables programmers to read code easily through colour schemes, insert indents on new lines automatically, pick the appropriate coding style, and avail context-aware code completion suggestions. At the same time, the programmers can also use the editor to expand a code block to an expression or logical block, avail code snippets, format the code base, identify errors and misspellings, detect duplicate code, and auto-generate code. Also, the editor makes it easier for developers to analyze the code and identify the errors while writing code.

- Code Navigation

The smart code navigation options provided by PyCharm help programmers to edit and improve code without putting extra time and effort. The IDE makes it easier for programmers to go to a class, file and symbols, along with the go to declarations invoked from a reference. The user can even find an item in the source code, code snippet, UI element, or user action almost immediately. They can further locate usage of various symbols, and set bookmarks in the code. At the same time, the developers can even take advantage of the code navigation feature to scrutinize the code thoroughly in the lens mode.

- Refactoring

PyCharm makes it easier for developers to implement both local and global changes quickly and efficiently. The developers can even take advantage of the refactoring options provided by the IDE while writing plain Python code and working with Python frameworks. They can avail the rename and move refactoring for files, classes, functions, methods, properties, parameters, and local/global variables. Likewise, they can improve code quality by extracting variables, fields, constants, and parameters. Also, PyCharm allows programmers to break up longer classes and methods through extract method.

- Support for Popular Web Technologies

PyCharm makes it easier for programmers to write various web applications in Python supporting widely used web technologies like HTML, CSS, JavaScript, TypeScript and CoffeeScript. The web developers can use the live editing preview option provided by the IDE to view a single web page simultaneously in the editor and browser. At the same time, the live edit feature provided by the IDE enables programmers to see the changes made to the code instantaneously on a web browser. PyCharm further allows developers to avail a JavaScript debugger as well as CoffeeScript and TypeScript editors. It even simplifies isomorphic web application development by supporting both AngularJS and NodeJS.

- Support for Popular Python Web Frameworks

In addition to supporting commonly used web technologies, PyCharm also provides first-class support for a robust Python web framework like Django. The developers can use the IDE to avail code completion suggestions for Django tags, filters, parameters, and template variables. Also, they can gather additional information about tags and filters by referring to the quick documentation. The Python IDE even helps web developers to debug Django templates, format the code, verify the code, and manage .py consoles. At the same time, PyCharm also supports widely used Python web frameworks like Pyramid and Web2Py. It provides code completion and navigation options specific to Pyramid. Likewise, it allows web developers to avail code completion and navigation options while working with Web2Py.

- Support for Python Scientific Libraries

PyCharm further helps programmers to use Python more efficiently in big data and data science projects. It supports some of the widely used scientific libraries for Python — NumPy, Anaconda and Matplotlib. The developers can work efficiently with these scientific libraries by availing the interactive graphs, deep code insight, and array viewers provided by the IDE. They can even run the REPL Python console provided by PyCharm to avail robust features like on-the-fly syntax check and code inspection. At the same time, the programmers can also integrate the IDE seamlessly with IPython Notebook to create innovative solutions without putting extra time and effort.

- Database Tools

In addition to supporting various Python libraries and frameworks, PyCharm allows developers to work with a number of relational databases including Oracle, SQL Server, MySQL and PostgreSQL. The developers can further use the IDE to run queries, edit SQL code, browse data, alter table data, and alter/analyze schemas. PyCharm further supports SQLAlchemy library and inject SQL code into code written in various programming languages. The professional edition of the IDE further makes it easier for developers to handle large volumes of data efficiently through data grids.

- Visual Debugger

The visual debugger provided by the IDE helps programmers to debug Python, JavaScript, and Django code. The developers can use the inline debugger to see live debugging data directly on the editor. Likewise, they can debug multiple Python processes simultaneously and step through the code bypassing libraries. PyCharm further creates reusable and customizable configuration for each test script or debugger execution. The users even have option to facilitate remote debugging by integrating the visual debugger with remote interpreter.

- Built-in Terminal

PyCharm comes with local terminals for Windows, Linux, and macOS. The built-in terminal enables programmers to continue coding and testing without leaving the IDE. Also, the programmers can use the IDE to run Python files and configure custom Python environments according to precise project requirements. At the same time, they can run interactive Python or Django console directly in the IDE. The console provides useful features like code completion, automatic braces matching, and dynamic syntax change. The programmers even have option to integrate the console with both local and remote interpreters.

