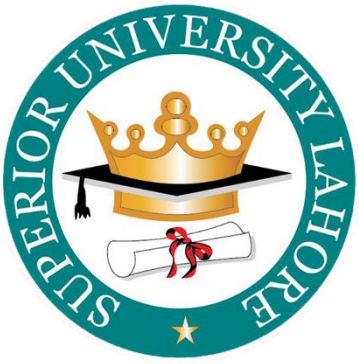
SUPERIOR UNIVERSITY LAHORE



Faculty of Computer Science & IT

Final Year Project

PROJECT REPORT

Connected Board

A Real-time platform for Information

Project ID: **[MCSW-S18-004]**

Project Team

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Project Report

[Connected Board]
A Real-time platform for Information

CHANGE RECORD

Author (s)	Version	Date	Notes	Supervisor's Signature
Raza Rahim & Zohaib Mohy Ud Din	1.0	24-Oct-2019		

APPROVAL

PROJECT SUPERVISOR

Comments: _____

_____

Name:_____

Date:_____ Signature:_____

PROJECT MANAGER

Comments: _____

_____

Date:_____ Signature:_____

HEAD OF THE DEPARTMENT

Comments: _____

_____

Date:_____ Signature:_____

Dedicated to Our

Beloved

PROPHET HAZRAT MUHAMMAD (SAW)

&

Our Loving Parents and Teachers

ACKNOWLEDGEMENTS

We truly respect the gracility of ALLAH that we were able to rank the project within the given time; it's all because of his realistic blessing. It would never have been possible without involvement and attempt of so many people. We truly appreciate and acknowledge the part they play in the closing of our project. First of all, we thank ALLAH Almighty who keeps us perseverant on the path of hard work. Secondly, we acknowledge our sense of feeling to our project supervisor **Mr. Muhammad FIAZ** with her penetrative guidance in every stage of project. No doubt he proved himself as an affianced project supervisor and he is a steadfast source of inspiration.

Next to him, with deep reverence our parents who all always corroborated us morally and showed their benevolent love and care though out the entire period. We feel highly oblige to thank all the teacher of computer science who shares their knowledge with us and for their benevolent attitude. Last but not the least we thank all of our friends and family members for their support.

EXECUTIVE SUMMARY

In universities or big organizations, everybody wants to be modify with each information and order, but if the information is important then in time consciousness is necessary. On other hand, it can lead to loss or any plentiful. Most of the information and orders that are from higher authorization should reach to everyone but in real, this is not the case. In universities notice boards are used to spread the information and in ample universities more than one notice boards are there to cover all the info or different locations. So, in mostly universities information diffusing is the big issue and if you are studying in one university then you don't know what events and courses are going on in other universities. Connected Board helps you access online notices on your phone. The Connected board has always been the place where staff/students gathers to get their latest release of corporate news. Connected Board brings the notice board to a virtual location where staff/students can not only read notices, but immediately react and respond to them from their own mobile. We are developing a platform from where a student edict updated every moment about different universities. Our aim to replace the conventional notice board with online and interrelated notice board. The admin can include, erase, and refresh them at the same time on the online framework. These would then be able to be seen by the students.

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Chapter 1

INTRODUCTION

Chapter 1: Introduction

In this chapter, a detail introduction of the cardinal concepts related the presented project is discussed. Everybody wants to be modify with each information and order, but if the information is important then in time consciousness is necessary. On other hand, it can lead to loss or any plentiful. Most of the information and orders that are from higher authorization should reach to everyone but in real, this is not the case. In universities notice boards are used to spread the information and in ample universities more than one notice boards are there to cover all the info or different locations. Our aim to replace the conventional notice board with online and interrelated notice board. The admin can include, erase, and refresh them at the same time on the online framework.

1.1. Background

The interface of this application is straightforward and takes you roughly a minute to get started. Admin Adding notes or posts to board is easy, just click on the post notice button and enter the text. Users can view the post on the spot on our mobile phone. Here registration is must for all the users having this application in order they want to have notification and staying tuned. Now you will be able to open your notice board anywhere just you demand a mobile phone and internet link. Simply download "Connected Board App" on your android mobile and get all notification of our university. This app will not only be meant for students, but it will also work for faculty and other employees, administrators will be there to negotiate all the information. In this project, we will have different features, but the invention is already discussed. This online connected notice board will be very helpful for all type of users like active students, employees, faculty and administrators, admin can send messages, post, videos, and pdf files are erase or delete it on demand. We will try to develop as much functionality as possible, like friendly user interface, help of wide variety of mobile devices, execution of messaging, implementation of searching and filtering but we all know everything have limitation and being a student, we have to learn before implement that is a time taking process.

1.2. Motivations and Challenges

Motivations;

There are many things which are described as:

- Learned that how to worked in a team.
- Learned about android studio how to sort an application, layouts how to make activities and backup to use and learned database.
- Learned how to implement this project
- Learned how to create and update or delete a notifications hallmark.
- Learned to use API in Online connected notice board.

