EasyAtten

A Project Report
Submitted on the partial fulfillment of
the Requirements for the award of the
Degree of

BACHELOR OF SCIENCE(INFORMATION TECHNOLOGY)

By

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guidance of
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DEPARTMENT OF INFORMATION TECHNOLOGY
K.J SOMAIYA COLLEGE OF SCIENCE AND COMMERCE
(Affiliated to University of Mumbai)
MUMBAI,400077
MAHARASHTRA
2019-2020

K. J. SOMAIYA COLLEGE OF SCIENCE AND COMMERCE

Re-accredited with 'A' Grade by NAAC

Vidyanagar, Vidyavihar, Mumbai 400 077

DEPARTMENT OF INFORMATION TECHNOLOGY

PROJECT CERTIFICATE FOR B.Sc. (I.T.) STUDENTS

2019 – 2020

This is to certify- that the project entitled

'EasyAtten'

Undertaken by

Brother . **Mehul Panchal (1906844)**

Brother . **Bhaskarrao Puppala (1906855)**

in fulfilment for B.Sc I.T. Degree(Semester 6) Examination has been completed by him/her. This project had not been submitted for any other examination and does not form a part of any other course undergone by the candidate.

This is to further certify that he/she has completed all required phases of the project.

_____ _____

(Mr. Palash Ingle) (Mr. Prakash Patil)

Project Guide Head of the Department

_____

College Seal External Examiner

ABSTRACT

In the last few years due to improvement of technology education system in India has developed. Smart Class, video conferencing is some of the examples of modern trends in educational system.

Student Attendance Management System is an android based application which helps the institute to move forward, fulfill their vision accomplish their goals. It generates the attendance of the student on basis of their presence in class. It is maintained on the daily basis of their attendance.

The staffs will be provided with the separate username and password to take the student's status. It helps the teacher to take attendance through their smart phone and to keep the record of the attendance in their pocket for any time use.

Until today, most lecturers in universities are found still using the conventional methods of taking student's attendance either by calling out the student names or by passing around an attendance sheet for students to sign confirming their presence. In addition to the time-consuming issue, such method is also at higher risk of having students cheating about their attendance, especially in a large classroom.

Therefore a method of taking attendance by employing an application running on the Android platform is proposed in this paper. This application, once installed can be used to download the students list from a designated web server.

Based on students presence in classroom teacher can mark attendance according to subject wise. The smart attendance application is connected to administrater server in which admin can moniter in browser or pc.

The updated attendance list is then uploaded to an online database and can also be saved as a file to be transferred to a PC later on. This system will help to eliminate the current problems, while also promoting a paperless environment at the same time.

Since this application can be deployed on lecturer's own existing Android devices, no additional hardware cost is required.

ACKNOWLEDGEMENT

Project is a milestone in study period of student's life. Before starting the project, I had not any idea about how a project can be made and implement. But I am thankful and want to show my gratitude towards **Mr. Palash Ingle** to give me an opportunity to enhance my knowledge through this practical platform.

The satisfaction that accompanies the successful completion of this project would be incomplete without the mention of people whose ceaseless co-operation made it possible, whose constant guidance and encouragement crown all efforts with success.

This project gave me valuable knowledge through their development process. At this place, I have got plenty of fundamental and advance knowledge for my future career. I also pay my regards to all my classmates who were keen to help me when I struck in any doubt. Overall, it was a great experience for me in all manner.

We are thankful to and fortunate enough to get constant encouragement, support and guidance from all testing staff of information technology which helped us in successfully completing our project work.

DECLARATION

I hereby declare that the project entitled, "**EasyAtten**" done at **K.J. SOMAIYA COLLEGE OF SCIENCE AND COMMERCE, VIDHYAVIHAR (E), MUMBAI**, has not been in any case duplicated to Submit to any other university for the award of any degree. To the best of my knowledge Other than us, no one has submitted to any other university.

The project is done in partial fulfillment of the requirement for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester Project as part of our curriculum.

Mehul Panchal **Bhaskarrao Puppala**

TABLE OF CONTENTS:

Chapter 1 :Introduction

1.1 Background

The current method that institution uses in the faculty passes an attendance sheet and make roll calls to mark the attendance of the students, which sometimes disturbs the discipline of the class and this sheet further goes to the admin department. This process is quite hectic and time consuming. Also, for mentor and student at institute or college. We have come across with android application mainly consists of two entities student and teacher. The student panel mainly consists of viewing the attendance according to subject with percentage of each subjects. The teacher will mark the attendance according to subject to which students and class belongs. The teacher can view the reports in application.

1.2 Objectives

"Attendance Management System" is android application developed for marking and storing the attendance of the student on the daily basis in the college. Here the Mentor who is handling the subjects, will be responsible to mark attendance of the student. Each mentor will use the application to mark the attendance of students and generate the overall attendance status. An accurate report based on the student attendance on daily basis is generated. The main objective of the automated attendance system is to computerized the traditional way of recording attendance and provide an efficient and automated method to track attendance in institutions.

Advantage of Smart Attendance System:

- Provide better security
- Maintenance of the system in easy and cost effective.
- Generate the result quickly
- Provide accurate and efficient data.
- User friendly.

1.3 Purpose, Scope and Applicability

1.3.1 Purpose

The purpose of developing android attendance system is to computerize the traditional way of taking attendance. The another purpose is to make portable attendance system equipped with an online database, especially to prevent data loss as well as to promote paperless and a greener environment. Besides that, the application will help to reduce time being wasted, leading to a higher learning productivity in class and also avoiding false attendance.

1.3.2 Scope

The following project has much scope in present as well as future. In present situation the application can be installed in mobile devices.
The scope of the project is the system in which it is installed, i.e. the project is developed as an android application and it will work for a particular institute. But later on the project can be modified to operate for many institutes.

1.3.3 Applicability

This app is applicable to everyone interested.

- This application can be used in Institutes and colleges.
- It can be used in Seminars.
- It can be used in Workshops.
- Application can be used in MNCs.

Chapter 2 :Survey of Technologies

Summary of Technologies

Android Studio :-

Android studio is the official IDE (Integrated Development
Environment) or tool (layman terms) for developing application exclusively for Android platform. It has a strong editor tool for developing creative UI and emulators for different versions to test and simulate sensors without having actual Android devices.

1. XML

Extensible Markup Language (XML) is used to describe data. XML is a markup language much like HTML used to describe data. XML tags are not predefined in XML. We must define our own Tags. Xml as itself is well readable both by human and machine. Also, it is scalable and simple to develop. In Android we use xml for designing our layouts because xml is lightweight language so it doesn't make our layout heavy. The XML standard is a flexible way to create
information formats. Both XML and HTML contain markup symbols to describe page or file contents. HTML code describes Web page content (mainly text and graphic images) only in terms of how it is to be displayed and interacted with. XML data is known as self-describing or self-defining, meaning that the structure of the data is embedded with the data, thus when the data arrives there is no need to pre-build the structure to store the data; it is dynamically understood within the XML. The XML format can be used by any
individual or group of individuals or companies that want to share information in a consistent way. XML is actually a simpler and easier-to-use subset of the Standard Generalized Markup Language (SGML), which is the standard to create a document structure. The basic building block of an XML document is an element, defined by tags. An element has a beginning and an ending tag. All elements in an XML document are contained in an outermost element known as the root element. XML can also support nested elements, or elements
within elements. This ability allows XML to support hierarchical structures. Element names describe the content of the element, and the structure describes the relationship between the elements.

2. JAVA

Java is one of the most popular and widely used programming language.

- Java has been one of the most popular programming language for many years.
- Java is Object Oriented. However it is not considered as pure object oriented as it provides support for primitive data types (like int, char, etc.)
- The Java codes are first compiled into byte code (machine independent code). Then the byte code is run on Java Virtual Machine (JVM) regardless of the underlying architecture.
- Java syntax is similar to C/C++. But Java does not provide low level programming functionalities like pointers. Also, Java codes are always written in the form of classes and objects.
- Java is used in all kind of applications like Mobile Applications (Android is Java based),desktop applications, web applications, client server applications, enterprise applications and many more.

3. Firebase

Firebase provides a real time database and backend as a service. The service provides application developers an API that allows application data to be synchronized across clients and stored on Firebase's cloud. Real time syncing makes it easy for your users to access their data from any device, be it web or mobile. Real time Database also helps your users collaborate with one another.Another amazing benefit of Real time Database is that it ships with mobile and web SDKs, allowing you to build your apps without the need for servers. When your users go offline, the Real time Database SDKs use local cache on the device to serve and store changes. When the device comes online, the local data is automatically synchronized. The Real time Database can also integrate with Firebase Authentication to provide a simple and intuitive authentication process.

4. Backendless

Backendless Database is a secure, scalable and dynamic persistence solution. It provides the best of the NoSQL and SQL worlds. As a NoSQL persistent storage solution, Backendless Database structure can be defined on the fly with tables and table columns being created based on the data you save with APIs. As an SQL-based solution, you get the benefit of using relational data, indexing, SQL searches, and aggregate functions. Backendless Console gives you a powerful graphical interface for working with your data, setting up constraints, and validators. Backendless Security lets you graphically assign permissions to user roles for data tables or individual objects. Using Backendless Code Generators, you can instantly download client-side code that is mapped to your database schema and save time when developing your application.

Chapter 3 :Requirements and Analysis

3.1 Problem Definition

Attendance Management System is an application developed for daily student attendance in colleges and institutes. It facilitates to access the attendance information of a particular student in a class. This system will also help in evaluating attendance eligibility criteria of a student. The system will be able to produce the student's attendance report thus reducing the need for manual labour which is prone to human errors and time consuming. This application is built for automating the processing of daily attendance record. It also enhances the speed of performing attendance task easily. The Student Attendance will be based on the department and section. According to the department wise and section wise the attendance will be marked for the students. It includes present and absent column of checkbox for each student so that they would mark the attendance like period wise. By just a click on the submit button, the system will be able to produce the student's attendance report. The student and staff have unique user login id and password available. The student can only view the attendance record on weekly, monthly, and whole semester basis. The admin can view as well as modify the attendance record. Printing facility for attendance record is available for both students and staff.

3.2 Requirement specification

➢ Functional Requirements

1. Student login and Teacher login Activities.
2. Registration for Teacher.
3. Student login using Email which is provided at first time.
4. Teacher login via Email ID.
5. Reset password (For both send link to Email Address).
6. If teacher login then mark the attendance of present student.
7. lecture wise teacher can mark attendance according to subject code.
8. Each lecture for respective teacher will have different code can be mark by teacher. Here code is subject.
9. If teacher extend lecture such as two lecture for same subject teacher can mark twice or more and submit the attendance.
10. The attendance reports can view by student via login in the student login page.
11. Each student can login with respective email address to view attendance daily record basis.
12. The data is transferred to the database.

13. The data is stored in structured format the admin can perform each and every task in database as per requirement.
14. Teacher can view the attendance report with student rollno.
15. If found any false attendance teacher/Admin can delete his/her attendance record.
16. If required teacher can view his/her attendance in the form of Excel sheet can be downloaded with admin perspective.

➢ **Non-Functional Requirements**

Non-functional requirements define system attributes such as reliability, accuracy, maintainability and usability.
1. Reliability - The system must be reliable.
2. Accuracy - More the system short & easy to use, the more it will be accurate.
3. Maintainability - The codes programmed in project should be easy to maintain and should also be easy to modify. The code needs to be flexible to make it maintainable.
4. Usability - The easier the software performs the task, the better is the usability.
5. Performance - How efficiently and smoothly the code runs, the better is the performance.
6. Scalability - The capability of software is basically meant by scalability. According to the technologies used the capability of the software can be scalable.

