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Easy Attend

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 administrator server in which admin can monitor 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.

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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?

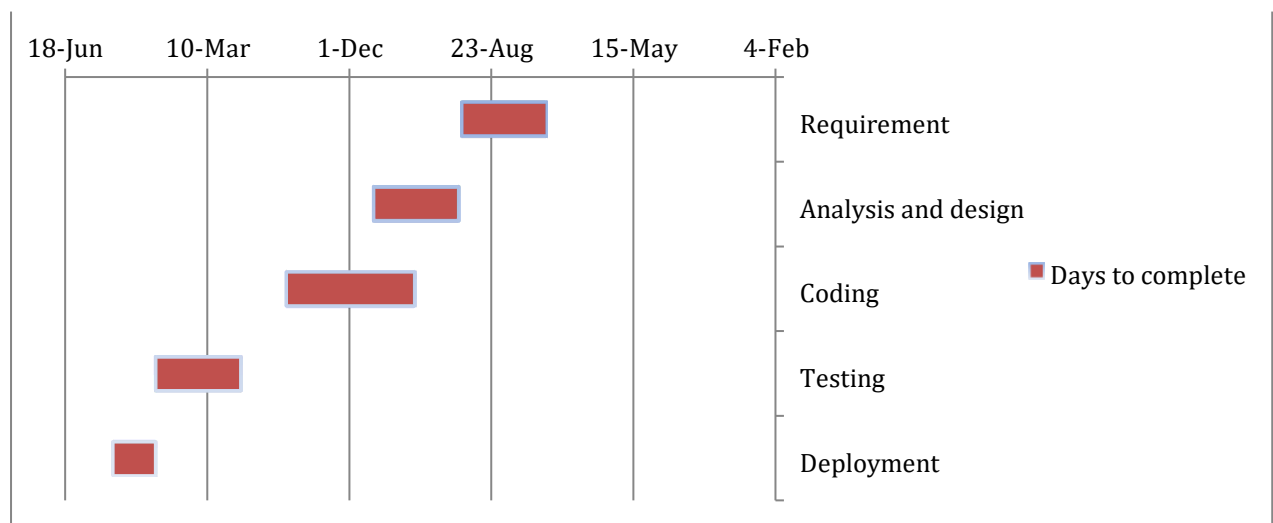
Planning also takes into account, rules, and known as constraints, which control when certain tasks can or cannot happen?

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

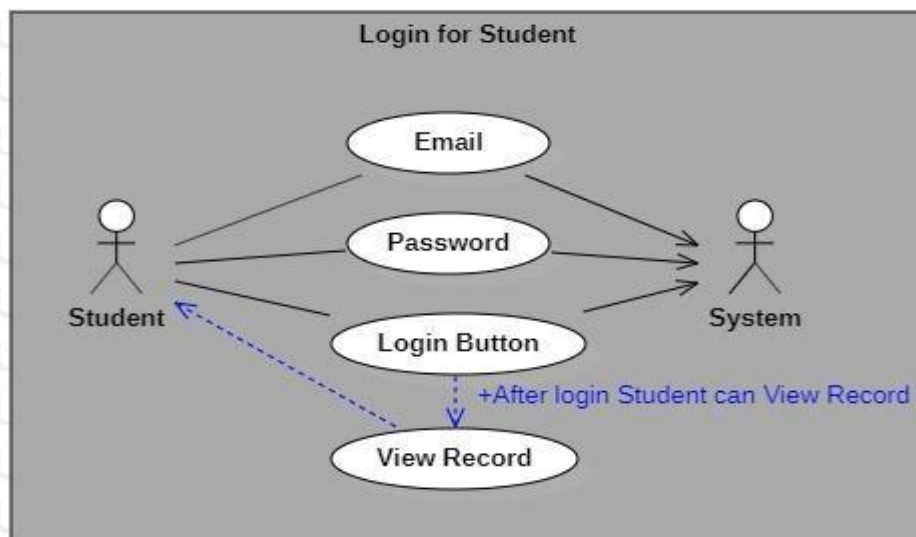
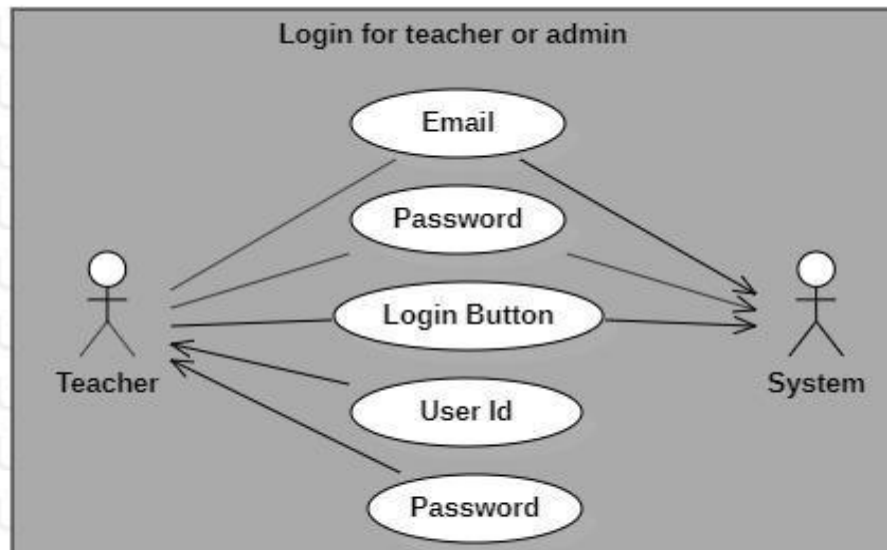
- Android smart phone running Android OS version 4.0.3(API level 15)+
- Computer/Laptop with i3 Processor and 8GB RAM
- Hard Disk 1TB
- Internet Connection