Challenges;

1. Working with the project was a lot of difficulties and difficulty that were handled and monitored with appreciable time.
2. Choose the precise title for this project for some time.
3. Take a lot of time to study and research.
4. They are read and apply the all requirements and investigation of the assembly.
5. Our application has to face difficulties in data flow.

1.3. Goals and Objectives

Earlier there was problem that notices were pasted on notice board. If there is holiday on the next day, nobody will be able to read it. Moreover any update on website is also very difficult. Everyone feels lazy to go and update the website data. Connected board app is a platform where every student get all updates of our university on finger tips.

Our Goals to make it easier, friendly and useable for students.

The proposed system's objectives are to overcome all the limitations and drawbacks of the existing system.

The connected Board application is user-friendly android application. The main objective of the application is its simplicity of design and ease of implementation that shows and helps to collect most of the information about events going on in college premises. The interface will be very user-friendly.

The main Goals and objectives of the proposed system can be enumerated as follows:

- To develop an android application "Connected Board" to handle all the announce events notification.
- Faster dissemination of notices regarding education, technical events, cultural events.
- Any lost/found going out in college.
- Easy way to broadcast your message.
- Helps you to be updated with what's going on in College.
- Good way to advertise about Tuitions/ Coaching and Courses.
- User can also follow a group notice board.

1.4. Literature Review/Existing Solutions

To develop a mobile application that will help you receiving the notices from the college, anywhere, anytime. Currently our college has manual system of putting notices on notice board. It's outdated now. As nobody has a time to stand in rush in order to read the notices on noticeboard.

1. **Order of Data:**

Notice can get out of order in traditional notice board system. If someone accidentally puts some data in the wrong place, it can lead to lost data. Automated notice management systems allow users to quickly check whether information already exists somewhere in the system, which helps avoid problems like redundant data.

2. **Complexity:**

Automated system is less complex than manual system of handling notices, which can make it easier for untrained people to access and manipulate data. Anyone having the basic knowledge of mobiles can work on the automated system

3. **Inconsistency of data:**

There will be an unavailability for future use, since notice might get misplaced during manual notices management. So notice won't be preserved properly for future use.

4. **Damage:**

Manual notices stack are vulnerable to damage, destruction and theft in ways that digital databases are not. A company may back up its digital data both on site and at offsite locations, ensuring its security if the office building suffered a fire or similar disaster. A manual database, however, may only exist in one place without any copies. As a result, a manual database would be very vulnerable to a fire or other natural disaster. In addition, while access time in a manual database system, information must be found by hand rather than electronically. While a digital database will typically allow users to search the entire database for specific information in seconds, someone looking for information in a manual system may have to spend hours searching for a particular piece of data.

5. **Editing and Communication:**

Manual notices do not allow users to easily edit data or information. Manual notices often cannot be edited directly, forcing users to make new copies. To circulate notice on paper, users must require peons and other staff. Connected Board app allow users to edit information fields directly, and because data is stored digitally, it is already in a form that can be easily transmitted.

1.5. Gap Analysis

Gap analysis is comparison between the current state of software and the ideal state of the software.

Current state:

We designed the front end of software. We will develop the backend code very soon. We tried to make it very user friendly.

Future State (Ideal state):

Our plan to make it fully supported. We will give more details about facilities of hostels. Fully backup within 24 hours will also be given.

Gap:

Gap will cover by some meetings with the software tester. Some test will be applied to make the quality more and more useful.

1.6. Proposed Solution

Proposed Solution will be able to do the following:

- **To eliminate wastage of time and energy:**

  Connected Board app will be able to save lot of paper and time. It directs both teacher and pupils energy and attention to one thing at a time by placing proper persons at their proper places at the proper time. Everything will be instantaneous.

- **To avoid duplication and overlapping:**

  This application will help to remove the duplicity of notices. Only one person, who is admin can post the notice. No one else would be able to do so. Soo student and staff will be given correct information all the time.

- **To ensure due attention of student to each and every notice:**

  Connected Board App ensures that everyone has kind attention to every notice and updates going on in college. There will be a buzz at each and every notice to drive the attention of student to check it once. In this way, students will be well informed about their college activities.

- **To bring system into college life:**

  It would be dire need of all colleges as it's easy and shortcut method to inform all the students. In the absence of proper notification system will make it very difficult to inform students at right time.

- **Searching a particular Notice:**

  This application allows you search the notice very easily through title of notice. If anyone forgot about the notice details, he can search it out very easily.

- **Free Service:**

  It gives free service to notify all the students. There will be no cost of sending notification to all. Just have the good system implemented in college and that too free of cost.

- **Prevent Crowd in College:**

  As you can see, there is always a crowd at notice board. As notice board is one, and people to see notice are more. With this application there will be no more crowd. Everyone will be well informed even at their homes. So they are free to do there other work.

- **Automatically Updated Dashboard:**

  The dashboard of notice is automatically updated when a new message arrives. The user can himself refresh the dashboard to see any new notice.

- **Anytime Anywhere Service:**

  With this application, notices will be delivered anytime and at any place. There is no restriction of time to send a notice.

- **Keeping Notices at one place:**

  This application allow you to have notices in one place only. If there is an attachment with that, all will be placed in a separate folder dedicated to that application. So there will be no here and there of notices.