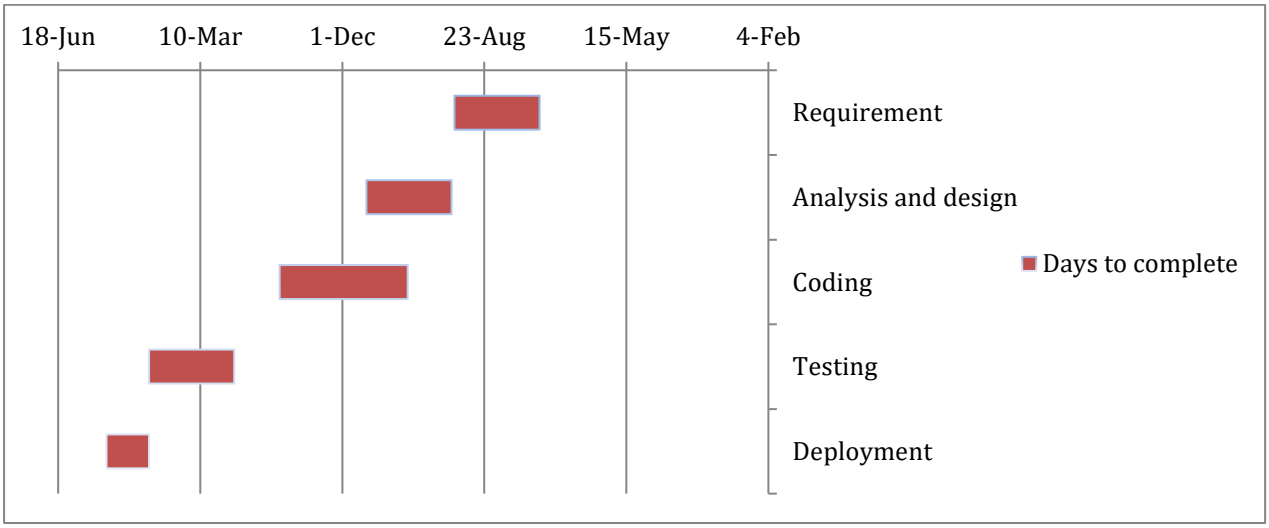
3.3 Planning and Scheduling

Planning- Planning can be thought as determining all the small tasks that must be carried out in order to accomplish the goal. Which task should be done how & when, comes under planning?
Planning also takes into account, rules, and known as constraints, which control when certain tasks can or cannot happen?
Planning of the project activities should be done before starting a project, not only to complete all the tasks, but also to get an idea that in how much time a project activity can be carried out.

Scheduling- Scheduling can be thought as determining whether adequate resources are available to carry out the plan. For how much time a function should be given time so that it can be created properly. A project with no starting and finishing date is less likely to succeed. Objective of developing our project schedule are:

- To identify project activities that needs to be completed.
- To estimate duration of project activities.
- To determine the sequence and time when the project activities will need to happen.
- To monitor and control the project schedule.

Gantt Chart/Scheduling Chart :



3.4 Software and Hardware Requirement

3.4.1 Software Requirement

- Android Studio
- Android OS 4.2+(Mobile)
- Backend : Firebase & Backendless Database

3.4.2 Hardware Requirement

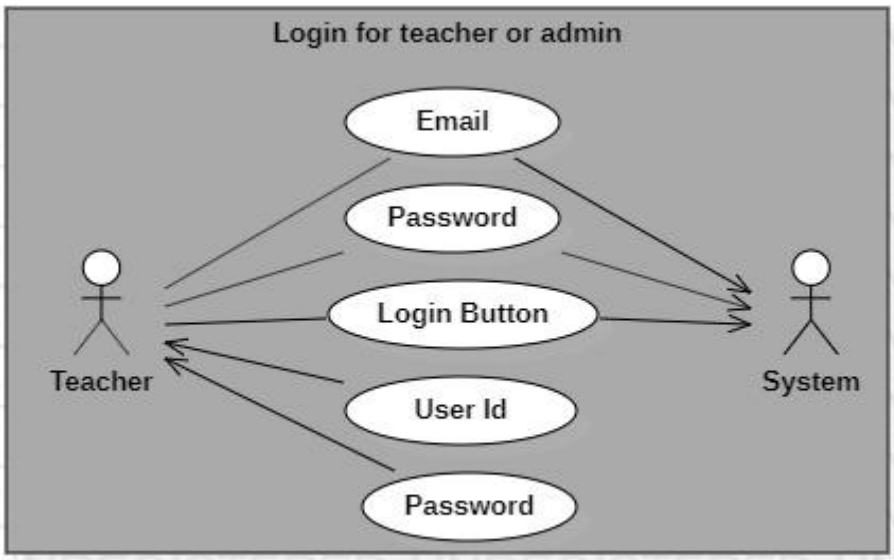
- Android smart phone running Android OS version 4.0.3(API level 15)+
- Computer/Laptop with i3 Processor and 8GB RAM
- Hard Disk 1TB
- Internet Connection

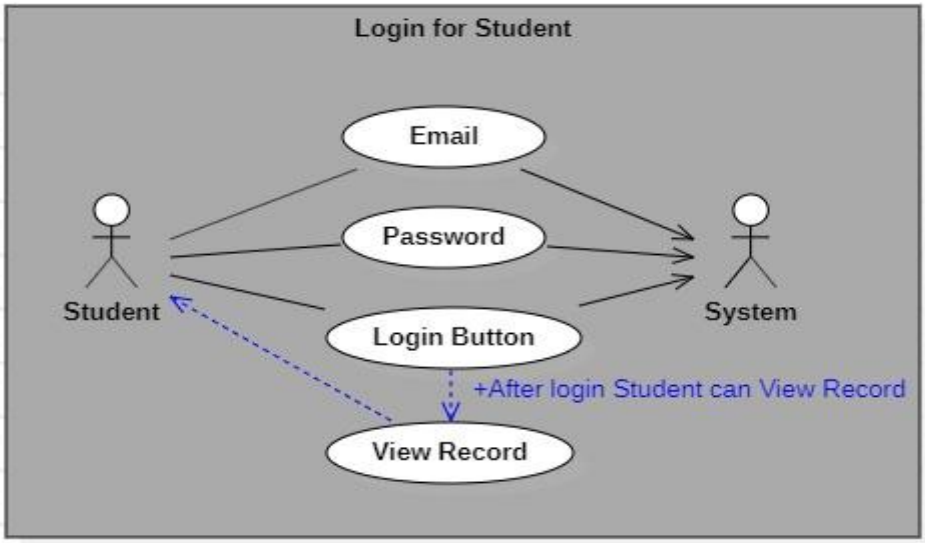
3.5 Preliminary Product Description

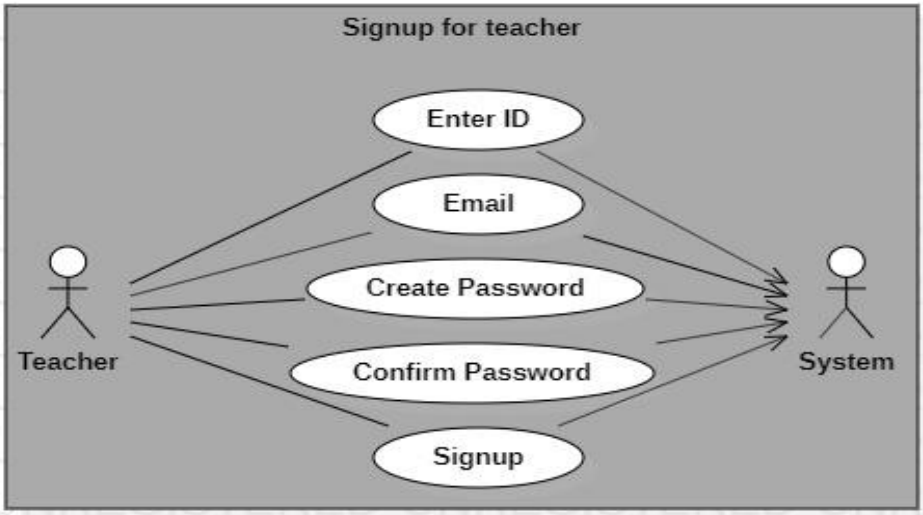
The main purpose of this application allows to take attendance easily and to make less work load to mentor. It provide better prevention for proxy attendance. This application will be android application which will be more convienient for mentor as well as students.