- Support for Major Version Control Systems

PyCharm allows developers to work with widely used version control systems like Git, Mercurial, Perforce and SVN. It even performs complex tasks like adding, removing, and deleting files automatically. The developers even have option to avail a number of features provided by the IDE regardless of their choice of version control system — grouping individual changes into multiple change lists, setting aside the changes to be restored, monitor changes made to the code repository by various users, and check the changes made to the code before being integrated into the local copy.

- Software Testing

Like other IDEs, PyCharm also comes with features and tools to simplify Python application testing. It allows developers to perform unit testing through popular Python testing frameworks like Nose, Attest and Doctests. The testers even have option to run individual or multiple test files and test classes. They can further integrate the IDE with Coverage.py to measure code coverage while testing the applications. While testing multi-threaded applications, the testers can use the thread concurrency visualization option provided by the IDE to control the application fully and efficiently. At the same time, PyCharm enables users to deliver high quality software by implementing behavior-driven development (BDD).

- Remote Development Capabilities

PyCharm allows developers to connect with various machines and build software applications remotely. The programmers can avail the built-in SSH console provided by the IDE to connect to machines and perform various development tasks remotely through SSH. They can even run, debug, and profile the Python applications in a remote environment by replacing the local interpreter with a remote interpreter. Also, PyCharm enables programmers to create reproducible development environments through a robust tool like Vagrant, and simplify distributed application development through Docker. The users even have option to integrate PyCharm seamlessly with issue tracking systems. On the whole,

PyCharm is one of the most popular IDEs for Python. The **Python programmers** can use PyCharm as licensed software. However, JetBrains allows developers to choose from three distinct editions of the IDE — community, professional and educational. The developers can always curtail software development cost by opting for the community edition of PyCharm. The community edition still lacks some of the advanced features provided by the professional editions.

JetBrains has been updating both editions of the Python IDE to make programmers more productive and simplify custom software development. For instance, the professional edition of PyCharm 2017.3 makes it easier for developers to test functionality of APIs by providing a built-in REST client. Likewise, it accelerates web application development by allowing programmers to avail the new features provided by Django 2.0. Also, it allows developers to visualize and analyse data more efficiently through a data science mode.

➤ **ANDROID**

Android is a mobile operating system developed by Google. It is used by several smartphones and tablets. Examples include the Sony Xperia, the Samsung Galaxy, and the Google Nexus One. The Android operating system (OS) is based on the Linux kernel.

1) Near Field Communication (NFC)

Most Android devices support NFC, which allows electronic devices to easily interact across short distances. The main aim here is to create a payment option that is simpler than carrying credit cards or cash, and while the market hasn't exploded as many experts had predicted, there may be an alternative in the works, in the form of Bluetooth Low Energy (BLE).

2) Alternate Keyboards

Android supports multiple keyboards and makes them easy to install; the SwiftKey, Skype, and 8pen apps all offer ways to quickly change up your keyboard style. Other mobile operating systems either don't permit extra keyboards at all, or the process to install and use

3) Infrared Transmission

The Android operating system supports a built-in infrared transmitter, allowing you to

use your phone or tablet as a remote control.

4)No-Touch Control

Using Android apps such as Wave Control, users can control their phones touch-free, using only gestures. Have messy hands but need to turn off your screen or change a song? Simple. This could prove especially useful if you're driving, so you can keep both eyes on the road.

5) Automation

The Tasker app lets you not only control app permissions but also automate them. Do you only want your location services to be active during the day? Want to create a customized way to start your music—for example, with a voice command and at a certain volume? Tasker can help.

6)Wireless App Downloads

Accessing app stores on any mobile device can be frustrating, but iOS makes it a little more difficult—download an app on your computer, and it won't sync to your mobile device until you plug in and access iTunes. Using the Android Market or third-party options like AppBrain, meanwhile, let you download apps on your PC and then automatically sync them your Droid, no plugging required.

7) Storage and Battery Swap

Android phones also have unique hardware capabilities. Google's OS makes it possible to remove and upgrade your battery or to replace one that no longer holds a charge. In addition, Android phones come with SD card slots for expandable storage.