1.7. Project Plan

To develop a mobile application that will help you receiving the post from the college, anywhere, anytime. Earlier there was problem that notices were pasted on notice board. If there is holiday on the next day, nobody will be able to read it. Moreover any update on website is also very difficult. Everyone feels lazy to go and update the website data. The more

easy way is, just type in message sitting where ever and post by pressing a button. It will notify all the staff and students, registered with that application.

1.7.1. Work Breakdown Structure

To break the Structure of project into Components. For the Work Breakdown Structure we have to first define the major deliverable to be produced. Then divided them into its components. This purpose of WBS to reduce the complication.

WBS #	WBS Deliverable	Activity#	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member (s) Role (s)
1	Literature Review	1.1	1.1.1	3	Team
2	Requirements Gathering	1.1	1.1.2	7	Raza Rahim, Zohaib Mohy ud Din
3	Analysis Process	1.2	1.2.1	3	Raza Rahim, Zohaib Mohy ud Din
4	Formal Documentation	1.2	1.2.2	8	Raza Rahim, Zohaib Mohy ud Din
5	SRS	1.2	1.2.3	5	Raza Rahim, Zohaib Mohy ud Din
6	UML	1.3	1.3.1	3	Zohaib Mohy Ud Din
7	Class Diagram	1.3	1.3.2	2	Raza Rahim
8	Deployment Diagram	1.3	1.3.3	3	Raza Rahim
9	Activity Diagram	1.4	1.4.1	4	Zohaib Mohy Ud Din
10	Use cases	1.4	1.4.2	3	Raza Rahim
11	ER diagram	1.4	1.4.3	4	Zohaib Mohy Ud Din
12	Sequence Diagram	1.4	1.4.4	2	Raza Rahim

Table 1.1 Work breakdown structure

1.7.2. Roles & Responsibility Matrix

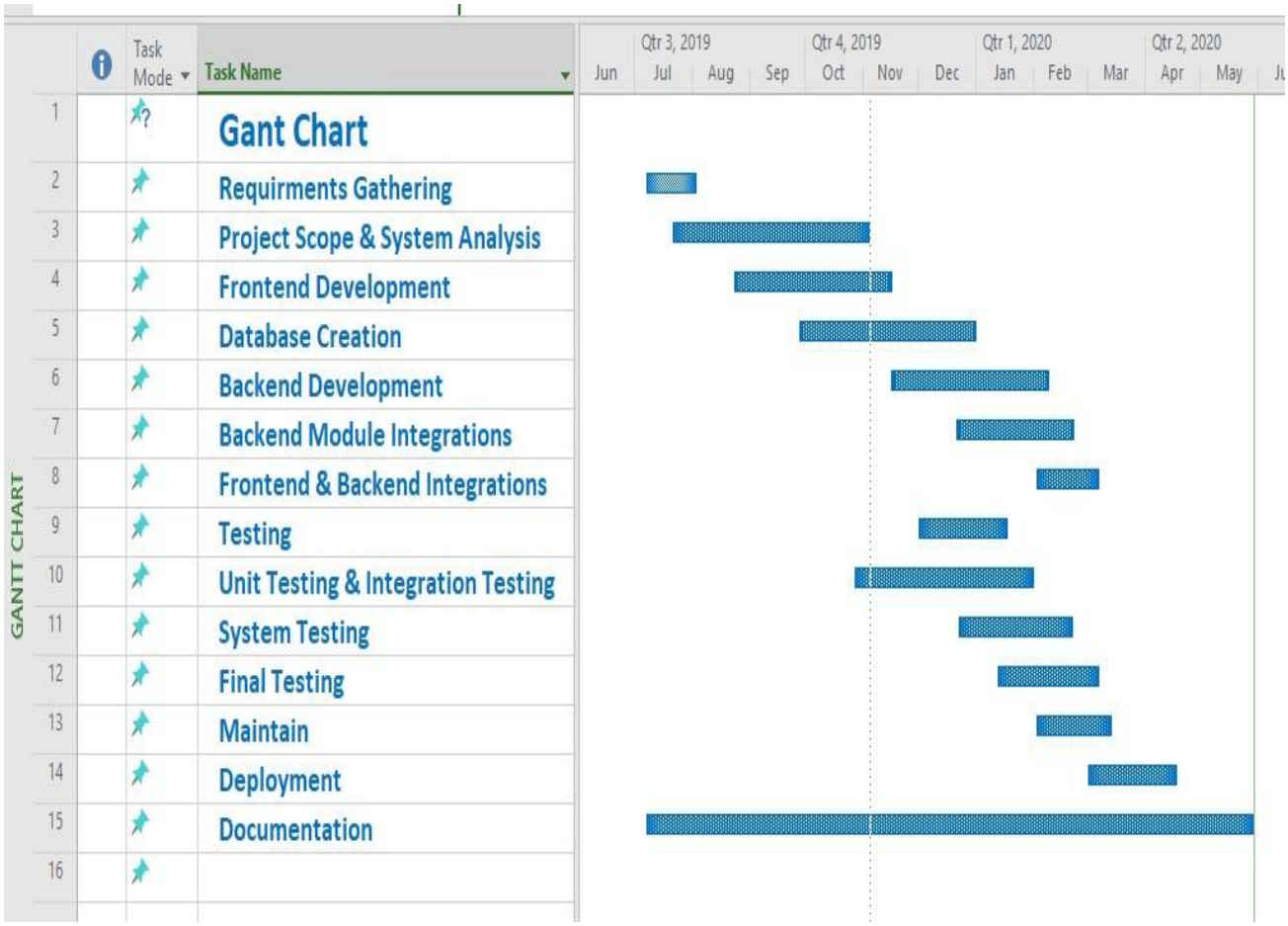
Roles & Responsibility Matrix is given as under.