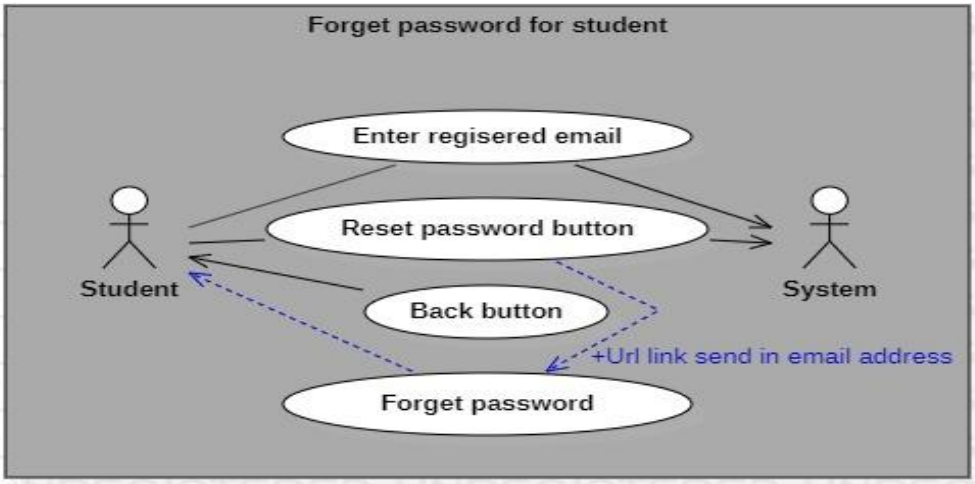
3.6 Conceptual Models

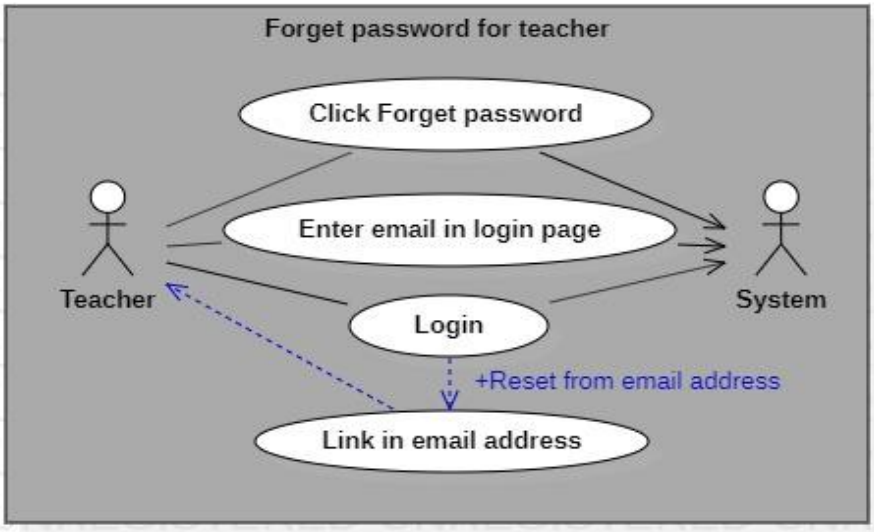
3.6.1 Use case Diagram

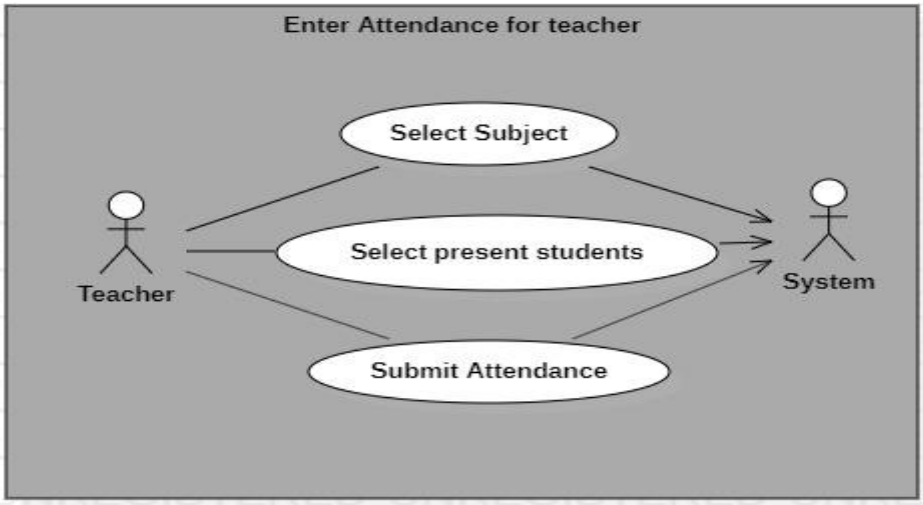


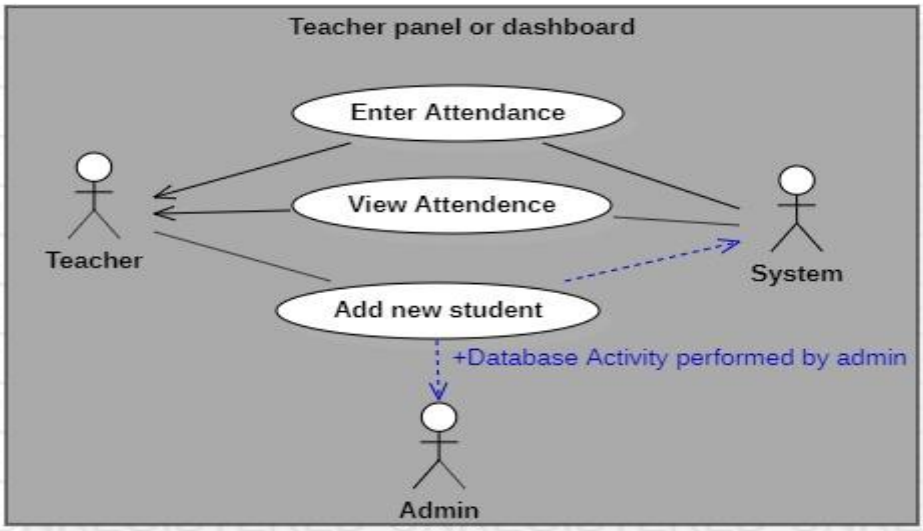


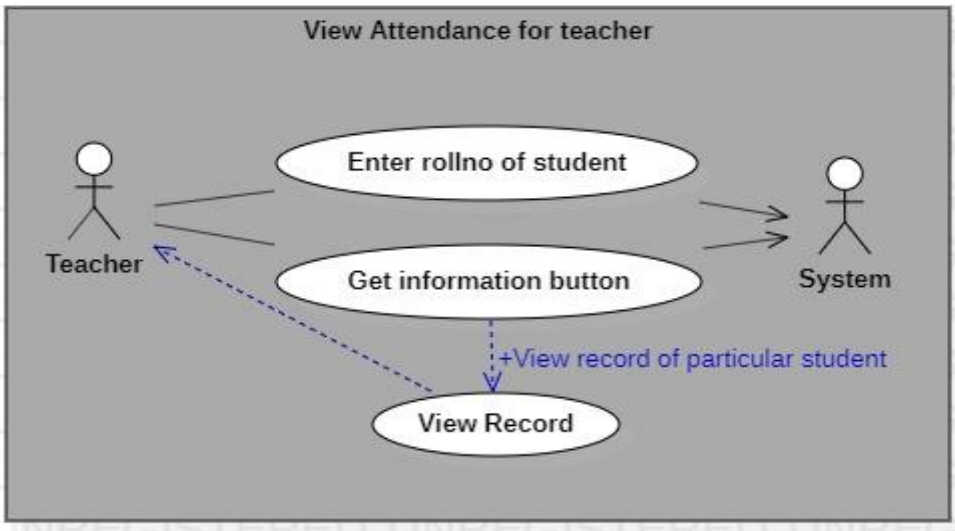

Signup for teacher
Enter ID
Email
Create Password
Confirm Password
Signup
Teacher
System

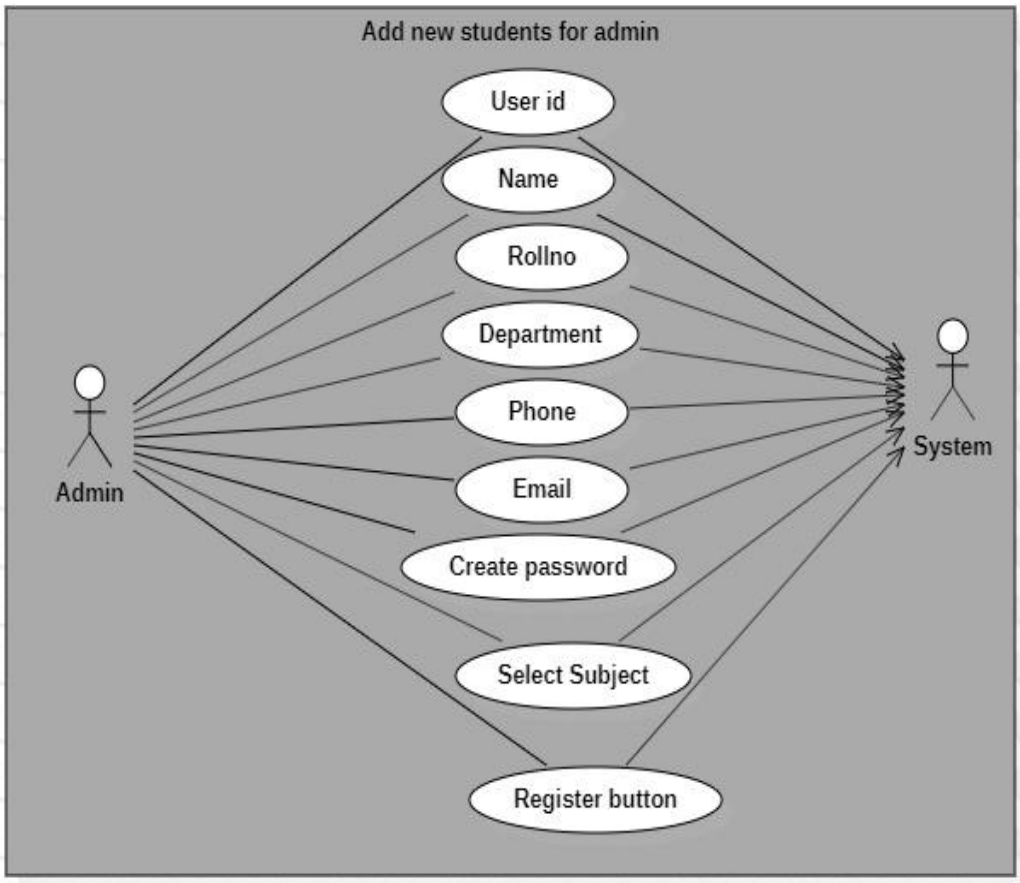

Forget password for student
Enter regisered email
Reset password button
Back button
+Url link send in email address
Forget password
Student
System


Forget password for teacher
Click Forget password
Enter email in login page
Login
+Reset from email address
Link in email address
Teacher
System

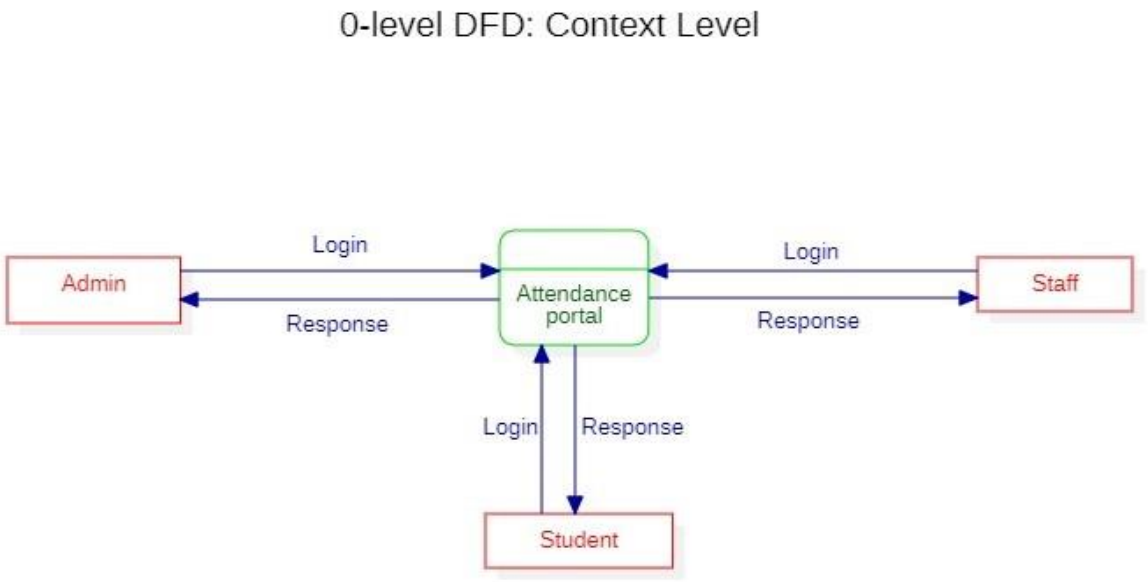

Enter Attendance for teacher
Select Subject
Select present students
Submit Attendance
Teacher
System

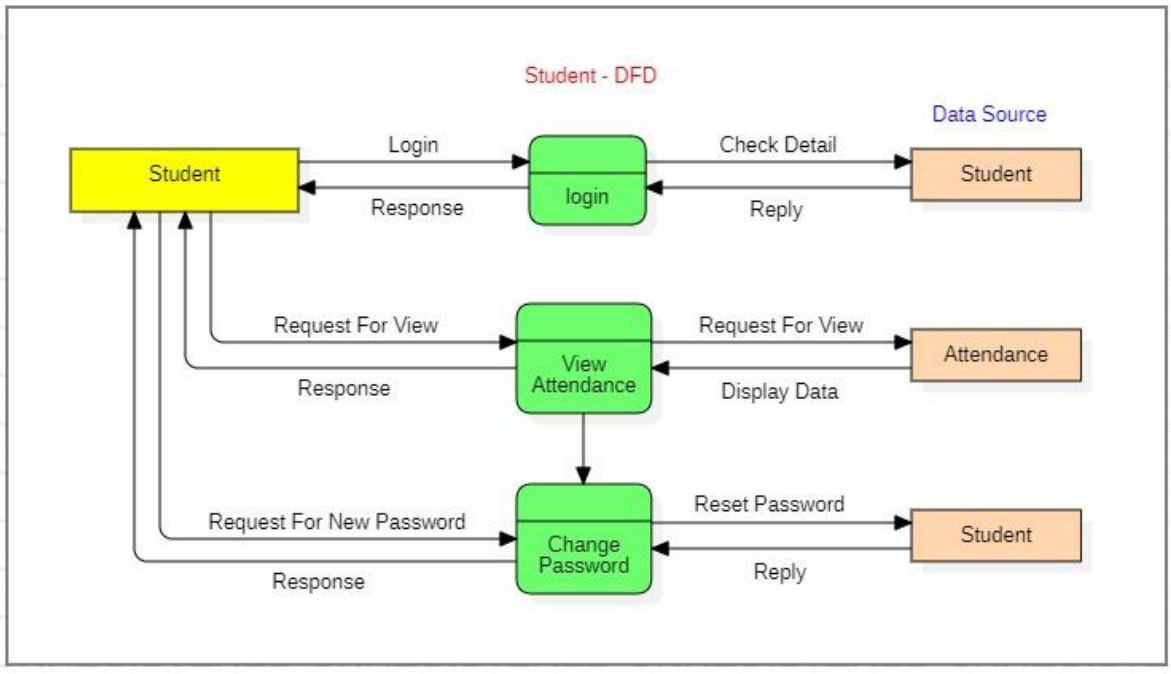

Teacher panel or dashboard
Enter Attendance
View Attendence
Add new student
+Database Activity performed by admin
Teacher
System
Admin

