

D.G. RUPAREL COLLEGE

MATUNGA (W) MUMBAI - 400012

A PROJECT REPORT ON

Grade and Classroom Attendance Management system (GCAM)

SUBMITTED TO
UNIVERSITY OF MUMBAI

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ACKNOWLEDGEMENT

I am completely satisfied at this moment to present my project on Android App for Classroom Attendance and Grade System. This project has been a learning challenge process for me. The completion of this project would have been unattainable without the supervision given to me by all the Professors of my college and my friends.

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Preliminary Investigation

CURRENT SYSTEM

Marking attendance in the class session and entering the marks of the students are the essential tasks of the subject handlers, since marking the attendance can regulate the students to attend the sessions and verify the number of students in the class. Record of marks is inevitable to analyse the performance of the students in their exams. The management and maintenance of student information is a key task for any institution. The task of marking attendance and making entry of the exam marks are traditionally carried out manually with a log book. Later, this task is carried out by the desktop applications. The desktop application is a standalone application installed in the particular desktop or laptop and the tasks can be performed only with that particular desktop system.

Basically, attendance is taken in:

- By hand on paper.
- Standalone desktop application.

Limitation of Current system :

- The main drawback of this system is that the computer systems are not portable hence it cannot be kept anywhere to perform the task such as mark and attendance entry.
- The entered marks can be viewed only on the particular system if the desktop is not connected with network. Another method for grade and attendance entry is web-based application.
- In this method, the attendance and the marks details are uploaded in a server through internet and the users such as students, parents, and teachers can view the marks and attendance through browsers with internet using any one of the devices such as desktop, laptop, and hand held mobile devices. This system is active only when the internet is on since the data are not been updated with the local database.

Proposed System :

- ❖ The mobile application for the Student Attendance and Grade Management system is developed and deployed in the cloud server.

The users are divided into two groups namely student and staff.

- The student user can be either students or parents.
- The staff user can be the staff members, faculty member, principal, dean, etc. of the educational institution.

Front end :

Android Studio

Back end :

Firebase cloud service by Google (www.firebase.google.com)

Advantages :

- ❖ This application is installed in the mobile devices of the users such as student, staff and parents, faculty members for accessing the student marks and attendance details.
- ❖ The student users can view the attendance and marks that are uploaded in the database on cloud server.
- ❖ The staff users can enter, edit, modify and update the marks and attendance of the student through any mobile device.
- ❖ The student login enables the student users such as students and parents to view the class attendance details and marks that obtained by the students in the internal and external assessments.

Stakeholders :

Stakeholders are the people who have an interest in the successful implementation of the system. We categorize them into the following groups:

1. **Technical Staff** : It includes those users who must ensure that the system operates in computing environment of organization.
2. **Service Provider** : This includes Google who's mobile Computing platform is used to develop this system.
3. **Students** : This includes all the students and their parents who actively use this app for updates.