Raza Rahim	Zohaib Mohy-Ud-Din
Backend development & Code, Report & Documentation	Research & Frontend Dev, Report & Documentation

Table 1.2 Roles and Responsibility Matrix

1.7.3. Gantt chart

Gantt chart is given as under.



1.8. Report Outline

SUMMARY

INTRODUCTION

SIGNIFICANCE OF REPORT

ROLES AND RESPONSIBILITY

DATA EXPLORATION

REFRENCES

CONCLUSION

Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

2.1. Introduction

2.1.1. Purpose

In universities notice boards are used to spread the information and in ample universities more than one notice boards are there to cover all the info or different locations. Our aim to replace the conventional notice board with online and interrelated notice board. The admin can include, erase, and refresh them at the same time on the online framework

2.1.2. Document Conventions

The standardized documentation rules have been implemented in preparing this document. This project is an end user application and has been made using latest software development tools available

2.1.3. Intended Audience and Reading Suggestions

This document is intended for developers, project managers, marketing staff, users, testers, documentation writers and especially content creators. This paper will work as a guide for the user and as well for the developer. The developer can improve their work by using code which we provided in this paper. It is also helpful some essayist and content writer. The content writers always need to improve their writing creativity so material of this paper is very helpful for them.

2.1.4. Product Scope

The user interface of our system is very simple and easily accessible. We aim to design it in such a way that user of any age group would be able to use it without any difficulty. Interface consists of all the basic requirements that need to be fulfilled before accessing any system Now you will be capable to open your notice board anywhere just you need a mobile phone and internet link. Simply download “Online Notice Board App” on your android mobile and get all notification of university. This app will not only be meant for students, but it will also work for staff and other employees, admins will be there to manage all the information. In this project, we will have different features, but the invention is already discussed. This online connected

notice board will be very helpful for all type of users like active students, employees, staff and administrators, every admin can leave

notifications and erase it on demand. We will try to develop as much functionality as possible, like friendly user interface, support of wide variety of mobile devices, implementation of messaging, implementation of searching and filtering but we all know everything have restriction and being a student, we have to learn before implement that is a time taking process

2.1.5. References

- Anushree, S. P., et al. "Electronic notice board for professional college." Int. J. Sci. Eng. Technol. Res.(IJSETR) 3.6 (2014): 1712-1715.
- Alt, Florian, et al. "Designing shared public display networks–implications from today's paper-based notice areas." International Conference on Distributive Computing. Springer, Berlin, Heidelberg, 2011.
- Osamor, Victor Chukwudi, Olatobi S. Aloba, and Ifeoma P. Osamor. "From wooden to digital notice board (dnb): design and implementation for university administration." International Journal of Electrical & Computer Sciences 10.2 (2010): 79-83.
- www.overstack.com
- *www.w3school.com*

2.2. Overall Description

2.2.1. Product Perspective

Problem Definition in the modern-day society, many people have access to modern technology. Therefore, the wall notice board is out-of-date and has many limitations. Examples of limitations:

- Insufficient space leading to lap-jointed posts
- It is hard to know the current posts
- You cannot know how many people saw your post
- You don't have direct reach to the people who post
- It's exhausting to keep checking the notice board for new posts

- It's not easily accessible, among other limitations that surround the normal notice board.

Therefore, the need to adopt the proposed Online Notice Board system is necessary so as to digitize the normal notice board and make it online hence taking care of the limitations that come with the normal notice board.

2.2.2. Product Functions

- The system will bring down energy and time spent checking the notice board
- It will create a great interface for users to move with post
- It will give club leaders penetration on how people are responding to their posts
- It will inform users of new posts in clubs they have labelled
- It will give users messaging capabilities within the system
- It will give users the ability to filter posts according their preferable clubs
- It will decrease cost used to print papers and other supplies used for posting to a normal notice board.

2.2.3. User Classes and Characteristics

The user classes and characteristics are:

2.2.3.1 Admin

The person who supervise and control all the system is referred by admin. He adds notices and also send the notices to any registered users. He also negotiates old notice and display old notices. Also add Department and relative post and reads FAQs and many more.

2.2.3.2 Student

In this the students first have to registered on the application then they have to login the account first they login the account they can see every post which has been sent by the admin. The student can check all the news and updates then he logout the applications. Share post and download post also send FAQs to admin and edit our profile.