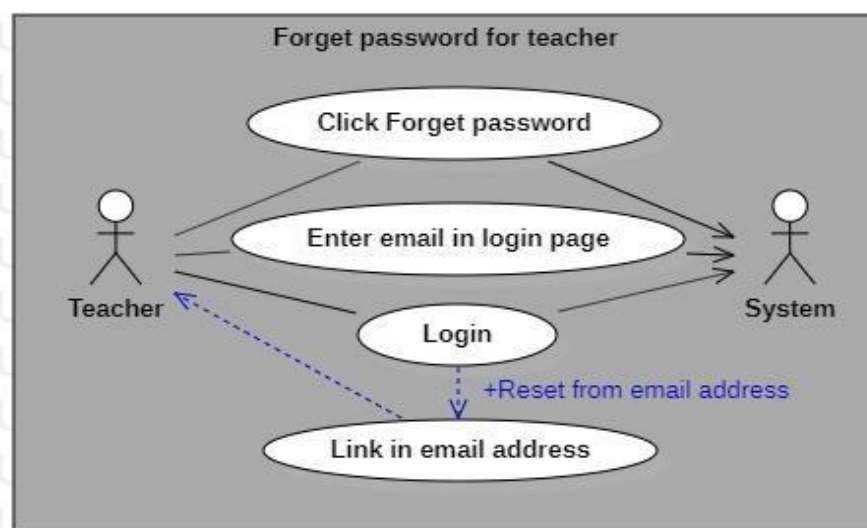
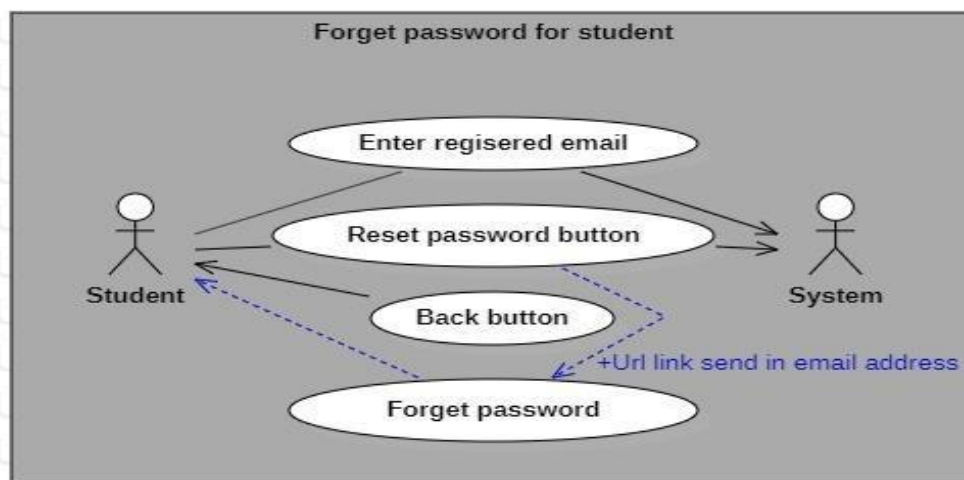
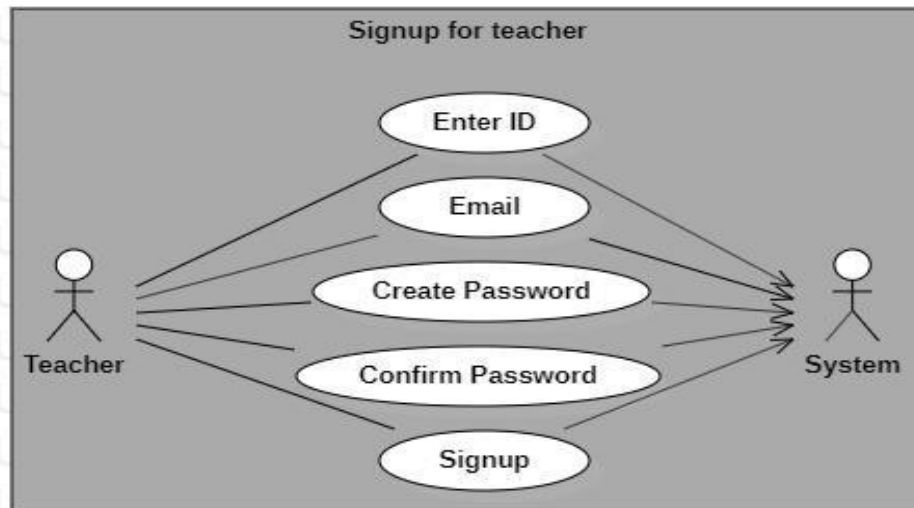
3.5 Preliminary Product Description