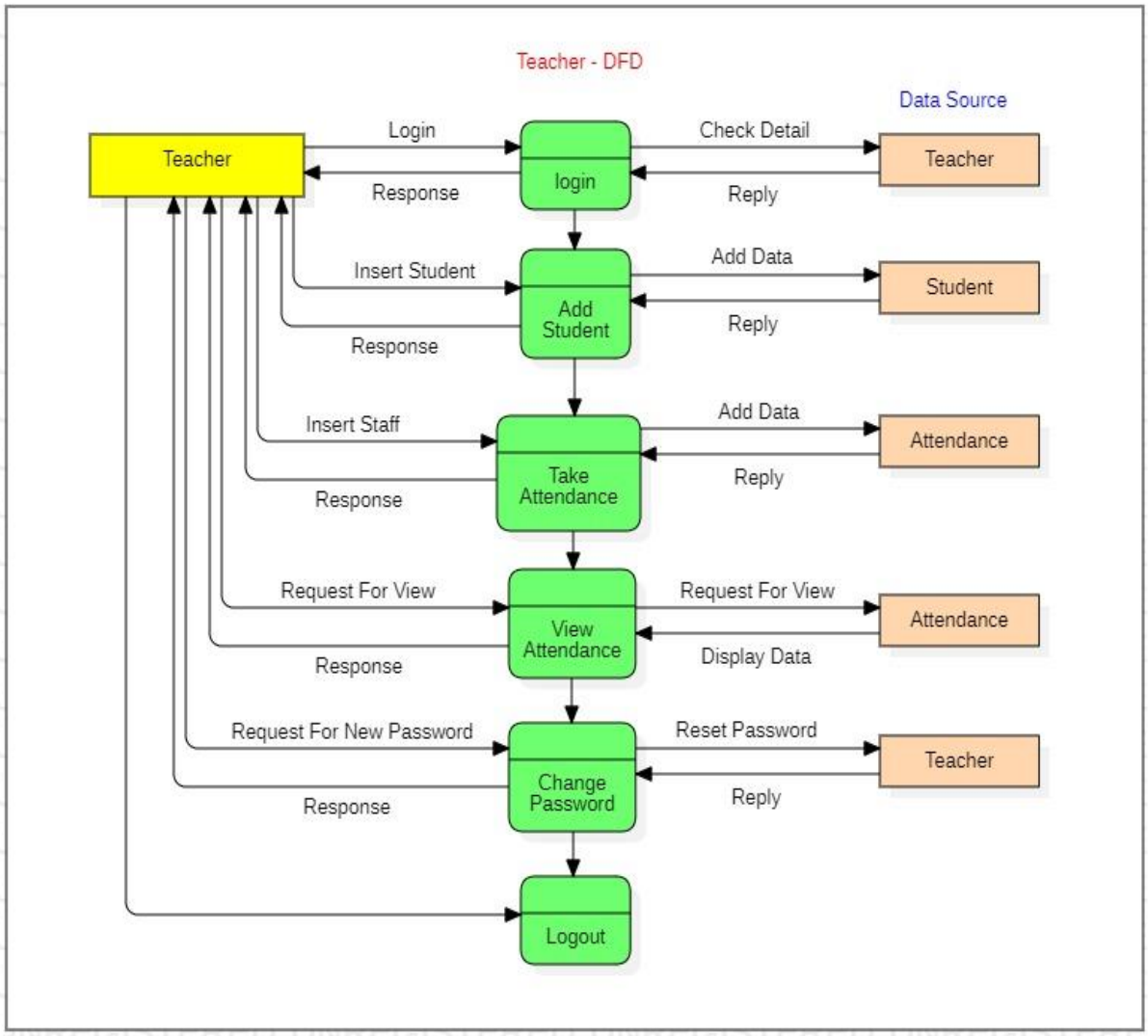

View Attendance for teacher
Enter rollno of student
Get information button
+View record of particular student
View Record
Teacher
System