2.2.4. Operating Environment

For this project we are using Android software with version 5.1 and Windows 10, also we are using hardware components such as mobile phones with touch screen, camera, and i5 processor. Internet is the special requirement for this project.

2.2.5. Design and Implementation Constraints

For front end we are using XML and for back end we are using Java, XML is used for designing your application e.g. the layout of your application or the styling of your application and settle where the tags are placed, whereas java is a programming language It doesn't use numeric codes it uses

English-based commands and understandable by humans. There should be a good and a seemly development environment and an insecure framework is used. The Firebase database is used. Firebase real-time database assist multiple platforms android, iOS and web. Data is used in JSON format. Make sure the database schema is prompt and the code written should be perfect.

1.1.1. User Documentation

The user documents included

- Software Code (for the operator)
- User guide (feature of software, how to use the product)

1.1.2. Assumptions and Dependencies

It is assumed that only system administrator will have access to all the module and administrative rights. Complaints and comments from users of the application will be welcomed by the app's developers.

2.3. External Interface Requirements

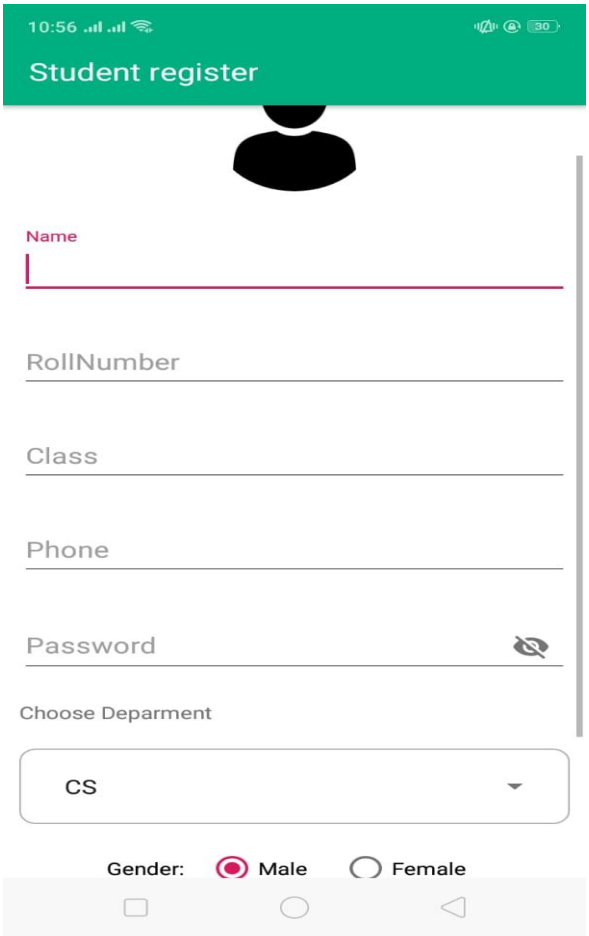
2.3.1. User Interfaces

The user interface of our system is very simple and easily accessible. We aim to design it in such a way that user of any age group would be able to use it without any difficulty. Interface consists of all the basic requirements that need to be fulfilled before accessing any system.

The interface is what we can view in application, so we have different user interface described here.