System Analysis

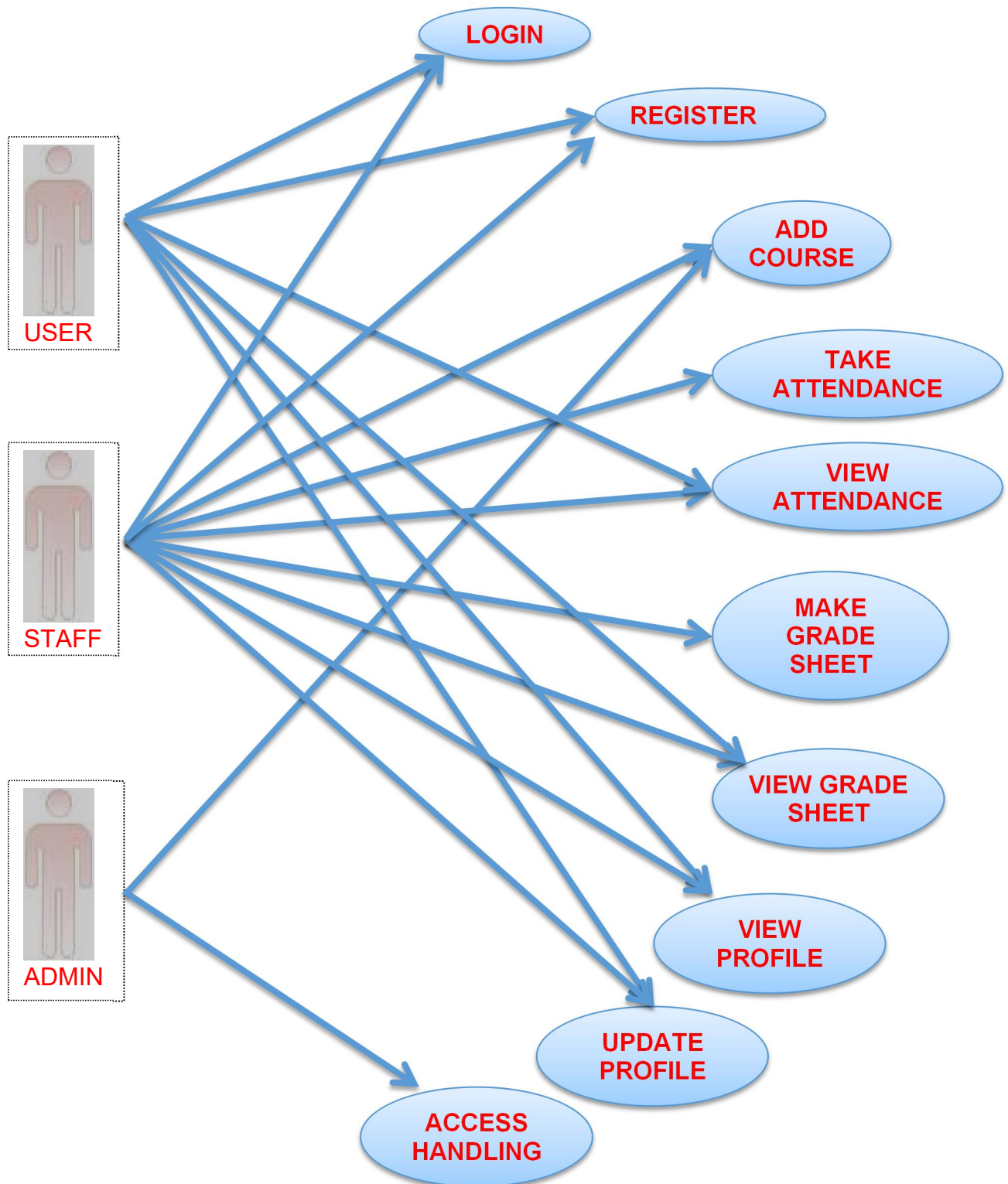
Event Table

Event	Trigger	Source	Activity	Response
User Login	Login	User / Staff / Admin	Checking Email and Password	Login successful
User navigates	Arrival of user	User / Staff / Admin	Navigates through Main Menu	Navigation done
Registration of User	Details taken	User / Staff	Adding new User	New user Added
Selecting Course	Course selection from DB	Staff	Course Selection	Course Selection done
Adding Course	DB Course Update	Staff / Admin	Course Update	Course Added to System
Taking Attendance	New Attendance Sheet	Staff	Taking Attendance	Attendance Recorded
Viewing Attendance	Download Document	User / Staff	View Attendance	Records Shown
Entering Grades	New Grade Sheet	Staff	Entering Grade	Grade Recorded
View Grade	Open Grade Sheet	User / Staff	Access Grade Sheet	Grade Sheet Displayed
Viewing Profile	Profile Page	User / Staff / Admin	Document Search	Profile Displayed
Editing Profile	Profile Page	User / Staff / Admin	Document Update	Profile Updated
Revoke Access	Firebase	Admin	User Access	Access Revoked
Forgot Password	Failed Login	User / Staff / Admin	Forgot Password Protocol	Password Reset