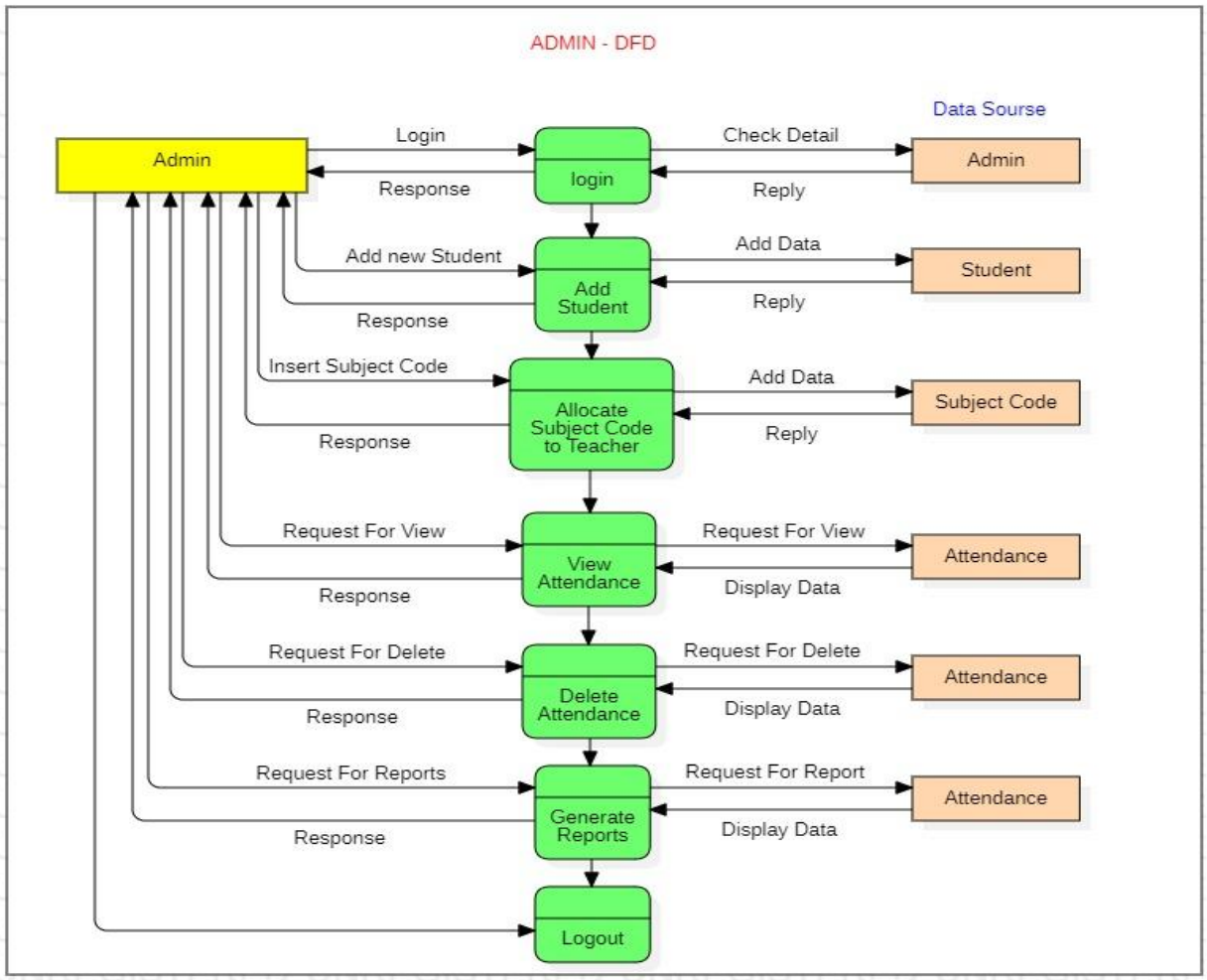


3.6.2 Data Flow Diagram

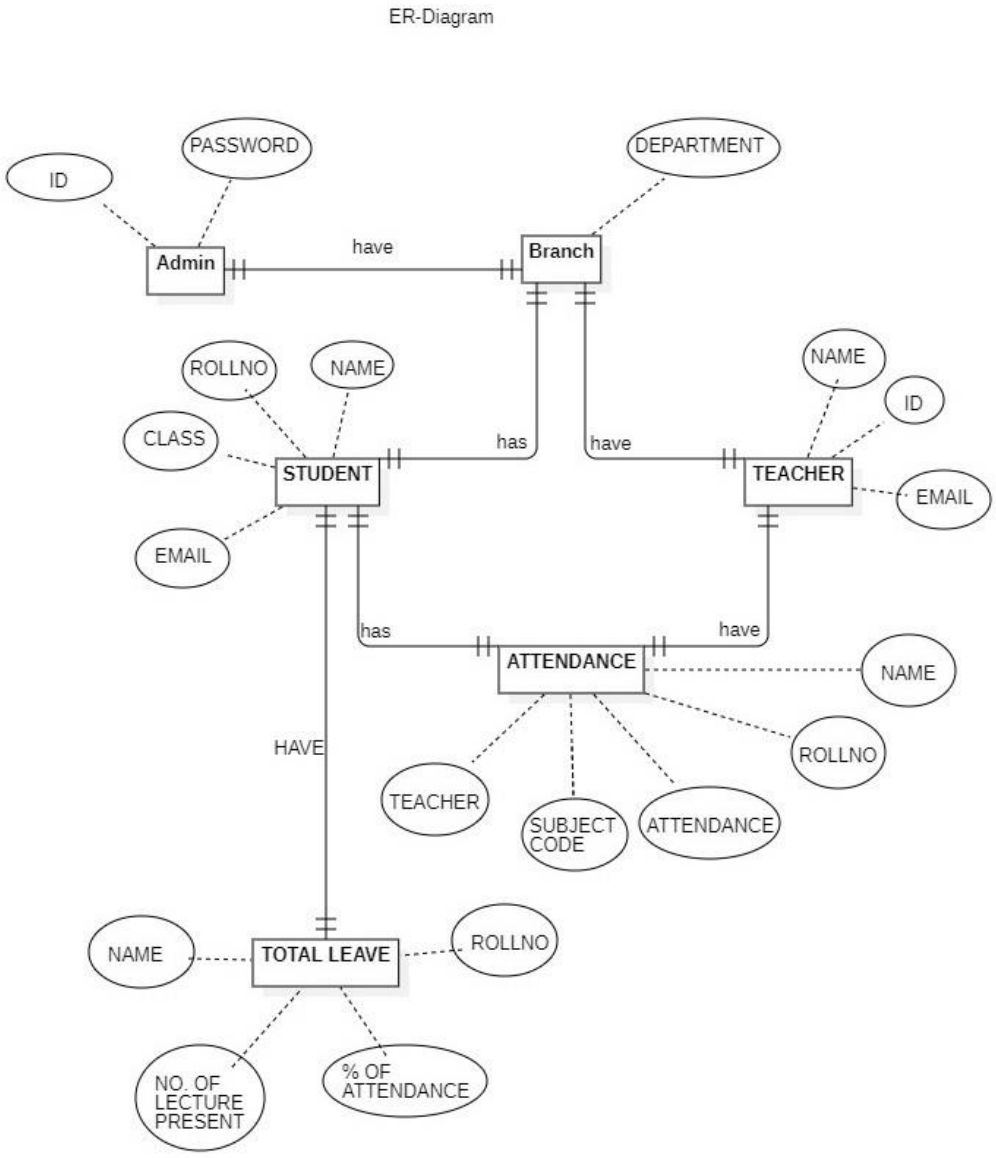




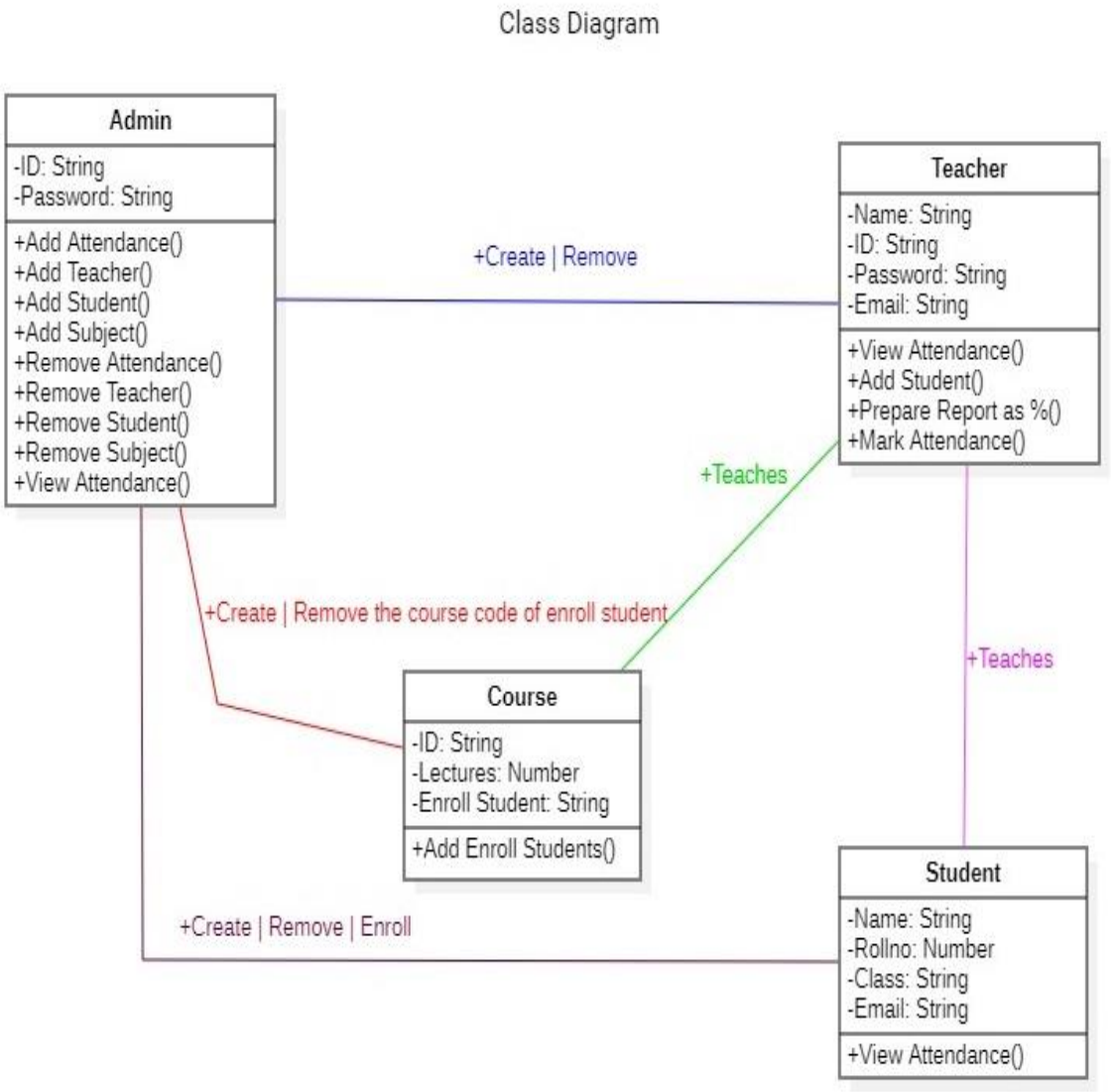

Teacher - DFD
Data Source
Teacher
Login
Response
login
Check Detail
Reply
Teacher
Insert Student
Response
Add Student
Add Data
Reply
Student
Insert Staff
Response
Take Attendance
Add Data
Reply
Attendance
Request For View
Response
View Attendance
Request For View
Display Data
Attendance
Request For New Password
Response
Change Password
Reset Password
Reply
Teacher
Logout



3.6.3 E-R Diagram

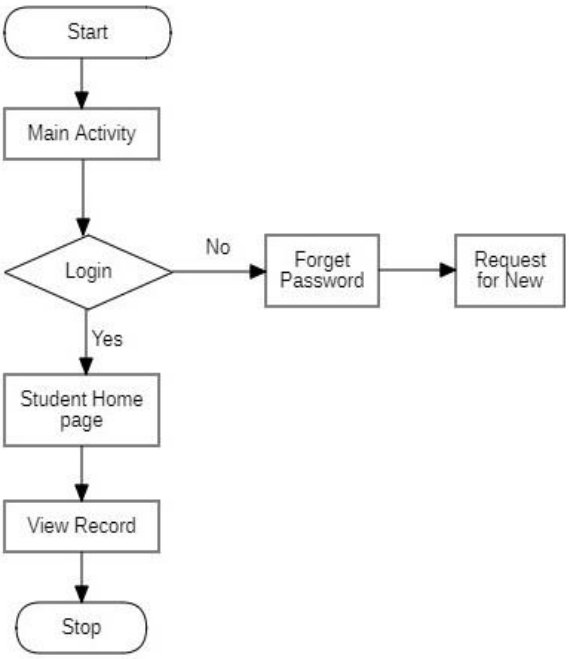


3.6.4 Class Diagram

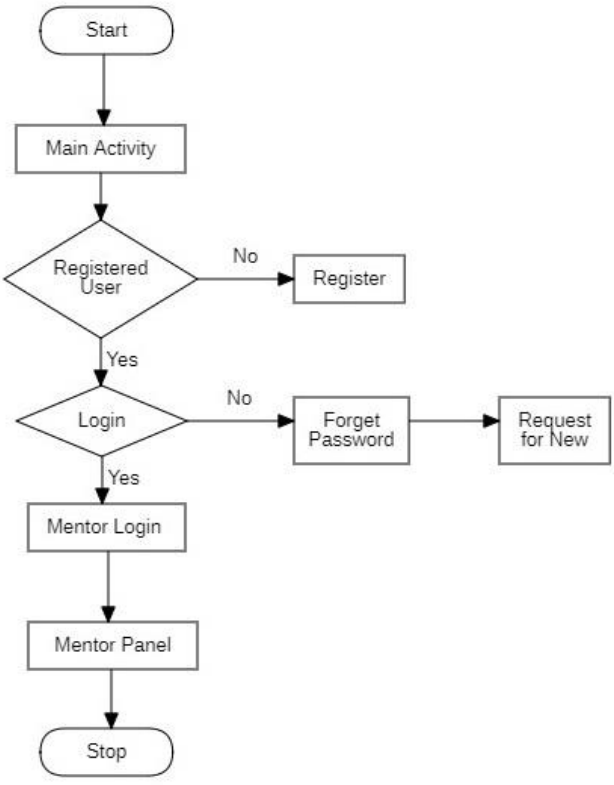


3.6.5 Flow Chart

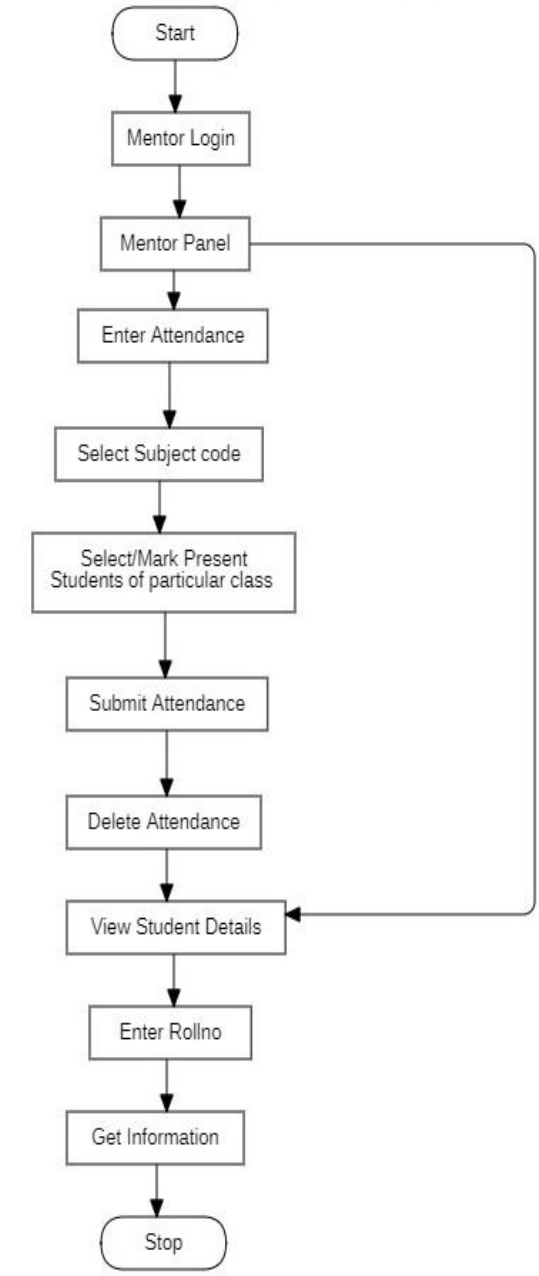
Flowchart for Student



Flowchart for Teacher



Flowchart for Marking and Viewing Attendance



Chapter 4 :System Design

4.1 Basic Modules

1. **Teacher Module** :
   The user can make account into the application and can use it for future purposes and moreover can mark the attendance via checking the checkbox of present student and vice versa.
2. **Admin Module :**
   This module is used to login for administrator, it have whole rights to monitor and manage the entire project, through this module, new information can be insert, update, view and delete.
3. **Login Module :**
   This module is used to login for the student and teacher profiles home page and will continue the other processes.
4. **Student Module :**
   This module can be used for student to login account. The information such as name , roll no, department, contact, and record of attendance can viewed. This information is stored in the database in which student can only view the record of attendance in application via just login.
5. **Database Module :**
   This module contains the information identified with the structure in the database, for example, user/clients that are taken to crack at the system, and so forth participation, class plan, etc. Here admin can update the database at time-wise operation which have generated into the database.

4.2 Data Design

1. **Admin and Teacher :**
   a. **Admin :**
      For admin login it consists of two parameters of same data type called string.
      1. Id(String)
      2. Password (String)

      The admin can perform database operation such as adding, updating, deleting, removing and viewing the record.
   b. **Teacher :**

For teacher login it consists of four parameters of same data type called string.

1. Name(String)
2. Id(String)
3. Password(String)
4. Email(String)

The teacher can mark attendance, view student record, add student and prepare reports in percentage wise calculations.

2. Student :

For student login it consists of two parameters of same data type called string.

1. Email(String)
2. Password(String)

The student can view his/her record via login.