8) Custom Home Screens

While it's possible to hack certain phones to customize the home screen, Android comes with this capability from the get-go. Download a third-party launcher like Nova, Apex or Slide and you can add gestures, new shortcuts, or even performance enhancements

for older-model devices.

9) Widgets

Apps are versatile, but sometimes you want information at a glance instead of having to open an app and wait for it to load. Android widgets let you display just about any feature you choose, right on the home screen—including weather apps, music widgets, or productivity tools that helpfully remind you of upcoming meetings or approaching deadlines.

10) Custom ROMs

This is a big one. Because the Android operating system is open source, developers can tweak the current OS and build their own versions, which users can download and install in place of the stock OS. Some are filled with features, while others change the look and feel of a device. Chances are if there's a feature you want, someone has already built a custom ROM for it.

➤ **MySQL:**

MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation.

- **MySQL is a database management system.**

A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications.

- **MySQL databases are relational.**

A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structures are organized into physical files optimized for speed.

The logical model, with objects such as databases, tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one-to-one, one-to-many, unique, required or optional, and “pointers” between different tables. The database enforces these rules, so that with a well-designed database, your application never sees inconsistent, duplicate, orphan, out-of-date, or missing data.

The SQL part of “MySQL” stands for “Structured Query Language”. SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax. SQL is defined by the ANSI/ISO SQL Standard. The SQL standard has been evolving since 1986 and several versions exist

- **MySQL software is Open Source.**

Open Source means that it is possible for anyone to use and modify the software. Anybody can download the MySQL software from the Internet and use it without paying anything. If you wish, you may study the source code and change it to suit your needs. The MySQL software uses the GPL (GNU General Public License), to define what you may and may not do with the software in different situations.

- **The MySQL Database Server is very fast, reliable, scalable, and easy to use.**

MySQL Server can run comfortably on a desktop or laptop, alongside your other applications, web servers, and so on, requiring little or no attention. If you dedicate an entire machine to MySQL, you can adjust the settings to take advantage of all the memory, CPU power, and I/O capacity available. MySQL can also scale up to clusters of machines, network together.

SQLyog:

SQLyog provides you with powerful means to manage your MySQL databases.

- Runs on all Windows version from Win XP to Win 8.x (desktop systems) as well as "Windows Server" systems of same generations (Windows Server 2003 and higher).
- MySQL 5.x compatible

- Create/Drop/Alter Tables, Stored Procedures, Functions, Views, Triggers and Events.
- HTTP and SSH Tunneling - smartly manage your MySQL server even if the MySQL port is blocked or remote access to MySQL is disallowed!
- Protect your data with SSL encryption.
- Smart AutoComplete.
- Formats SQL statements.
- Proactive Query Profiler.
- Favorite Manager to neatly organize your favorite SQL statements.
- Very fast retrieval of data.
- Advanced GUI Query Builder. Supports JOINS, aggregate as well as 'common' functions, sorting (ORDER BY) and filtering (WHERE and HAVING) and ALIAS.
- SQLyog Import External Data wizard - use the GUI or specify a query.
- Schema and Data synchronization tools.
- Powerful compressed Scheduled Backup with email notification.
- Schedule various jobs.

SQL Commands

SQL commands are instructions, coded into SQL statements, which are used to communicate with the database to perform specific tasks, work, functions and queries with data. SQL commands can be used not only for searching the database but also to perform various other functions like, for example, you can *create tables*, add data to tables, or modify data, drop the table, set permissions for users. SQL commands are grouped into four major categories depending on their functionality:

- **Data Definition Language (DDL)**

These SQL commands are used for creating, modifying, and dropping the structure of database objects. The commands are CREATE, ALTER, DROP, RENAME, and TRUNCATE.

- **Data Manipulation Language (DML)**

These SQL commands are used for storing, retrieving, modifying, and deleting data.

These Data Manipulation Language commands are: SELECT, INSERT, UPDATE, and DELETE.

- **Transaction Control Language (TCL)**

These SQL commands are used for managing changes affecting the data. These commands are COMMIT, ROLLBACK, and SAVEPOINT.

- **Data Control Language (DCL)**

These SQL commands are used for providing security to database objects. These commands are GRANT and REVOKE

5.2 PROJECT PLAN

Proper project management is essential for the successful completion of a software project. Software project management (responsible for project planning) specifies activities necessary to complete the project. After this a project schedule is prepared to accomplish the specified tasks. The purpose of planning and scheduling is to develop the software according to the user requirements within the allocated time and budget. Project planning is part of project management, which relates to the use of schedules such as Gantt charts to plan and subsequently report progress within the project environment.