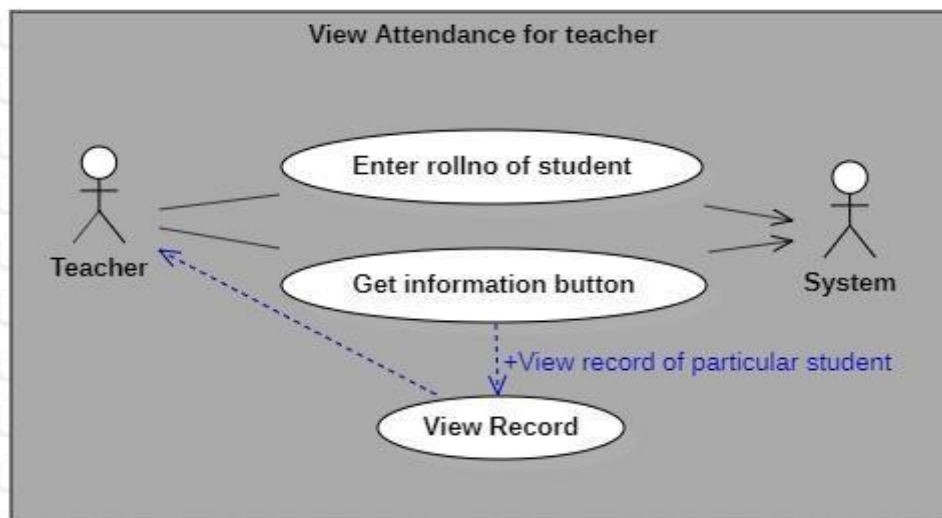
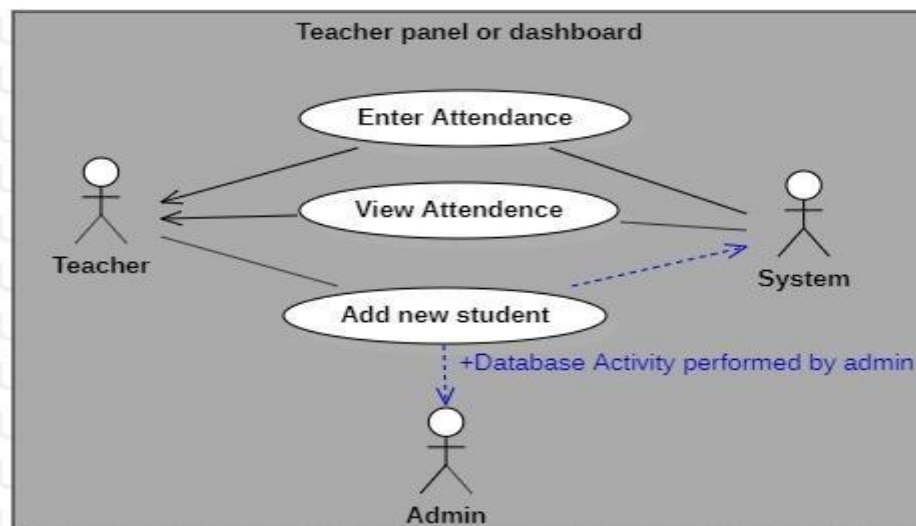
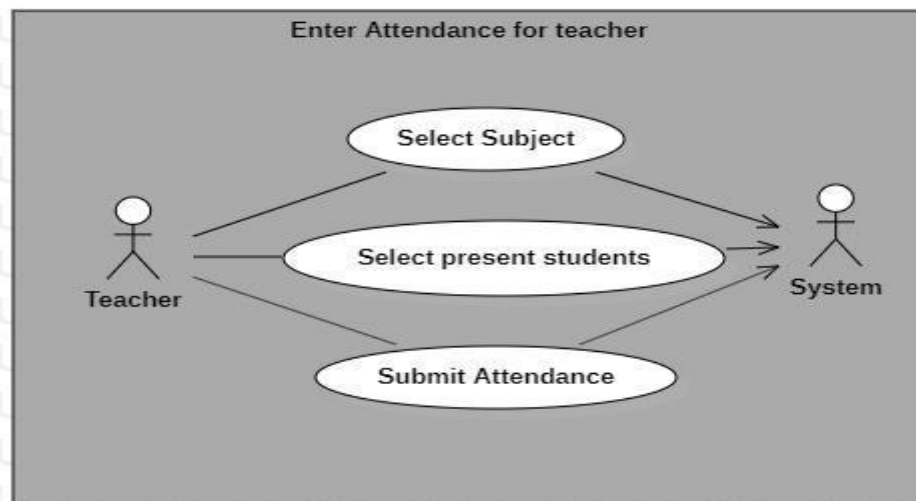
The main purpose of this application allows to take attendance easily and to make less work load to mentor. It provide better prevention for proxy attendance. This application will be android application which will be more convenient for mentor as well as students.