- In viewing record consists of three parameters of different data types called string and number.
- 1. Name(String) 2. Rollno(Number) 3. Class(String)

3. Course :

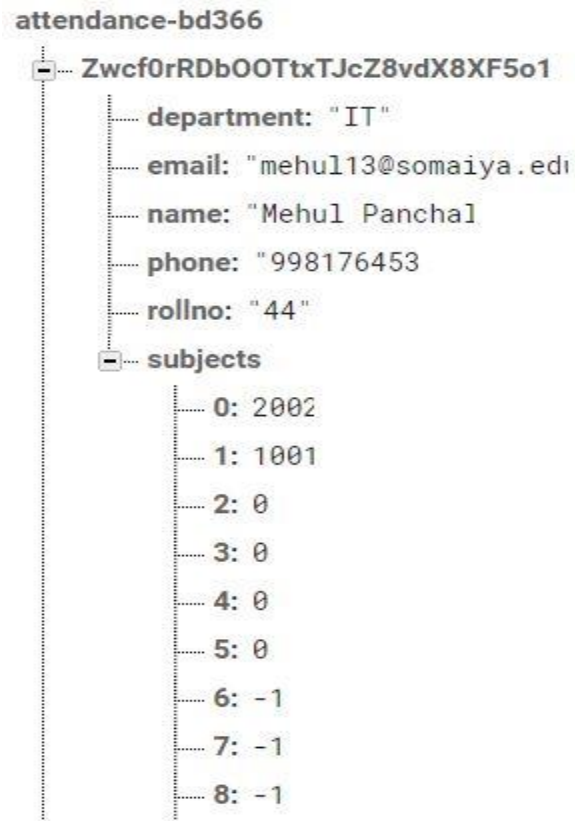
In course consists of three parameters of different data types called string and number.

1. Id(String)
2. Lectures(Number)
3. Enrolled Student(String)

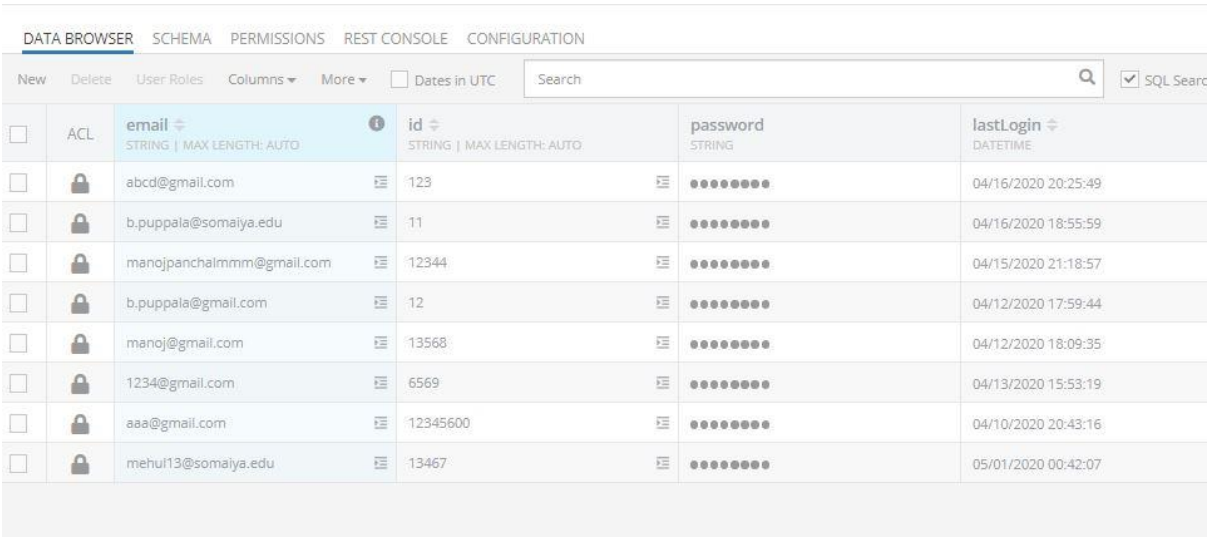
In course section admin can add course or subject wise different database can be scheduled according to the course

4.2.1 Schema Design

- Firebase is NOSQL hence, Schema for Student will be:



- Backendless database for MENTOR is NoSQL database, Schema will be:



4.2.2 Data Integrity and Constraints

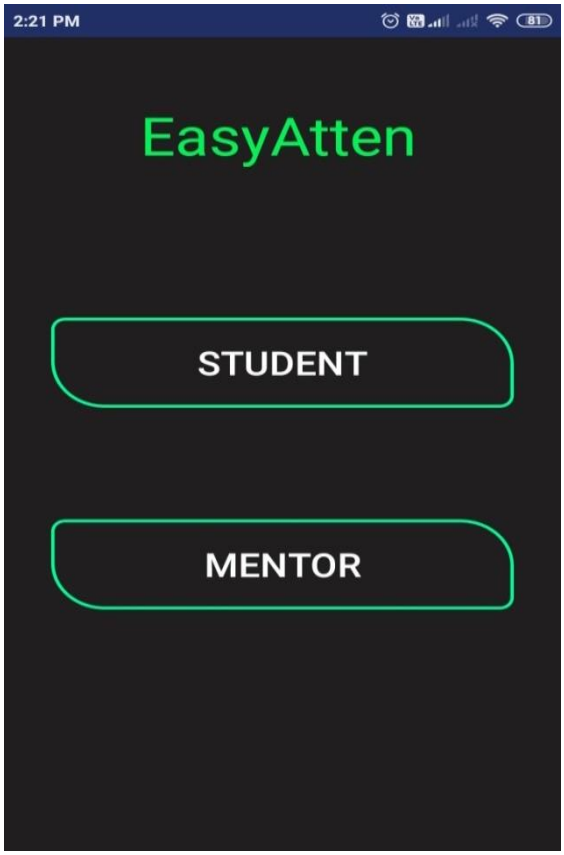
Data integrity is the maintenance, assurance of the accuracy and consistency of data over its entire life cycle, and is a critical aspect to the design, implementation and usage of any system which stores, processes, or retrieves data. Attributes like userid, rollno, etc. are kept as unique and not null. Some attributes can be kept null or not unique according to requirements.

4.3 Procedural Design

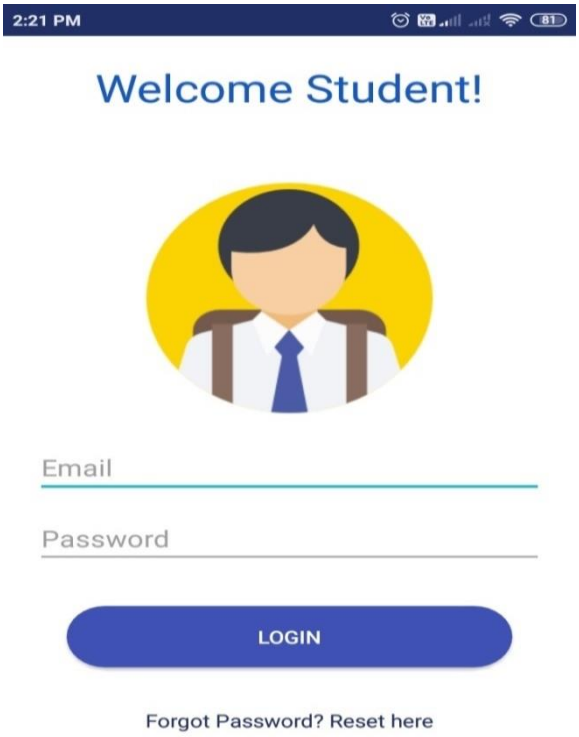
Procedural design is a systematic way for developing algorithms or procedurals. We can use procedural design to get an initial idea of the flow of a particular function.