Initially, the project scope is defined and the appropriate methods for completing the project are determined. Following this step, the durations for the various tasks necessary to complete the work are listed and grouped into a work breakdown structure. Project planning is often used to organize different areas of a project, including project plans, work loads and the management of teams and individuals. The logical dependencies between tasks are defined using an activity network diagram that enables identification of the critical path. Project planning is inherently uncertain as it must be done before the project is actually started. Therefore the duration of the tasks is often estimated through a weighted average of optimistic, normal, and pessimistic cases. The critical chain method adds "buffers" in the planning to anticipate potential delays in project execution. Float or slack time in the schedule can be calculated using project management software. Then the necessary resources can be estimated and costs for each activity can be allocated to each resource, giving the total project cost. At this stage, the project schedule may be optimized to achieve the appropriate balance between resource usage and project duration to comply with the project objectives. Once established and agreed, the project schedule becomes what is known as the baseline schedule. Progress will be measured against the baseline schedule throughout the life of the project. Analyzing progress compared to the baseline schedule is known as earned value management. The inputs of the project planning phase include the project charter and the concept proposal. The outputs of the project planning phase include the project requirements, the project schedule, and the project management plan. The Project Planning can be done manually. However, when managing several projects, it is usually easier and faster to use project management software. The objective of a project plan is to define the approach to be used by the Project team to deliver the intended project management scope of the project.

- **Introduction**

Describes the objectives of the project and provides information about the constraints that affect the software. The Time table app is used to make **Project Organization**

Describes the responsibilities assigned to the project management team members for completing the project. The system was developed by a single a user, and each task was completed in fixed time and schedule.

- **Risk Analyses**

Describes the risks that can possibly arise during software development as well as explains how to assess and reduce the effect of risks. The major risks involved in the software development process was the main process of this application is time table,so if there is no scheduled time table the application not work and there is no staff free for a substitution ,the free period allocation will not happen. To reduce the risks in software the system should be available free staff.

- **Resource requirements**

Specifies the hardware and software required to carry out the software project. Cost estimation is done according to these resource requirements. The cost includes, cost of learning materials brought, cost assessed for buying software and hardware etc...

- **Work breakdown**

Describes the activities in to which the project is divided. It also describes the Milestones and deliverable of the project activities. The first activity of the system development included designing of the system, database, input and outputs. Then the services and the web portion were developed based on the design. It was made working considered as a deliverable to check whether the services are running properly.

- **Project Schedule**

Specifies the dependencies of activities on each other. Based on this, the time required by the project management team members to complete the project activities is estimated. Only if the web services are developed mobile application will be able to run. The database including tables are to be created in the beginning itself for the proper functioning of the system. If the designing phase is completed in a small amount of time then the total work time can be estimated.

There are several plans that may be a part of or linked to a project plan. These plans include quality assurance plan, verification plan and validation plan, configuration management plan maintenance plan and staffing. The WBS is the hierarchical list of the project's phases, tasks, and milestones. It's the core of the project schedule. The WBS is critical because it drives the scope of the project. The scope translates into the timeline and budget. The time that you estimate it will take to complete the tasks by entering either work or duration. Work is the amount of effort or person hours needed to complete a task. Duration is the amount of actual time that will pass before the task is completed. Thus, if a task takes 16 hours of work and one person does the work, its duration is two days (assuming an 8-hour work day). If two people do the work, its duration is one day.

5.3 PROJECT SCHEDULING

Project scheduling provides details such as start and end date of the project, milestones and tasks for the project. In addition it specifies the resources (such as people, equipment, and facilities) required to complete the project and the dependencies of tasks of the project on each other. Before a project schedule can be created, the schedule maker should have a work breakdown structure (WBS), an effort estimate for each task, and a resource list with availability for each resource. An appropriate project schedule prepared according to project plan not only aims to complete the project on time but also helps to avoid the additional cost incurred when the project is delayed. In order for a project schedule to be healthy, the following criteria must be met:

- The schedule must be constantly (weekly works best) updated.
- The EAC (Estimation at Completion) value must be equal to the baseline value.
- The remaining effort must be appropriately distributed among team members (taking vacations into consideration).