User :- Student or Parents

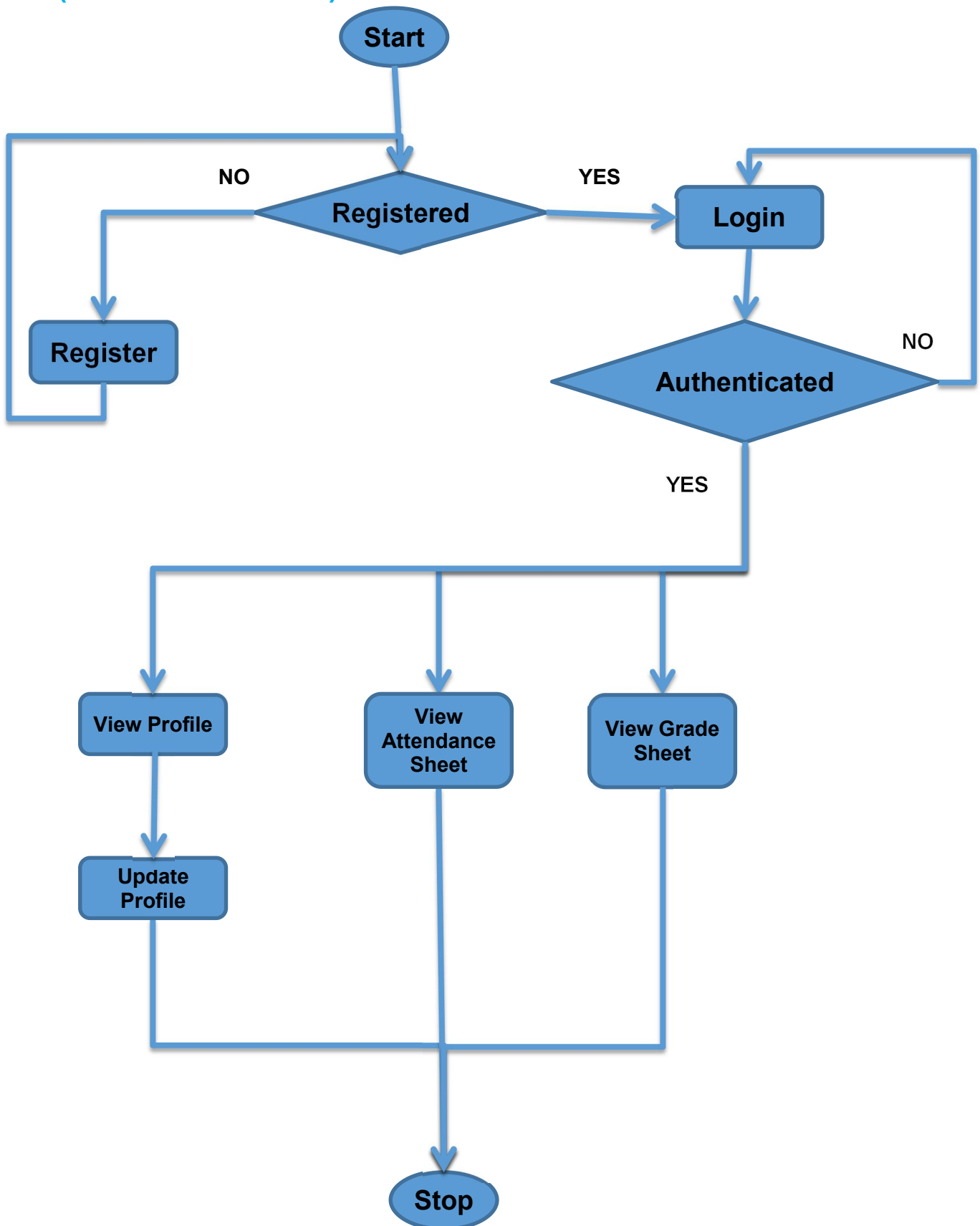
Staff:- Teachers and Faculty

Use Case Diagram



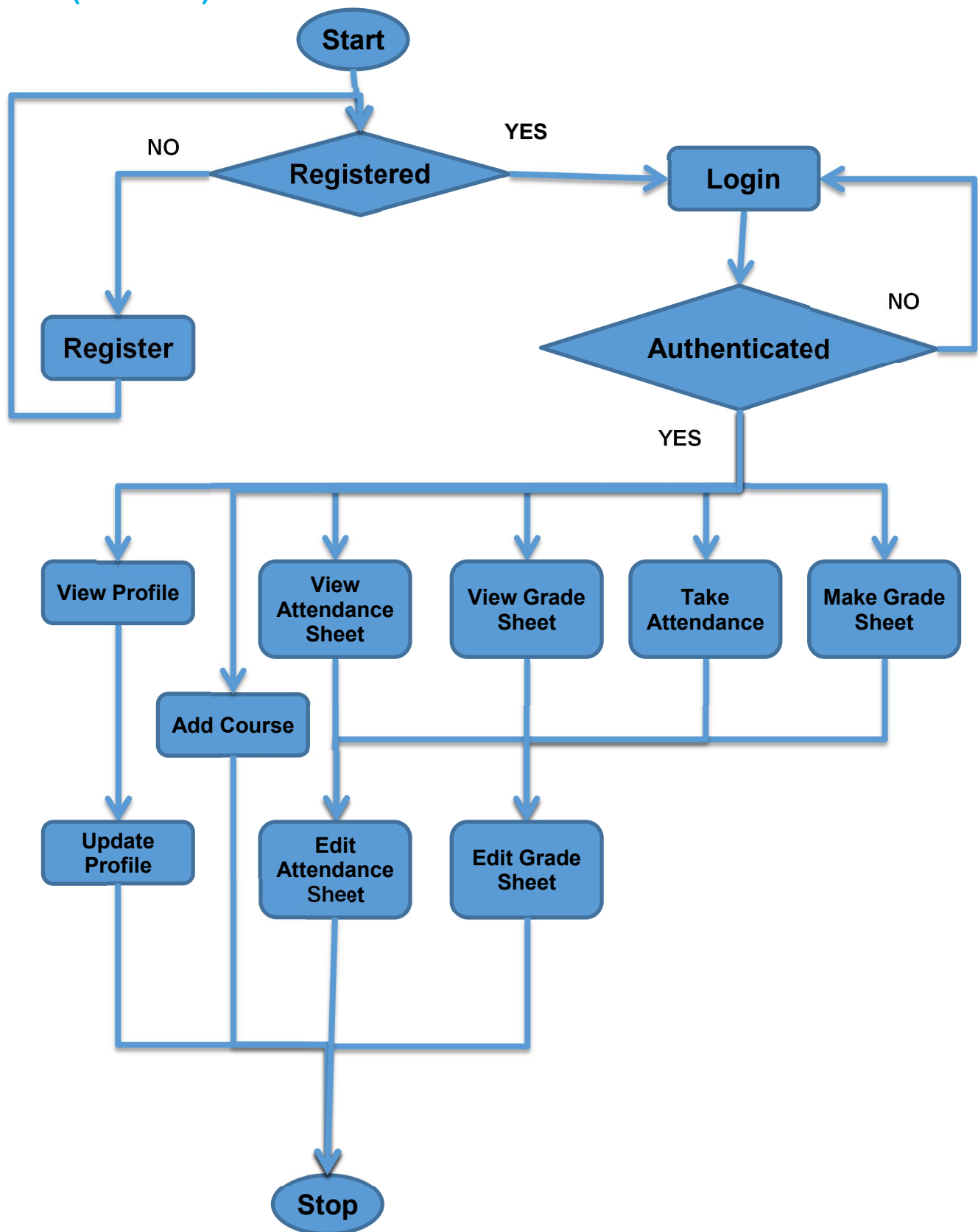
Activity Diagram

User (Student Or Parent) :-



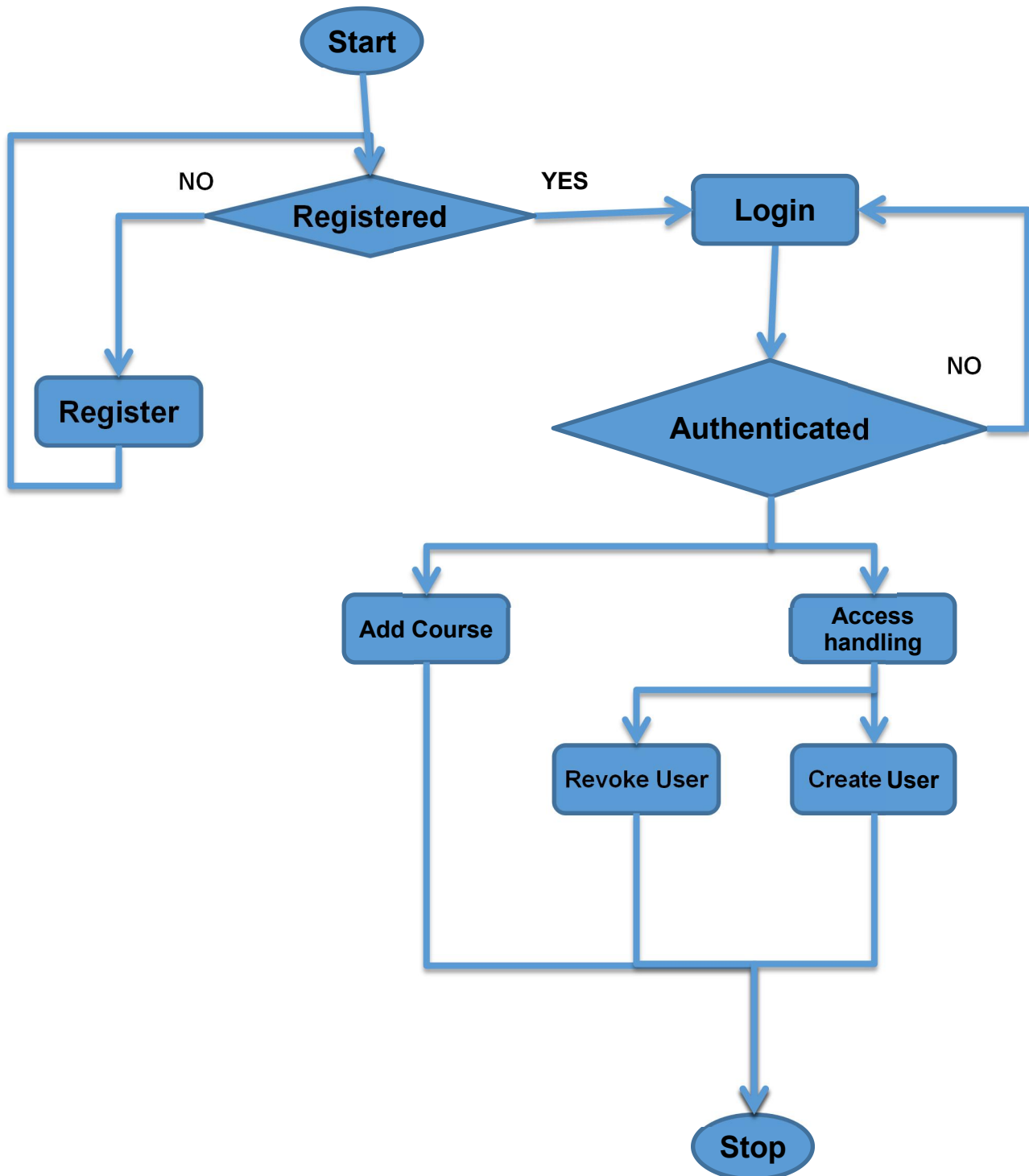
Activity Diagram

Staff (Teacher) :-



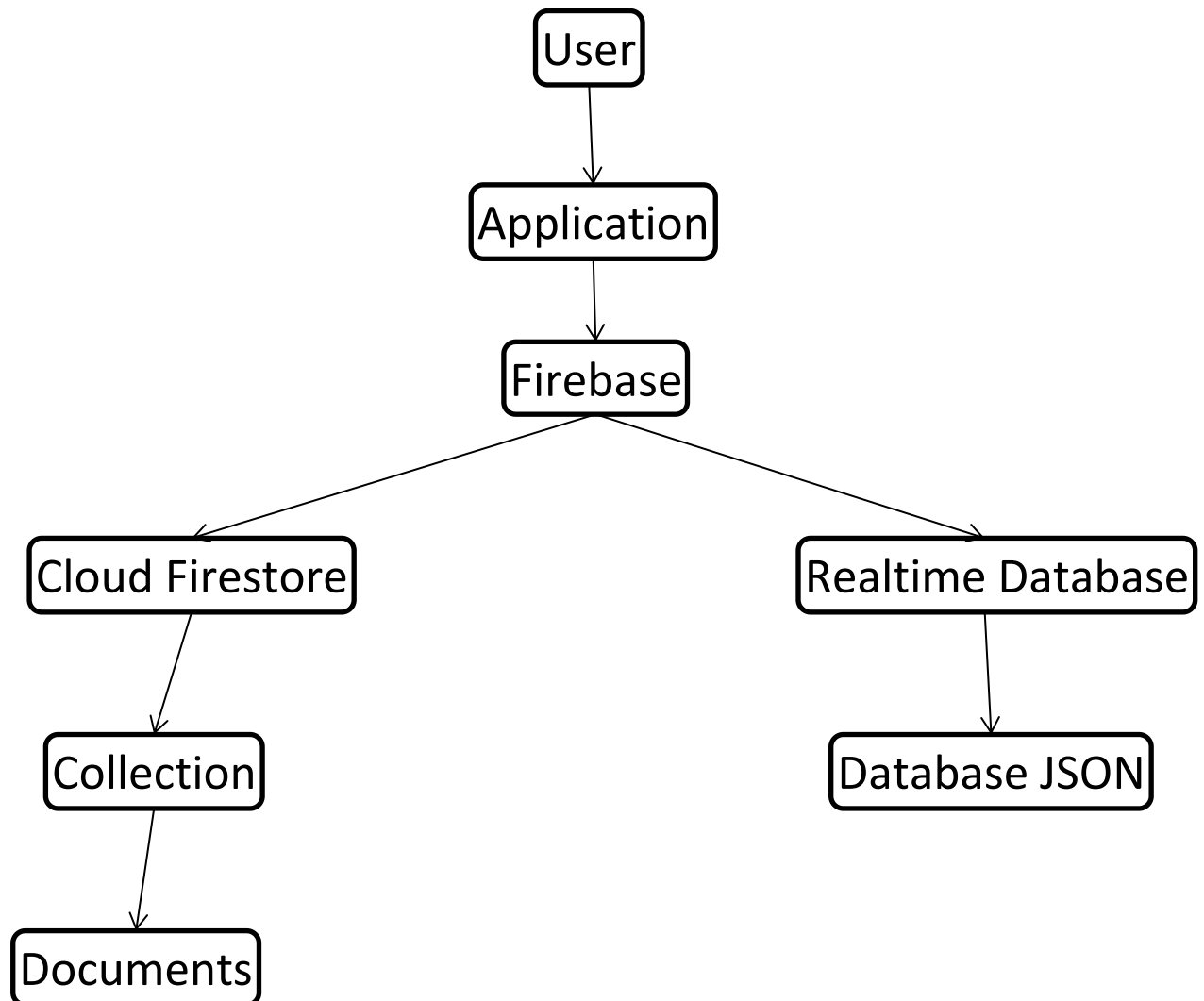
Activity Diagram

Admin : -

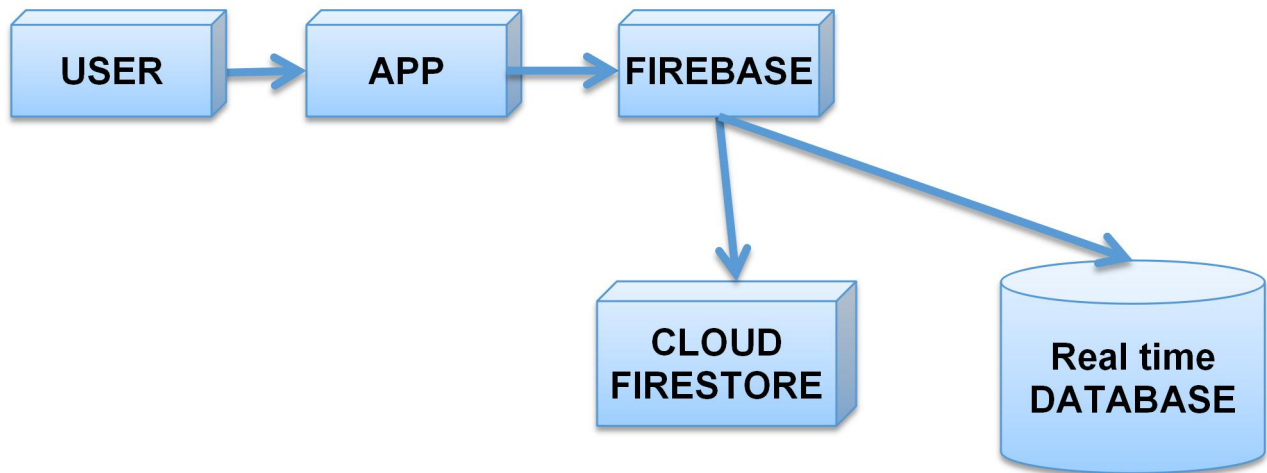


System Design

Component Diagram



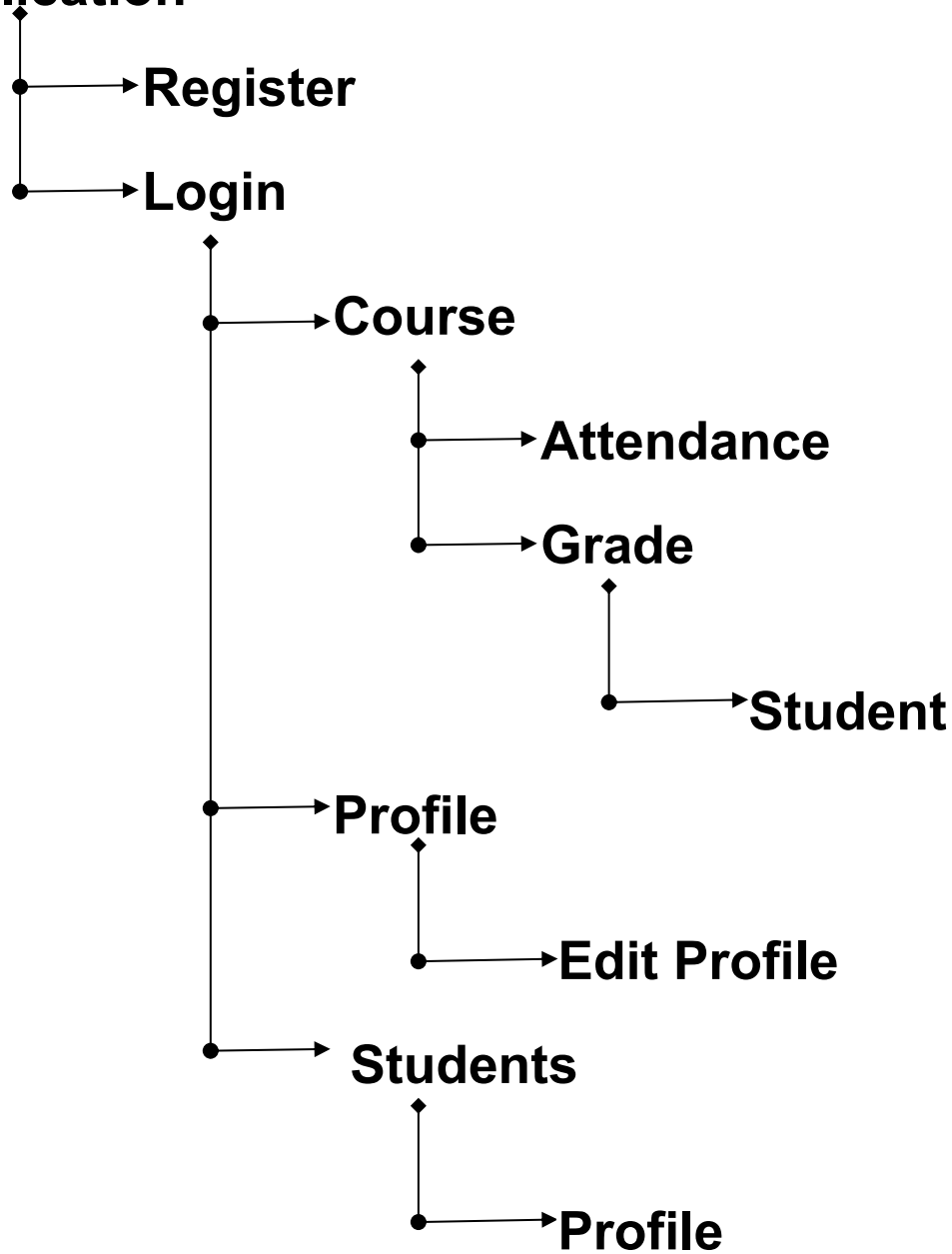
Deployment Diagram



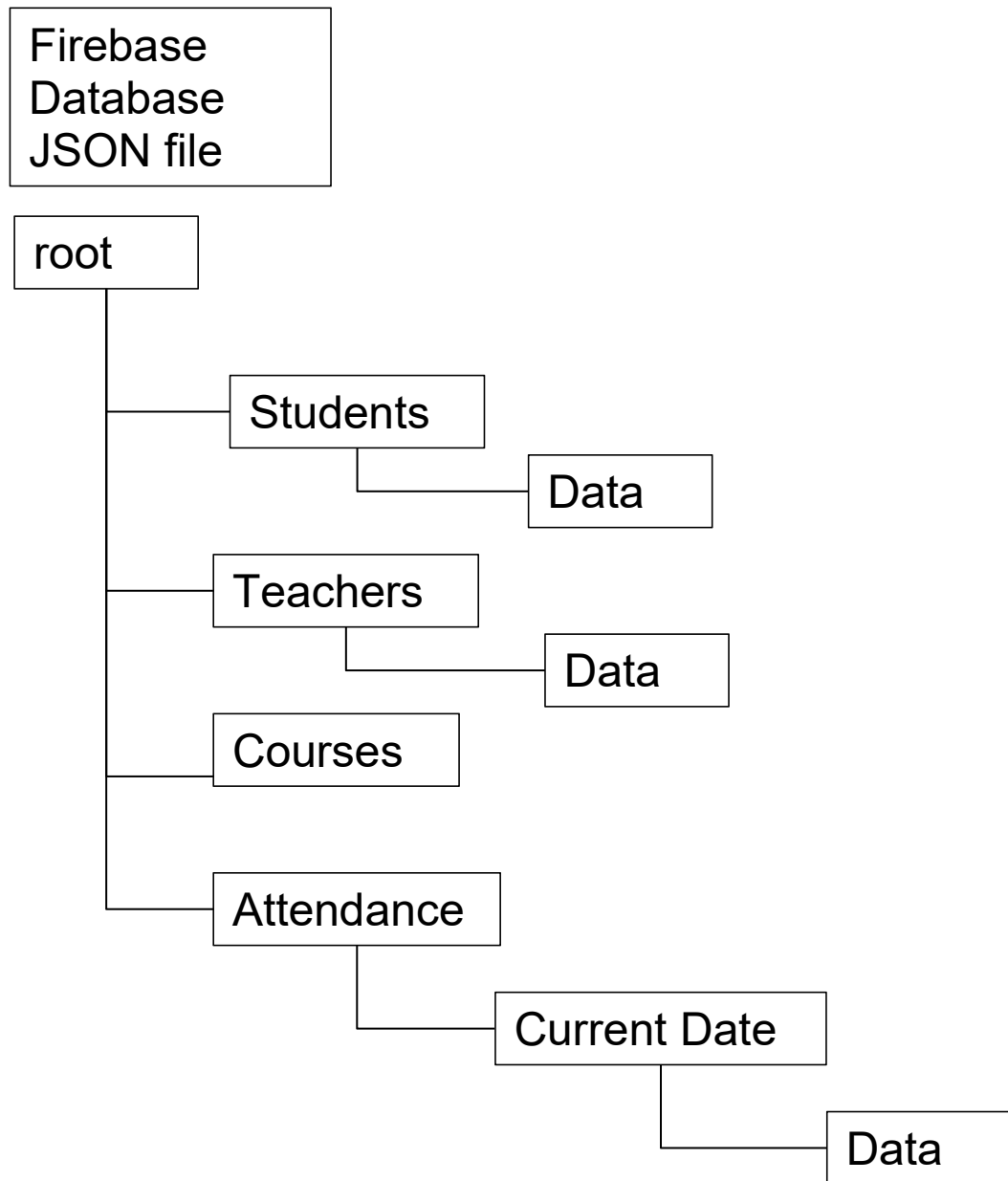
System Coding

Application Map

Application



Structure of Database



Program Description