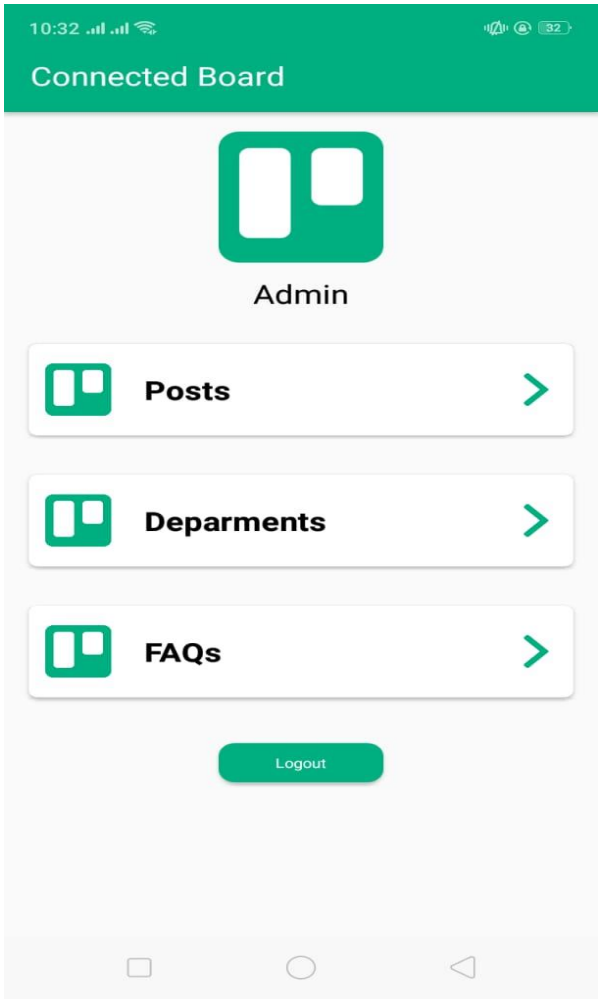
2.3.1.1 Signup Activity

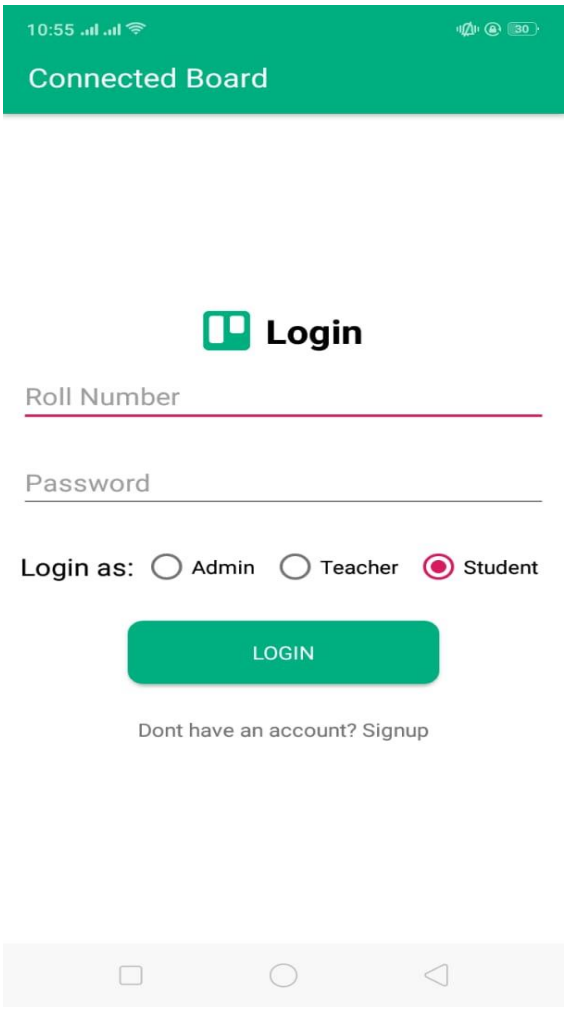
The only user interface needed for this project will be the user entrance which will be approachable on computers and mobile phones. Every university will have their unique id and passwords.



2.3.1.2 Admin Home Activity:

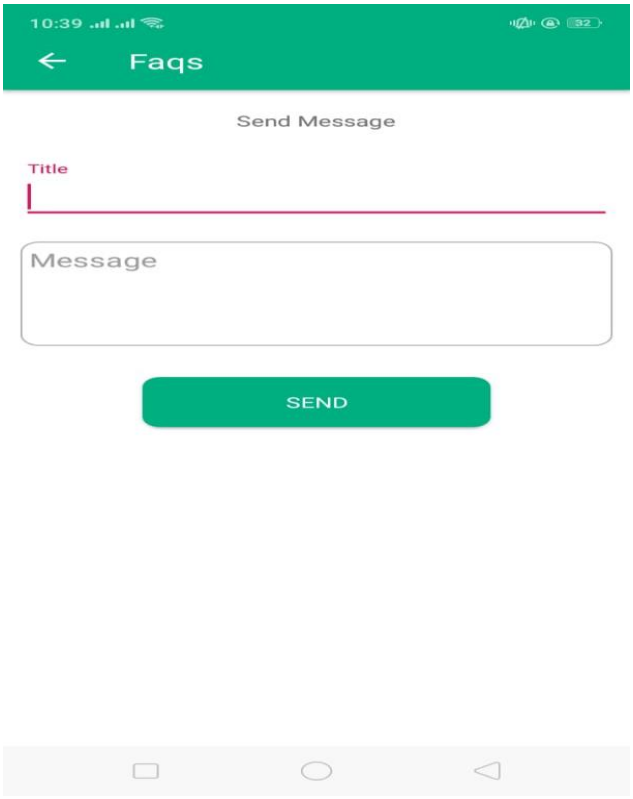
The admin can upload files, text/images, can upload pdf and can upload the pictures taken from the camera. So that the students can view tasks and information respective to their university.





2.3.1.3 FAQs Activity

After the students and teachers log in to his/her account the students can FAQs related to university and admin read FAQs.



2.3.2. Hardware Interfaces

- Android Mobile
- Processor 5.5
- RAM 1GB for optimal performance
- Internet Connection
- High resolution screen for best results

2.3.3. Software Interfaces

Development Tools

Android Studio 4.0 for Windows 64-bit

Database Tools

Firebase

UML Tools

MS Visio 2016, Star UML

Operating Environment

Android Mobile 5.5 and above

2.3.4. Communications Interfaces

Any android mobile device with the capability of running an android mob application will serve as a communication interface between the application and the user.

2.4. System Features

It is a way of giving or providing users benefit. Features include which is good and which is not similar items. Users only want benefits and didn't care about the characteristic which are supplied by suppliers unambiguously.

2.4.1. System Feature 1

2.4.1.1. Description and Priority

User can search the posts. User can view all the posts in mob app .User can share and download post easily, the priority level is set medium.