To carry out project scheduling appropriately, some principles are followed. These principles help the project management team to prepare the project schedule. Several techniques are used for keeping track of the project schedule. These techniques are applied after information is collected from the project planning activities. This information includes estimation of effort, selection of suitable process model, and decomposition of tasks into multiple sub tasks and so on. The Time Table mobile application was scheduled to complete in 4 months duration. The system development was completed in the scheduled time period. The cost estimated in development of the system was accurate and was exact to the estimation after the completion of the project

SYSTEM TESTING

6. SYSTEM TESTING

6.1 TYPES OF TESTING

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 stakeholders 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.

Whitebox 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.

Blackbox 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, assign subject to staff properly, time table generation, automatic subject allocation etc... are done properly.

6.2 TESTING STRATEGY

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

This testing is performed to test the individual units in the system. Each module in the system is tested individually and executed line by line for accurate functioning of the system. The admin module has be tested for its proper functioning, since all services are provide and data is stored and controlled by this module.

Integration Testing

The objective of integration testing is to take all tested individual modules, integrate them, test them again and develop the system. The Mobile application module , the Time Table module as well as the admin should be integrated together for the proper functioning of the whole system. Testing is conducted at this stage to check whether the requested services are reaching to the admin through the mobile device..

Acceptance Testing

This testing is performed to ensure that the functional, behavioural, and performance requirements of the system is met. It may involve chemical tests, physical tests, or performance tests. The acceptance test suite is run against the supplied input data or using an acceptance test script to direct the testers. Then the results obtained are compared with the expected results. If there is a correct match for every case, the test suite is said to pass. If not, the system may either be rejected or accepted on conditions previously agreed between the sponsor and the manufacturer. The objective is to provide confidence that the delivered system meets the business requirements of both sponsors and users. The acceptance phase may also act as the final quality gateway, where any quality defects not previously detected may be uncovered .The system is implemented after all these checks and validations.

SYSTEM IMPLEMENTATION

7 .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 and it will feel as a burden for them. A product 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 product 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 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 (product) software consumes up to 1/3 of the budget of a software purchase. The complexity of implementing product software differs on several issues. Examples are: the number of end users that will use the product software, 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 available for acquiring product software.

The implementation stage of the system begins by preparing a plan for implementation of the system. According to this plan, activities are to be carried out ,discussions are made regarding the equipment to be required and resources and additional facilities required to implement 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 type of transactions while using the new system.

The implementation involves the following formalities:

- careful planning
- investigation of the systems and constraints
- design the methods to achieve the changes
- training the staffs in the changed phase
- evaluation of the change over method

SYSTEM MAINTANANCE AND SECURITY

8. SYSTEM MAINTANANCE AND SECURITY

8.1 SYSTEM MAINTANANCE

A process of modifying a software system or component after delivery to correct faults , to improve performance is known as software maintenance. A common perception of maintenance is that it merely involves fixing defects. However, one study indicated that the majority, over 80%, of the maintenance effort is used for non-corrective actions. Software maintenance is a very broad activity that includes error correction, enhancements of capabilities, deletion of obsolete capabilities, and optimization. Because change is inevitable, mechanisms must be developed for evaluation, controlling and making modifications .So any work done to change the software after it is in operation is considered to be maintenance work. The purpose is to preserve the value of software over the time. The value can be enhanced by expanding the customer base, meeting additional requirements, becoming easier to use, more efficient and employing newer technology. Maintenance may span for 20 years, whereas development may be 1-2 years.

Corrective maintenance is done to repair the faults or defects found in day –to –day system functions , that is software design, logic and coding errors. Adaptive maintenance is the implementation of changes in a part of the system which has been affected by changes that occurred in some other part of the system. The objective of perspective maintenance should be to prevent failures and optimize the software. Minor adaptive changes should be handled by normal maintenance process. Major adaptive changes should be carried out as a separate development project.