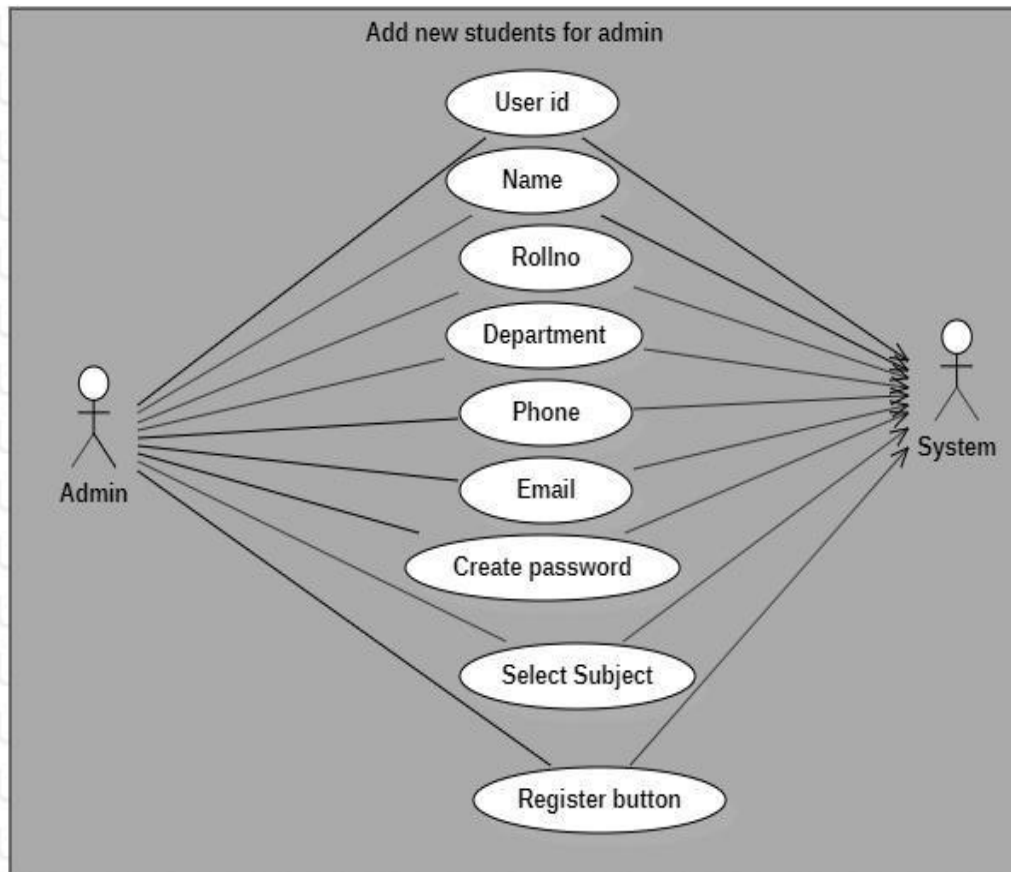
3.6 Conceptual Models

3.6.1 Use case Diagram



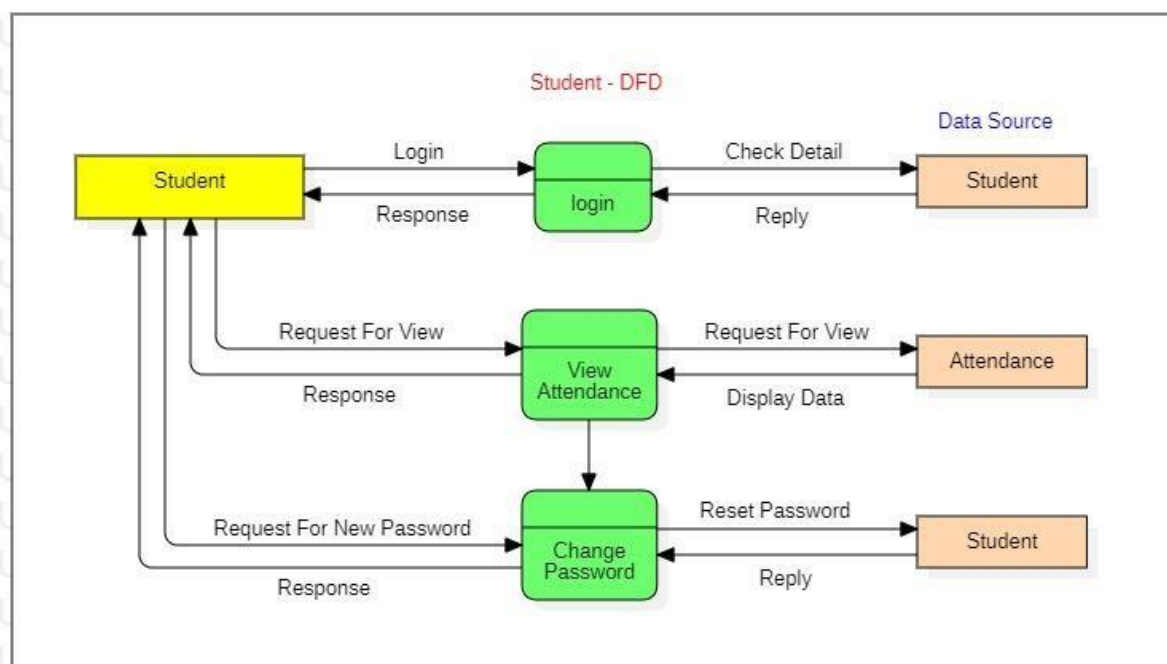
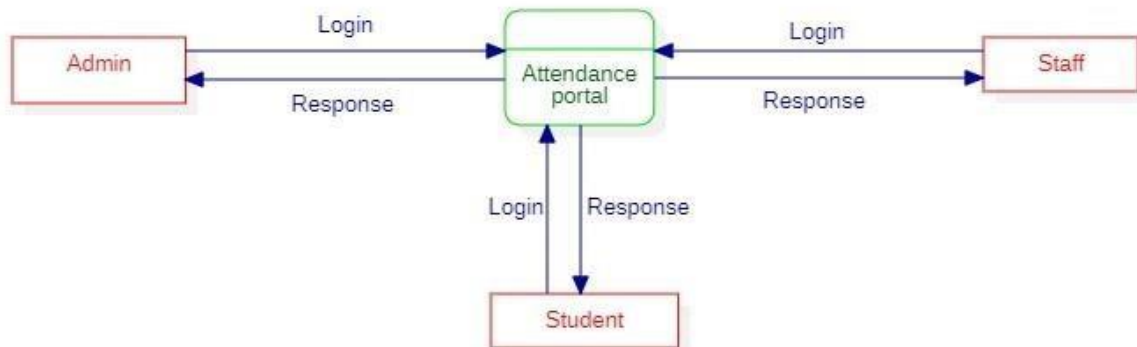