2.4.1.2. Stimulus/Response Sequences

In which user first do registration and if registration is done then next procedure is proceeded and if registration failed then it will go for registration again after registration then the next process is login and in which admin add circumstance and if the event is not add then it goes back to home page and then it request to show the event and when the event is displayed then user can sign out.

2.4.1.3. Functional Requirements

There are some software requirements for this feature which are:

REQ-SF1-2: The first requirement of this property is the internet.

REQ-SF1-3: The second requirement is an incompatible device.

2.4.2. System Feature 2

2.4.2.1. Description and Priority

As it is the most necessary feature of the portal. Without login the user not able to access the portal .User cannot Search the Hostels without the registration. User have to put his name and Password to login. The Priority level of Login is high.

Description	User need to login to register a hostel or flat
Input	Touching the button
Output	Redirect the user to the home page.

If the user is not registered. Signup form

Description	User need an account to login which he/she will made it through this sign up
Input	Touch the button/ Enter text
Output	User will get confirmation text which will show if he/she successfully signup.

2.4.3.2 Stimulus/Response Sequences

A login link given to you in the main page after click the link a page will be opened which consist a login form also a Signup form designed for the user if he is not already registered.

The registers users just entered their password and username and the user which is not registered to the portal need to enter all identification details in registration form.

Whenever any user gets login, there are a lot of functions that a user can perform. It depends on the user which action he wants to perform.

2.4.3.3 Functional Requirements

REQ-SF3-1: An online form provided the user to input his identifications to login to his account.

REQ-SF3-2: If the user is not registered then he will first fill the registration form

REQ-SF3-3: For the registration user need to enter Full Name, Password, and CNIC and Contact number.

REQ-SF3-4: If the login is successful the user can select the hostel or flat.

2.5. Other Nonfunctional Requirements

2.5.1. Performance Requirements

The requirements in this section provide a detailed specification of the user interaction with the software and measurements placed on the system performance.

- ***Prominent search feature:***

  The search feature should be prominent and easy to find for the user.

- ***Usage of the Notice Information:***

  The notice link should be prominent and it should be evident that it is a usable link. Selecting the notice link should only take one click.

- ***Response Time:***

  The response time should not be more than 5 seconds if user have a proper internet connection.

- ***Fault Tolerance:***

  The fault tolerance of the system should be very good. If the system loses the connection to the Internet or the system gets some strange input, the user should be informed.

2.5.2. Safety Requirements

Database may get crashed due to any uncertain issue or any virus or in the case of operating system failure therefore it is require to keep database backed up:

All users are responsible for securing their uploaded data in case of any corrupted database or outage. In case of any misuse of the application has been identified. The user will be immediately removed from the Application database and certain actions will be taken to make sure that this will not happen again in future

2.5.3. Security Requirements

System will take necessary steps or Action to make sure to ensure the user privacy. For users to make sure on their end that their account is secure, they must do the following:

- Passwords must be kept strong. Users password should be within 8 to 12 characters including letters and numbers
- User id and Password should not be shared with anyone else except the user itself.
- Password database is only accessible to login feature.
- We will ensure that our Application use HTTPS connection to protect date over network
- Our Application will use only necessary permissions.

2.5.4. Software Quality Attributes

< **Reliability**

Must maintain the integrity of Data. Application crash and miss use should not affect any data of then user or Application Data.

Availability

The Firebase will be available 24 hours a day except for routine maintenance.

Portability

User can login to the system at any time or from any device.

Maintainability

Our Application will be easy to maintain and will need least amount of maintenance.

Stability

Our Application will be stable over time and not need often majority changes.

Usability

Our application will be easy to interact and communicate with user.

2.5.5. Business Rules

- At the beginning the service is totally free.
- Costumer must be valid.

2.6. Other Requirements

The system must be completed within the time frame allotted for development. Appropriate funding must be acquired to make required upgrades to existing system by additional hardware and software and acquire skill personnel to develop project.

- Recover from failure.
- Capacity requirements.
- A secure Database will be used.