8.2 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 terms system security, means the collective processes and mechanisms by which sensitive and valuable information and services are protected from publication, tampering 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 behaviour . Internet is a part of everyday life, web applications are an essential component of every business activity. Customers and trading partners expect fast, accurate and secure applications with robust functionality. Companies want sites that are easy to maintain and update, yet cost effective. Auditors and security officers want to ensure that the web applications are controlled and that there is strong data integrity. All of these requirements need to be blended to ensure that each web application meets the company's goals, satisfies the customers

Any system developed should be secured and protected against possible hazards. Security measures are provided to prevent unauthorized access of various levels. An uninterrupted supply should be provided, so that the power failure or voltage fluctuations will not erase the data in the files or database. Data security is the practice of keeping data protected from corruption and unauthorized access. The focus behind data security is to ensure privacy while protecting personal or corporate data. Data is the raw form of information stored as columns and rows in our database, network servers and personal computers. Authorization ensures that the logged-in user is allowed to use a page or perform an operation. Authorization is typically based on one or more roles(sometimes called groups) to which the user belongs. Password protection and simple procedure to hide their personal data are provided to the users as a part of the security objectives. The system allows the users to use the app only after signing in using their username and password provided during registration.

The admin is well protected by a password and username since all services are controlled by the admin, any intrusion in to the admin can cause damage or a failure in the system. The user can only access the service but can't modify any. Each user is treated individually and can't interrupt to the details of another user account and make changes or modifications hence the activity of each single user is well protected and secured

CONCLUSION

CONCLUSION

We have developed our Time Table application. This application is able to meet most of the requirements. This app maintained maximum utilization of time, and more efficient for teachers to work on it.

10.SCOPE FOR FUTURE ENHANCEMENT

10.1.ENHANCEMENT

Based on current limitations of our projects, there can be some recommendations to improve the features of our app in order to make it more user friendly, efficient and affective as well.

Notification system: Allow teacher to get notification for free period.

Wifi Attendance system: The wifi attendance system help the students for marking their attendance

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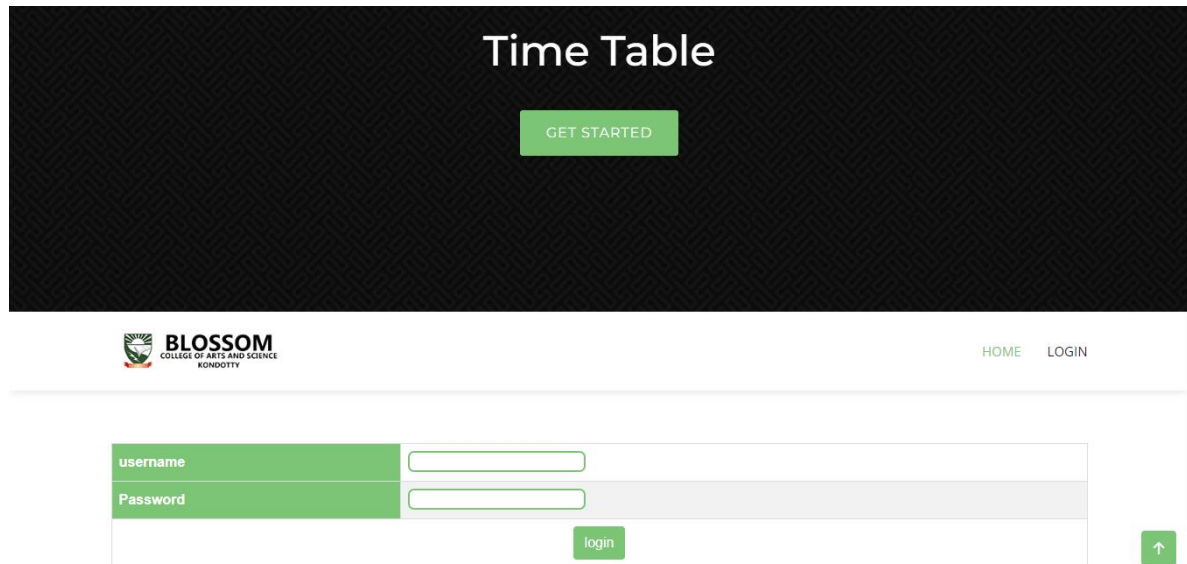
Websites

- (1) Free android Programming- Ebook Android Programming Guide or beginners
- (2) Wikipedia
- (3) Tutorials on Python