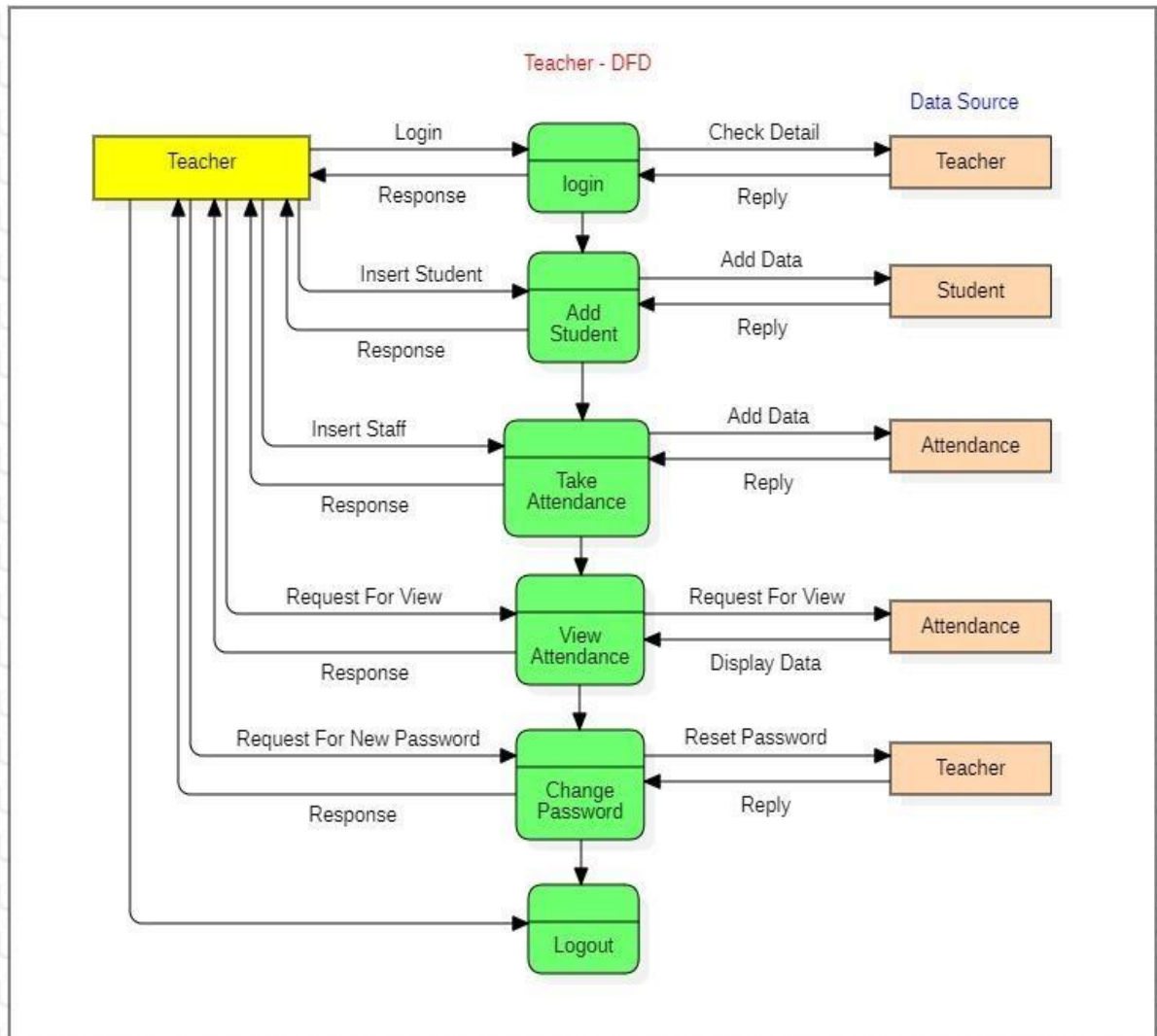


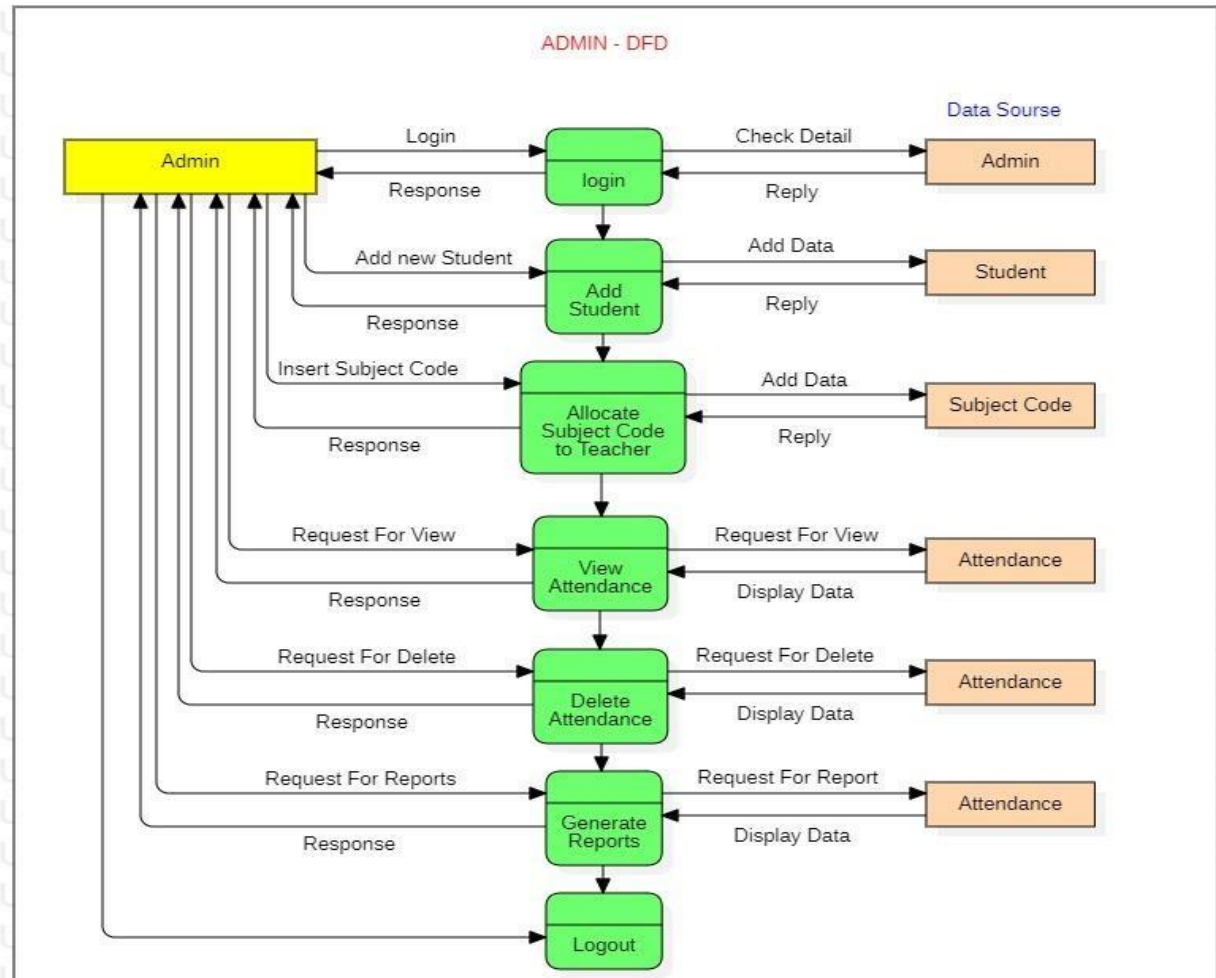


3.6.2 Data Flow Diagram

0-level DFD: Context Level