Activity Number	1
Activity Name	Splash Screen
Purpose	Display Logo
Input	-
Output	-
Validations	-

Activity Number	2
Activity Name	Login Activity
Purpose	To Login for all Users
Input	-
Output	Authentication Activity
Validations	All Users

Activity Number	3
Activity Name	Register Activity
Purpose	To Register Users
Input	-
Output	-
Validations	All Users

Activity Number	3
Activity Name	Main Menu
Purpose	Navigation through app
Input	-
Output	-
Validations	All Users

Activity Number	4
Activity Name	Course
Purpose	Select / Add Courses
Input	-
Output	Real time Database -Courses
Validations	Staff / Admin

Activity Number	5
Activity Name	Take Attendance
Purpose	Record Attendance
Input	Course Name, Today's Date
Output	Real time Database - Attendance -(current date)
Validations	Staff

Activity Number	6
Activity Name	Grade
Purpose	Assign Grade to Student
Input	Course, Student Name
Output	Firestore Documents, Real time Database-Grade
Validations	Staff

Activity Number	7
Activity Name	Profile
Purpose	Display Profile
Input	Firestore Documents
Output	Firestore Documents
Validations	All Users

Activity Number	8
Activity Name	Edit Profile
Purpose	Edit Profile
Input	Firestore Documents
Output	Firestore Documents
Validations	All Users (Only Owners)

Validation