12.APPENDIX

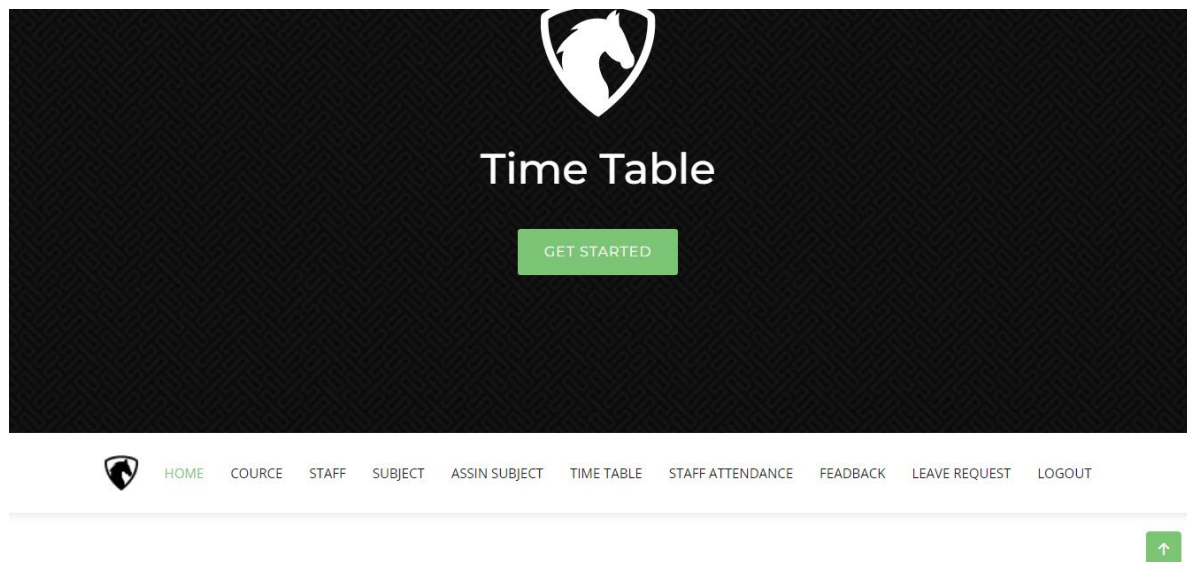
12.1 SAMPLE INPUTS AND OUTPUTS

LOGIN PAGE



The screenshot shows the login page of a system titled "Time Table". The header is dark blue with the title "Time Table" in white and a green "GET STARTED" button. Below the header is a white navigation bar with the "BLOSSOM COLLEGE OF ARTS AND SCIENCE KONDOTTY" logo on the left and "HOME" and "LOGIN" links on the right. The main content area has a light gray background and contains a login form with two input fields labeled "username" and "Password", a green "login" button, and a green "↑" button on the right.

ADMIN HOME



The screenshot shows the admin home page of a system titled "Time Table". The header is dark blue with a white horse logo and the title "Time Table" in white, with a green "GET STARTED" button below it. Below the header is a white navigation bar with a horse logo on the left and a series of links: "HOME", "COURSE", "STAFF", "SUBJECT", "ASSIN SUBJECT", "TIME TABLE", "STAFF ATTENDANCE", "FEADBACK", "LEAVE REQUEST", and "LOGOUT". The main content area is white and contains a green "↑" button on the right.

TIME TABLE GENERATION


[HOME](#) [COURSE](#) [STAFF](#) [SUBJECT](#) [ASSIN SUBJECT](#) [TIME TABLE](#) [STAFF ATTENDANCE](#) [FEADBACK](#) [LEAVE REQUEST](#) [LOGOUT](#)
course sem

	1	2	3	4	5
M	--select--	--select--	--select--	--select--	--select--
T	--select--	--select--	--select--	--select--	--select--
W	--select--	--select--	--select--	--select--	--select--
T	--select--	--select--	--select--	--select--	--select--
F	--select--	--select--	--select--	--select--	--select--



ASSIGN SUBJECT


[HOME](#) [COURSE](#) [STAFF](#) [SUBJECT](#) [ASSIN SUBJECT](#) [TIME TABLE](#) [STAFF ATTENDANCE](#) [FEADBACK](#) [LEAVE REQUEST](#) [LOGOUT](#)

staff	subject	
anuraj pp	SUBJECTSS	delete
siva k	SUBJECT2	delete

LEAVE REQUEST


[HOME](#) [COURSE](#) [STAFF](#) [SUBJECT](#) [ASSIN SUBJECT](#) [TIME TABLE](#) [STAFF ATTENDANCE](#) [FEADBACK](#) [LEAVE REQUEST](#) [LOGOUT](#)