4.4 User interface design

1. **Main Screen:**

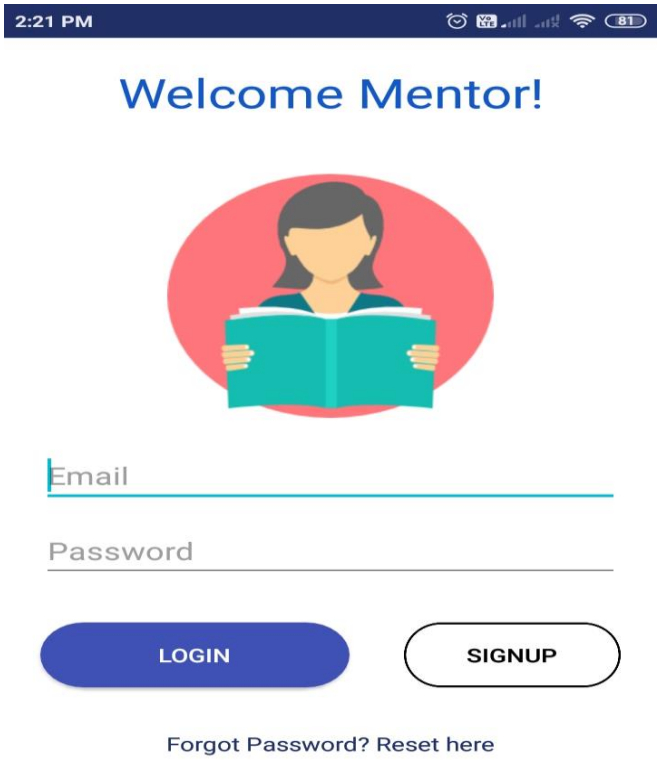


2. **Student Login Screen:**

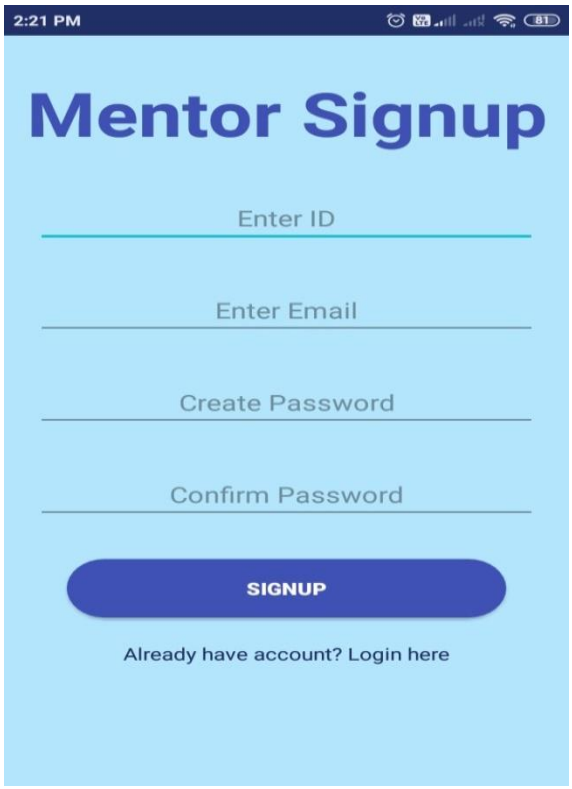


3. **Student Home Page Screen:**

4. **Teacher Login Screen:**

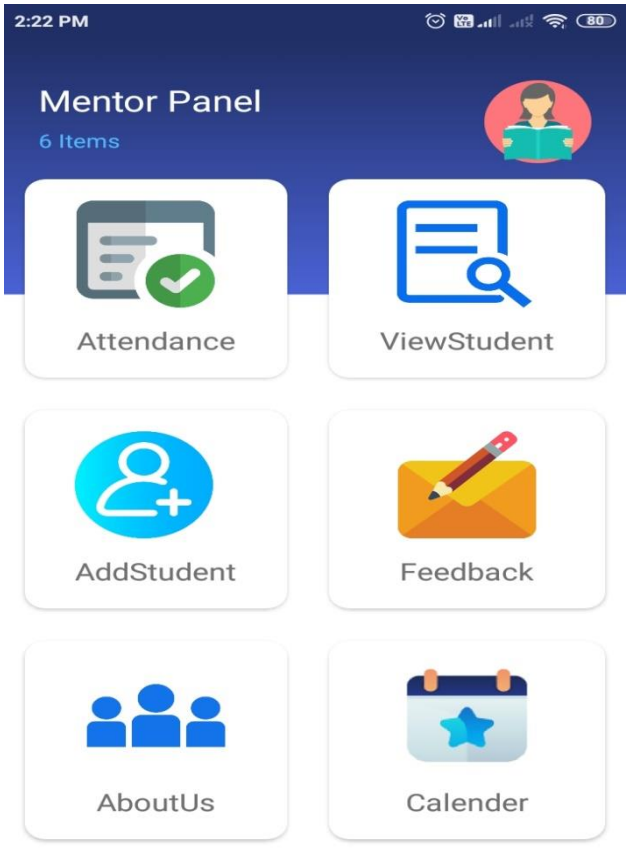


5. **Teacher Signup Screen:**

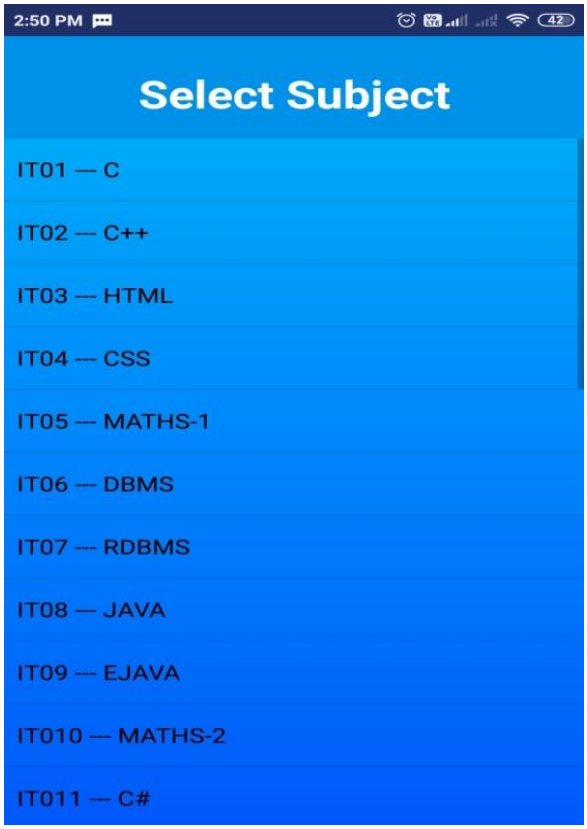


6. **Security Login Screen for Teacher:**

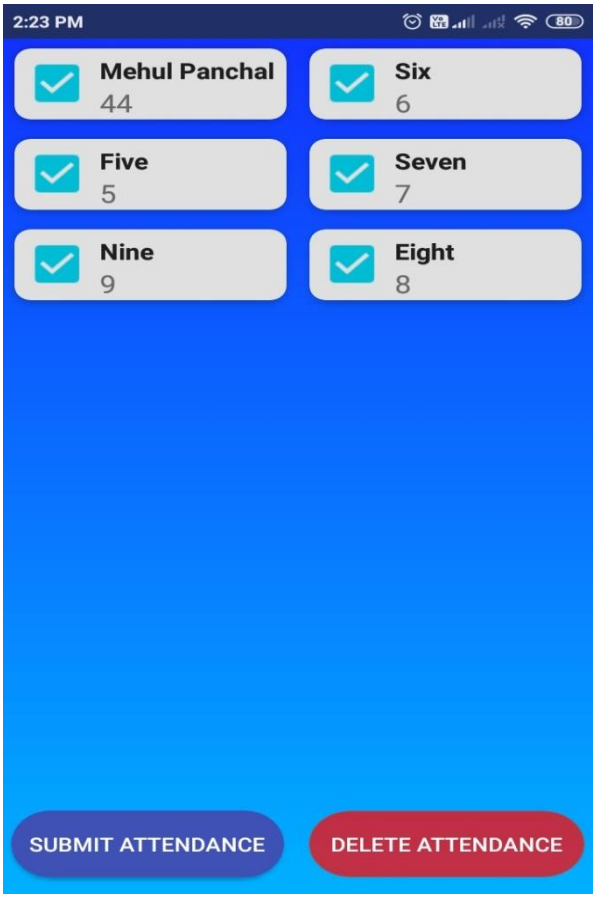
7. **Teacher Home Page Screen:**



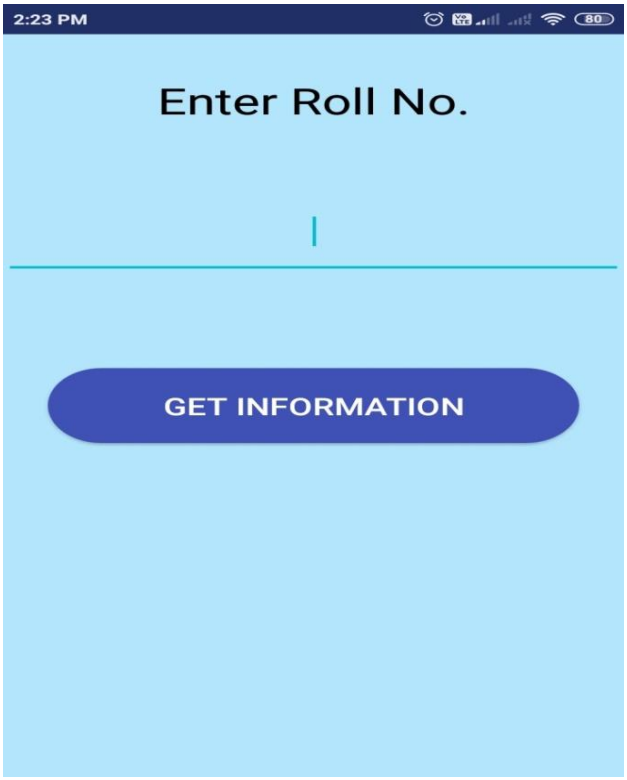
8. Subject List Screen:



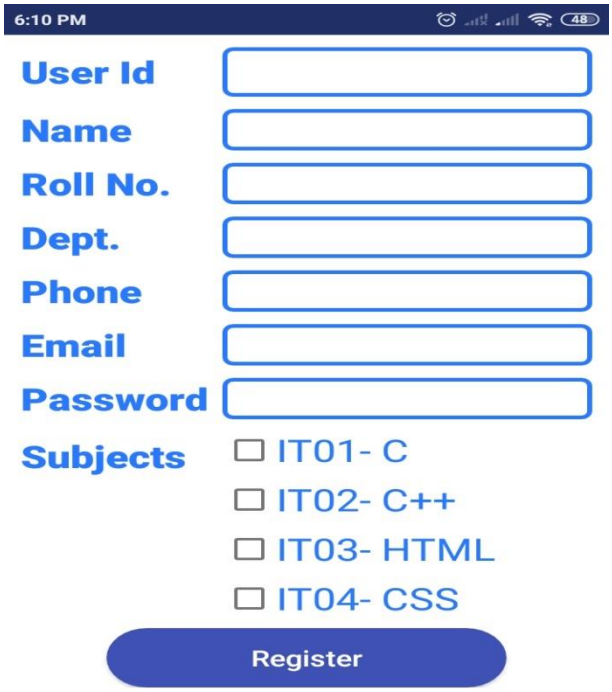
9. List of Students :



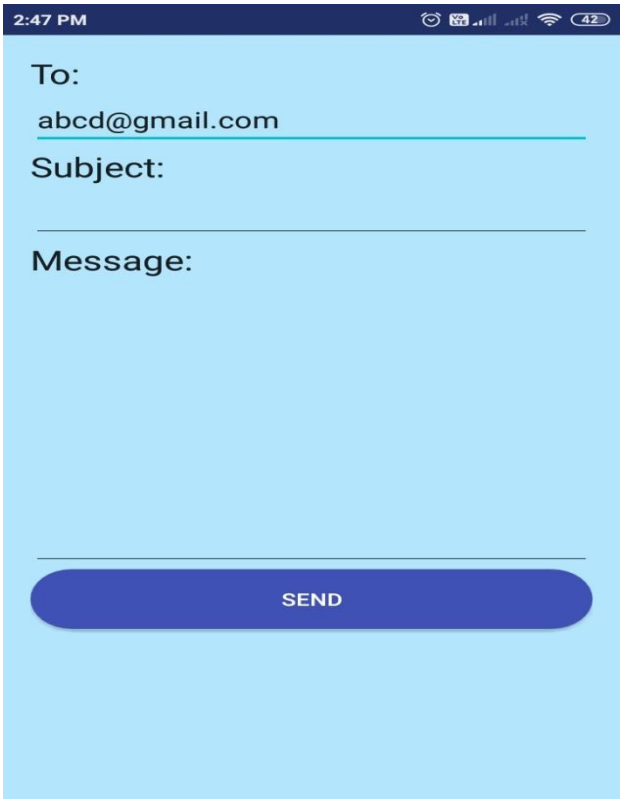
10.View Student by Rollno Screen:



11.Add Student Screen for Admin:



12.Feedback Screen



4.5 Security Issues

As we are using Java which is very secured programming language to code in our project, we can say that data is much safe and secure. It assures the users of the application that their data is secured. Firebase is a standout amongst the most well-known for keeping data secure and provide the authentication. For mentor backendless database is use for authenticate which is scalable and more secure which can be revoked if any false authentication is done other than mentor. Since data is collected and stored in table format which is easy to monitor and use. Firebase and backendless database provides various mechanisms to secure application. Some of are listed below:

- Signing Details
- Email
- Storing Password
- Authenticate User

4.6 Test Cases Design

1. Mentor/Admin Test Case Design :

Test Case ID: TC_M001

Test Case Name: Registration/Sign Up.

Description: To use the application mentor should first register and create their account.

Prerequisite: The mentor should have proper email ID to register.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Goes to signup screen		Signup screen should be open	Signup page is open	Pass
2	Enter registration details	ID: 1205489567 Email: mehul13@gmail.com Create Password: 123456 Confirm password: 123456	Details entered Successfully	Details entered Successfully	Pass
3	Click on signup Button		Registration done Successfully	Registration done Successfully	Pass

Test Case ID: TC_M002

Test Case Name: Login

Description: To enter into the application user/mentor must have proper credential.

Prerequisite: The user/mentor must be registered.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Open the login screen		Login screen should open	Login page is open	Pass
2	Enter the details	Email: mehul13@gmail.com Password: 123456	Details entered Successfully	Details entered Successfully	Pass
3	Click on Login Button		Login Successfully	Login Successfully	Pass

Test Case ID: TC_M003
Test Case Name: Forget Password
Description: To reset the password.
Prerequisite: The user/mentor must be registered and should access provided email id during registration.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Click on Forget Password button	Toast message is generated	Enter your email into your email field	Enter your email into your email field	Pass
2	Enter email In login screen	Email: mehul13@gmail.com	Enter Registered Email	Email Entered	Pass
3	Click to reset password Button	Toast message is generated	Check your email to reset password	Check your email to reset password	Pass
4	Reset password link	Create password: 12345678 Confirm Password: 12345678	URL link send in registered email address	URL link send in registered email address	Pass
5	Login with email and reset password	Email: mehul13@gmail.com Password: 12345678	New Password should be entered	New Password should be entered	Pass
6	Login with new password		User/ Mentor should get logged in with new password	Logged in success fully	Pass

Test Case ID: TC_M004
Test Case Name: Mentor Login

Description: After successfully login is done, the next screen appears is mentor login.

Prerequisite: User ID and Password which will be provided by admin to mentor.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Enter User Id and Password	User id: admin Password: admin	Details entered successfully	Details entered successfully	Pass
2	Click on login button		Login successfully to mentor penal	Login successfully to mentor penal	Pass

Test Case ID: TC_M005

Test Case Name: Add new student for admin.

Description: Admin will enter the all details and register the account.