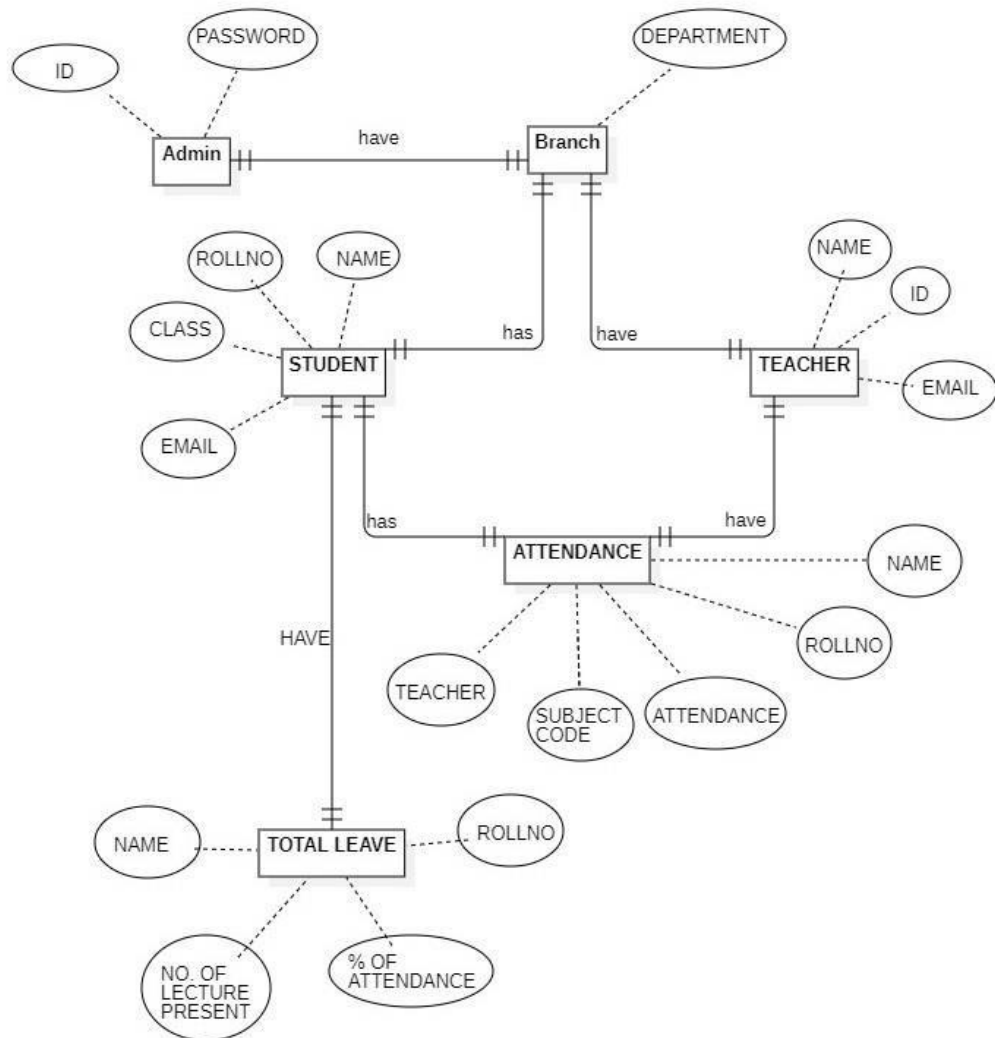




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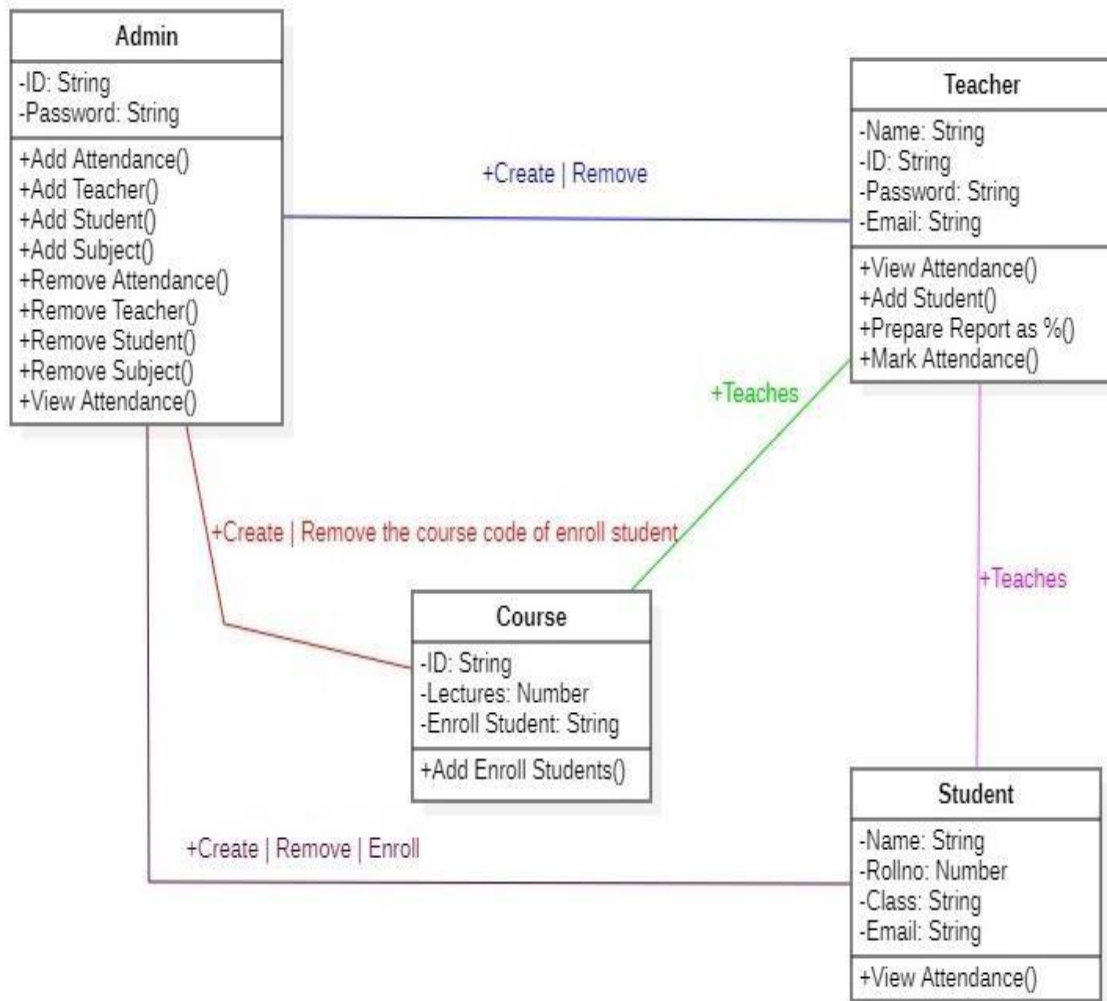