Date	staff name	Leave date	Reason	day	status
2022-04-19	siva k	2022-04-19	medical leave	MONDAY	accept reject

TEACHER HOME

Time table

GET STARTED

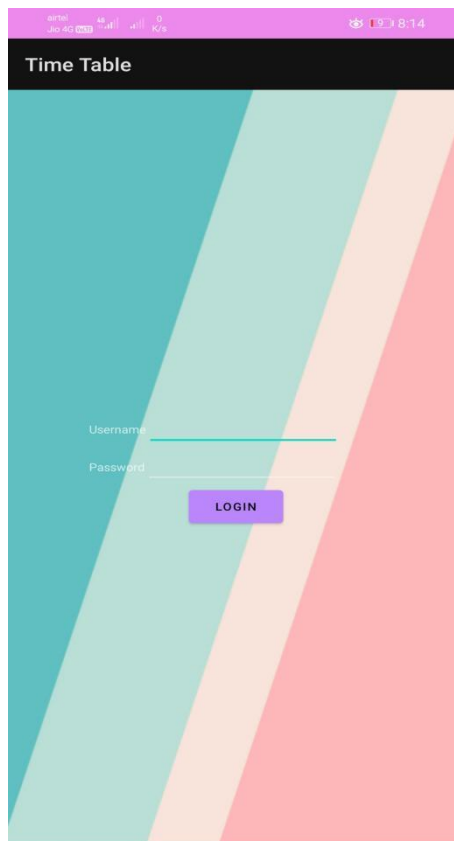
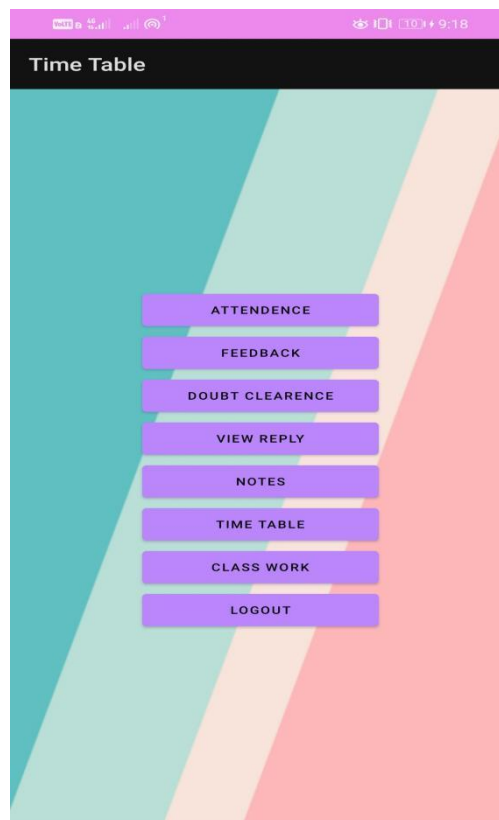
STUDENT ATTENDANCE CLASS WORK NOTES DOUBT TOPIC COVERED ALLOTTED SUBJECTS FREE PERIOD LEAVE STUD UPLOAD LOGOUT

TOPIC COVERED

subject	SUBJECTSS ▼
modules	topic covered(if completed)
1	<input type="checkbox"/>
2	<input type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>
5	<input type="checkbox"/>
6	<input type="checkbox"/>
<input type="button" value="finish"/>	

FREE PERIOD

day	hour	sem
THURSDAY	1	s1
TUESDAY	3	s1

LOGIN PAGE**STUDENT HOME**

TIMETABLE

Time Table	
MONDAY	
HOUR	SUBJECTSS
1	SUBJECT2
2	SUBJECT3
3	SUB6
4	SUBB
5	
TUESDAY	
HOUR	SUBJECTSS
1	SUBJECT2
3	SUBJECT3
4	SUB6
5	SUBB
2	
WEDNESDAY	
HOUR	SUBJECTSS
1	SUBJECTSS
3	SUBJECT3
2	SUBJECT3
4	

DOUBT CLEARANCE

Time Table

Staff: siva

Doubt:

SEND