Index	Test Case	Test Data	Test Input Values	State	Expected Result
1	The Email ID should be valid	Should satisfy regex pattern	user@domain.com user@domain.co.in user.name@domain.com user_name@domain.com username@yahoo.corporate.in	Valid	Input Accepted
			.username@yahoo.com username@yahoo.com. username@yahoo..com username@yahoo.c username@yahoo.corporate	Invalid	"Enter valid Email ID" message displayed

Index	Test Case	Test Data	Test Input Values	State	Expected Result
2	Password should be valid	Should be at least 8 characters	Password1 : p@s\$w0r& 12345678	Valid	Input Accepted
			1234567 qwerty abc	Invalid	"Enter at least 8 characters" message displayed

Index	Test Case	Test Data	Test Input Values	State	Expected Result
3	Select Correct User type on Login	On login, the user type selected should match to the user type provided while registering	User type provided while registration = Selected User type	Valid	Input Accepted
			User type provided while registration \neq Selected User type	Invalid	"You are not a"+ Selected-user message displayed

Future Enhancements

- ✧ Most of the project is never completed.
- ✧ They always require future enhancements. It is a continuous process.
- ✧ The project needs to be developing all the time.
- ✧ The project is built such that the future enhancements are possible, activities and modules can be easily added and integrated with the project.
- ✧ The entire project followed the similar structure and methods were user so that we can prevent redundancy.
- ✧ Reports also can be created and integrated with the project very easily.
- ✧ In the future features like **Scan ID**, all the **processing done on the server** etc.

Reference & Bibliography

Books Referred

- ✓ **Firestore Docs**
- ✓ **Android Docs**
- ✓ **Android User Guide**

Websites Referred

- ✓ <https://console.firebase.google.com>
- ✓ <https://en.wikipedia.org>
- ✓ <https://firebase.google.com>