3.6.3 E-R Diagram

ER-Diagram



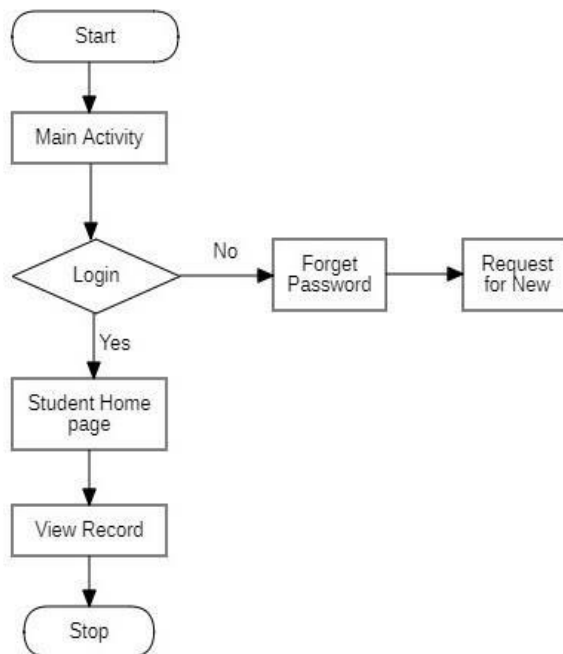
3.6.4 Class Diagram

Class Diagram