Prerequisite: Proper email id of students.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Click to Add new student button		Activity open	Activity open	Pass
2	Enter student Details	User Id : 1659874660 Name : Mehul Panchal Rollno: 1 Department: IT Phone: 9987167554 Email: xyz@gmail.com Password: 123456 Subject : ✓ IT01 ✓ IT02 ✓ IT03 ✓ IT04 ✓ IT05….etc.	Student details entered Successfully	Student details entered Success fully	Pass
3	Click on Register/Submit button		User registered Successfully	User registered Success fully	Pass

4	Student Database		Database created successfully	Database created success fully	Pass

Test Case ID: TC_M006
Test Case Name: Enter Attendance for mentor.
Description: Mentor will mark attendance according to subject code and submit the attendance of particular lecture.
Prerequisite: Present students in class. In which mentor will mark list of students present and submit the attendance.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Click to enter attendance button		Select subject activity open	Select subject activity open	Pass
2	Select subject code In a given List	Eg.:IT01 is clicked	Next activity opens i.e. List of students	List of students	Pass
3	Check for present student		Marking the list of present students	Checked students	Pass
4	Uncheck for absent student		Do not mark the list of absent students	Unchecked students	Pass
5	Submit todays Attendance button click	Toast message pop ups	Attendance completed of present student	Attendance completed	Pass

Test Case ID: TC_M007
Test Case Name: View student details.
Description: Mentor or admin can view attendance record via Rollno.
Prerequisite: Student rollno.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Click view students details button		Next activity open	Next activity open	Pass

2	Enter Rollno	E.g.: 1	Data entered successfully	Data entered successfully	Pass
3	Click get information button		Information fetch to next activity	Information fetch to next activity	Pass
4	View attendance of particular student		Information can view successfully	Information can view successfully	Pass

Test Case ID: TC_M008
Test Case Name: Logout
Description: User should logout for security purposes.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Click on logout		System should redirect to login screen	Logout successful	Pass

2. Student Test Case Design :

Test Case ID: TC_S001
Test Case Name: Login
Description: To enter into the application student must have proper email and password which will be provided by admin department.
Prerequisite: Email and Password.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Click on student button		Login screen should open	Login page is open	Pass
2	Enter the details	Email: mehul@gmail.com Password: 123456	Details entered Success fully	Details entered Successfully	Pass
3	Click on Login Button		Login Success fully	Login Successfully	Pass
4	View attendance Record		Information can view successfully	Information can view successfully	Pass

Test Case ID: TC_S002
Test Case Name: Forget Password
Description: To reset the password.
Prerequisite: The student must have registered email id.

Step	Test Step	Test Data	Expected Result	Actual Result	Status
1	Click on Forget Password button		Enter email activity open	Enter email activity open	Pass
2	Enter email	Email: mehul@gmail.com	Enter Registered Email	Email Entered	Pass
3	Click to reset password Button	Toast message is generated	Check your email to reset password	Check your email to reset password	Pass
4	Reset password link	Reset password: 12345678	URL link send in registered email address	URL link send in registered email address	Pass
5	Login with email and reset password	Email: mehul@gmail.com Password: 12345678	New Password should be entered	New Password entered	Pass
6	Login with new password		Student should get logged in with new password	Logged in successfully	Pass

Chapter 5 : IMPLEMENTATION AND TESTING

5.1-Implementation Approaches

For making this project complete working model, we have divided all the functionalities into small and various modules. Modules which are made in sequence and by observing their dependencies on other modules are described in Gantt Chart of 3rd Chapter Requirement and Analysis. Since many of modules are common for all actors, and hence they are made after all different modules.

Standard used for implementation of modules are Top down approach. In top down approach-

1. The whole problem/functionality is divided into two or more modules.
2. Start implementing those modules.
3. If these modules are not easy to be implemented as a whole, split them further and implement them with a better solution.
4. Merge the implemented modules for a functionality to be executed.

5.2-Coding Details and Code Efficiency

5.3-Testing Approach

Usually testing begins when the whole software is developed successfully. But here we have followed Iterative model where one module is developed and when next module is developed, previous module is redeveloped resulting of a better version than before. Software testing is a process, to evaluate the functionality of a software application with an intent to find whether the developed software met the specified requirements or not and to identify the defects to ensure that the product is defect free in order to produce the quality product.

Three types of testing performed on this project modules are-

5.3.1-Unit Testing

Unit testing involves testing of each and every small module developer one after another. Here modules are tested as and when they are developed. When the new module is developed, new module and the previous module both are tested sequentially. All modules once created are tested and improved before developing next module.

5.3.2-Integrated Testing

Integrated Testing is the phase in software testing in which individual software modules are combined and tested as a group. Integration testing is conducted to evaluate the compliance of a system or component with

specified functional requirements. Here after successfully completing development of all small modules, all modules are integrated together and hence the testing performed is called as integrated testing.

5.3.3-Beta Testing

Beta Testing is one of the Acceptance Testing types, which adds value to the product as the end-user (intended real user) validates the product for functionality, usability, reliability, and compatibility. Inputs provided by the end-users helps in enhancing the quality of the product further and leads to its success. This also helps in decision making to invest further in the future products or the same product for improvisation. Since Beta Testing happens at the end user's side, it cannot be the controlled activity.

5.4-Modifications and Improvements

After successful unit testing, integrated testing as well as beta testing, a number of changes in frontend, backend, logic lists down depending on each other. Since the system needs to be fully bug free and errorless, thus modification in source code is a necessary part before deployment of software.

Some modifications performed in the system after testing:-

- Initially the registration part for students was done with every students in the class. So after modification ADMIN can only add students into the respective class. In which student will able to login, only with correct credentials details without signup/registration of account.
- Initially the mentor was unable to reset his/her password in which mail was not able to delivered. So after modification in source code in java and settings up APIs in backendless database then mentor can reset his/her password successfully.
- Initially the students and mentor was able to see the total attendance record in toast i.e. pop up message. So after modification both can view total attendance in view record screen in Text format.
- Initially the mentor was unable to submit the attendance, the checkbox gets unchecked while scrolling in to listview. So after modification we replace listview to recyclerview then the problem of scrolling and selecting checkbox get solved successfully.

5.5-Test Cases

A TEST CASE is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works

correctly. The process of developing test cases can also help find problems in the requirements or design of an application.

1. Test Case for Mentor/Admin

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass/ Fail
TM_01	Check user login with valid data	1. Go to Login screen 2.Enter Email Id 3.Enter Password	abcd@ gmail.com 123456	Mentor should login into next page	As Expected	Pass
TM_02	Security Login	1.Enter User ID 2.Password	Admin Admin	Mentor should login into home page	As Expected	Pass
TM_03	Forgot Password	1.Enter email id 2.Click forget password	abcd@ gmail.Com	Should get reset password link in email id	As Expected	Pass
TM_04	Add new students	1.Enter user id 2. Enter Name 3.Enter Rollno 4.Enter Dept. 5.Enter Phone 6.Enter Email 7.Enter Pass 8.Select Subject	125624 Xyz 20 TYIT 9858964715 xz@gmail.com 123456 IT01 to IT05….	New Sudent added success fully	As Expected	Pass
TM_05	Enter Attendance	Select checkbox of Present Students:- 1. Check 2. Uncheck	1. Present 2.Absent	Attendance Submitted Success fully	As Expected	Pass
TM_06	Delete Attendance	Select checkbox to delete	1.Delete attendance 2.No	Attendance Deleted Success	As Expected	Pass

		attendance:- 1. Check 2. Uncheck	changes	fully		
TM_07	View Students details	1.Enter Rollno 2.Get info. Botton	10	View record Success fully	As Expec ted	Pass
TM_08	Send Feedback	1.Go to feedback 2.Choose Mail		User mail should receive to admin	As Expec ted	Pass
TM_09	Logout	1.Click logout button		Application should logout and redirected to login screen	As Expec ted	Pass

2. Test Case for Student

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass/ Fail
TS_01	Login	1.Enter Email 2.Enter Password	student@gmail.com 123456	Student should login to home page	As Expected	Pass
TS_02	Forgot Password	1.Click forget password button 2.Enter Email 3.Click submit button	student@gmail.com	Should get reset password link in email address	As Expected	Pass
TS_03	Send Feedback	1.Go to feedback 2.Choose Mail		User mail should receive to admin	As Expected	Pass

Chapter 6: RESULTS AND DISCUSSION

6.1-Test Reports

Well done test report allows us to evaluate the current status of project and quality of the product. There is an ability to take corrective actions if it is necessary. The test report can be the final document which determines if the product is ready for release or not. The test reports created here are based on test cases performed in previous chapter.

Test Report ID :	TR_01
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Mentor and Admin
Description :	User registration using his/her credentials
Result :	Successful
Status :	Pass

Test Report ID :	TR_02
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Mentor and Admin
Description :	User logging using his/her credentials
Result :	Successful
Status :	Pass

Test Report ID :	TR_03
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Student
Description :	Student logging using his/her credentials
Result :	Successful
Status :	Pass

Test Report ID :	TR_04
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Mentor and Admin
Description :	Home screen should display categories after login.
Result :	Successful
Status :	Pass

Test Report ID :	TR_05
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Student
Description :	View record after login
Result :	Successful
Status :	Pass

Test Report ID :	TR_06
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Mentor
Description :	Submit and Delete attendance of students
Result :	Successful
Status :	Pass

Test Report ID :	TR_07
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Mentor and Admin
Description :	View student record by rollno of student
Result :	Successful
Status :	Pass

Test Report ID :	TR_08
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Admin
Description :	Add new student into respective class
Result :	Successful
Status :	Pass

Test Report ID :	TR_09
Date created :	14-03-2020
Created by :	Mehul Panchal, Bhaskarrao Puppala
Actor :	Mentor and Student
Description :	Send feedback to admin via mail
Result :	Successful
Status :	Pass

6.2-User Documentation

How the application works-
Actors are involved in the system namely Teacher and Students. Teacher are authorized with various functionality to execute where student being to view the data. The main flow of the application is to get registered themselves to use the application. Teachers select the subject code to which they are given after that there are checkboxes in the screen shown with student details and rollno. While taking attendance teacher need to roll call the every student to take attendance after verifying and clicking the checkbox teacher need to click the submit button. Teacher can view the attendance of the single student along with no of lectures attended out of total and percentage of attendance.
Teacher can also give the feedback to the developer related to any application query or any requirement of new functionality. Students in the application are only to view their attendance on the daily basis with percentage of attendance and no of lectures attended. Students can also give the feedback to the developers.

CHAPTER 7: CONCLUSIONS

7.1-Conclusion

7.1.1 Significance of the System

In this Project, we have focused on the automated system, which replaces the manual attendance sheet system. But the interesting thing is that, the teacher while taking attendance need to remember only the subject code which teacher is teaching for that particular class inside the application the students are assigned to a particular subject to which they belongs. The admin plays a important role of managing the user data like adding the student or any changes in the data can be done in the real time database as well as in application itself which important for any project. The students can also check the attendance by adding their credentials wherever required which is hectic in manual attendance sheet with this application it has now become easy for student in college. The reports which are generated will shown in no of lectures attended out of total lectures along with the percentage of attendance which makes teacher and admin more convenient to find the defaulters. This was actually our target feature of our project.The system is generated in such a manner that user can use and understand the flow of the application and very user friendly.To use the application user should have only a valid emailid.

7.2 - Limitations of the Application

Limitations here describe what situations the system cannot handle or which module/functionality has not yet been developed. As it is an android application it only supports in android phones if there are users using ios operating system then the application can't be used. Minimum sdk version required to run the application is minsdkversion 19. Some other limitations will be determined when there is a development of new module later or when the system can be used officially.

7.3 - Future Scope of the Project

As the application is initially developed for teachers at education institutions which makes taking the attendance in simpler way with less chances of malfunctioning. If the functionalities developed are understandable and uncomplicated for the User, Admin then the system can be used at a good level (only after developing more modules). Scope of the Project currently is at a better level than expected as the project is made by students i.e.made at student level of understanding and student level skills. After developing and adding more functions and by increasing the services more and more by interacting with users feedback the Scope of the Project will be increased.

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