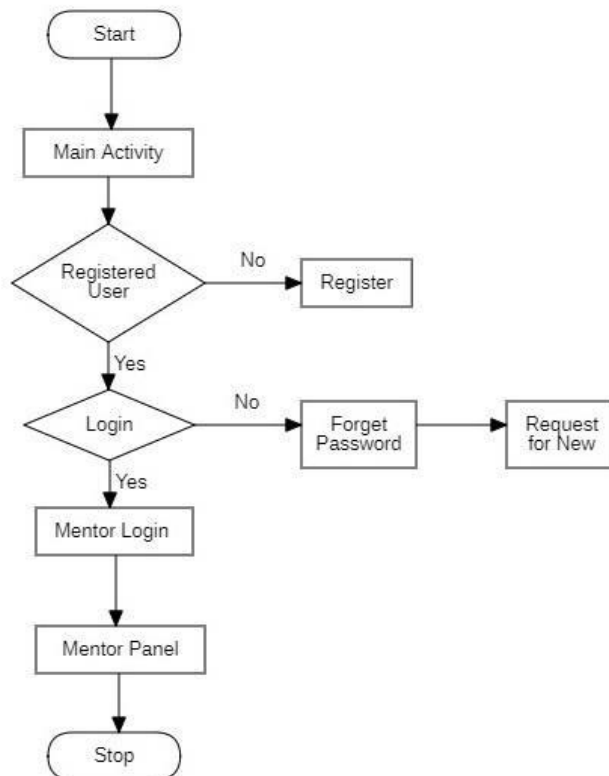


3.6.5 Flow Chart

Flowchart for Student



Flowchart for Teacher



Flowchart for Marking and Viewing Attendance