Chapter 3

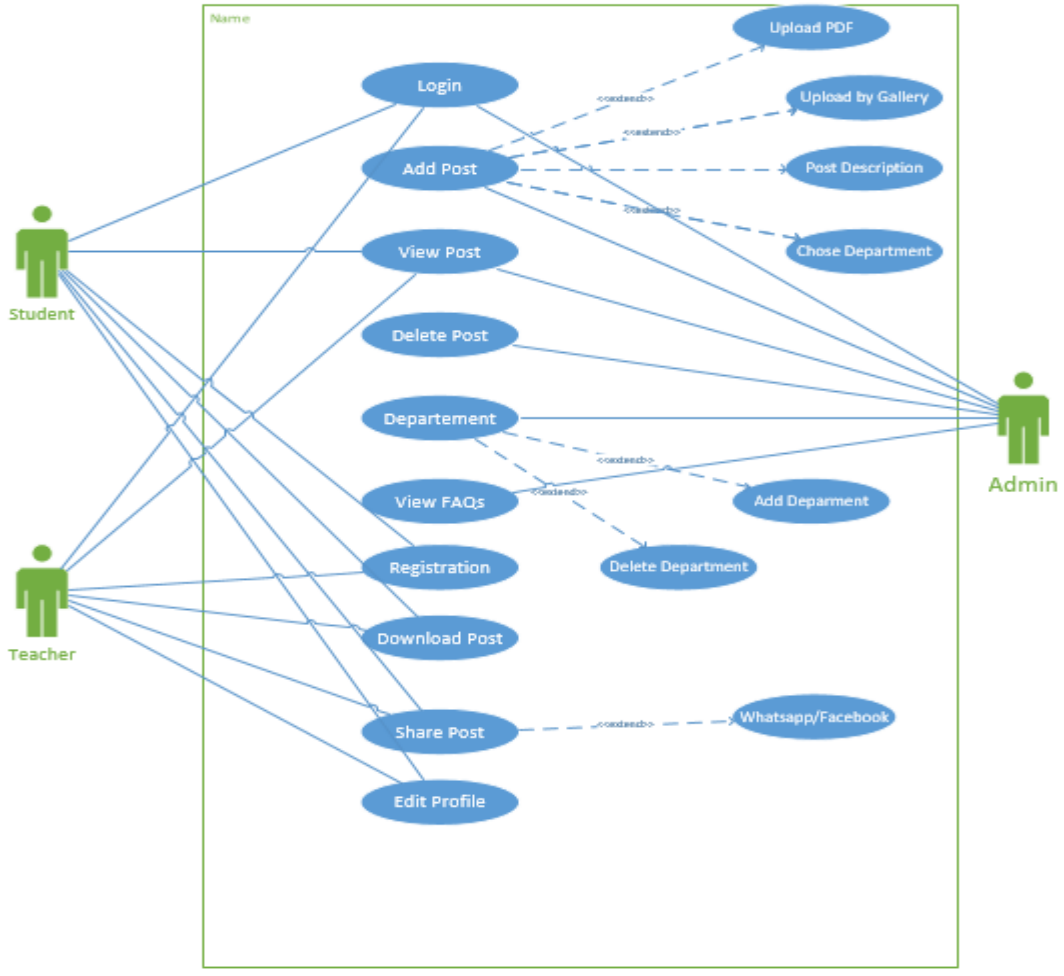
Use Case Analysis

Chapter 3: System Analysis

This chapter actually about to problem solving techniques. With the help of use case model and Use case description functionality of each function have clearly mentioned. This chapter will help to observe the system for troubleshooting or development process.

3.1. Use Case Model

This use case diagram explains the work and role between user and the system. The actor can be a human or other external system that use the system.



3.2. Use Case Description

Signup

Use Case: Signup				
Project Name: Connected Board				
ID: ORCS-001				
Summary: User and owner can register him/her-self to use this site further				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
After successful signup user/admin will redirect to login screen	User/owner will register to the database	Wi-Fi Connection Enabled	Click Signup text Fill all input fields Click Signup	User/Owner will register and redirect to Login Screen

T

3.1 Sign up Use case

SIGNIN

Use Case: Sign In				
Project Name: Connected Board				
ID: ORCS-002				
Summary: User will login to use the site.				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**

This site required the login to use other features	Allow Access the user/owner to use other feature	Wi-Fi Connection Enabled	Enter Email Address Enter Password Click Login	User/owner will login successfully and will redirect to Home Screen

Table 3.2 Sign in Use case

LOGOUT

Use Case: Logout				
Project Name: Connected Board				
ID: ORCS-003				
Summary: all sessions will be revoked and user will redirect to login screen				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
This allow user/owner to login with another account or revoke all login sessions	To remove login sessions from current device	Have to Login First. Need Established Wi-Fi connection	Click to Profile Click Logout	User/owner will redirect to Login Screen and ask for login

Table 3.3 Logout Use case

Show Profile

Use Case: Show profile
Project Name: Connected Board
ID: ORCS-004

Summary: User/owner can view record				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
Through this user/owner can view their record.	To view their own detail and if they want to update & delete	Wi-Fi Connection Enabled. Must login	Click Login Go to Profile	After logging in user/owner can view their profile.

Table 3.4 Show Profile Use case

Search Post:

Use Case: Search Post				
Project Name: Connected Board				
ID: ORCS-009				
Summary: User can search post				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
Through this user can search post	To provide the facility to user that he can search post	Wi-Fi Connection or Data Volume Enabled.	Simply visiting our portal he can search post	User will be able to make search with respect to description.

Download Post:

Use Case: Download Post
Project Name: Connected Board
ID: ORCS-009
Summary: User can download post.

Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
Through this user can download post	To provide the facility to user that he can download post	Wi-Fi Connection or Data Volume Enabled.	Simply visiting our portal he can download post	User will be able to download post.

Send FAQs:

Use Case: Send FAQs				
Project Name: Connected Board				
ID: ORCS-009				
Summary: User can send FAQs.				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
Through this user can send FAQs	To provide the facility to user that he can send FAQs	Wi-Fi Connection or Data Volume Enabled.	Simply visiting our portal he can send FAQs.	User will be able to send FAQs.

Chapter 4

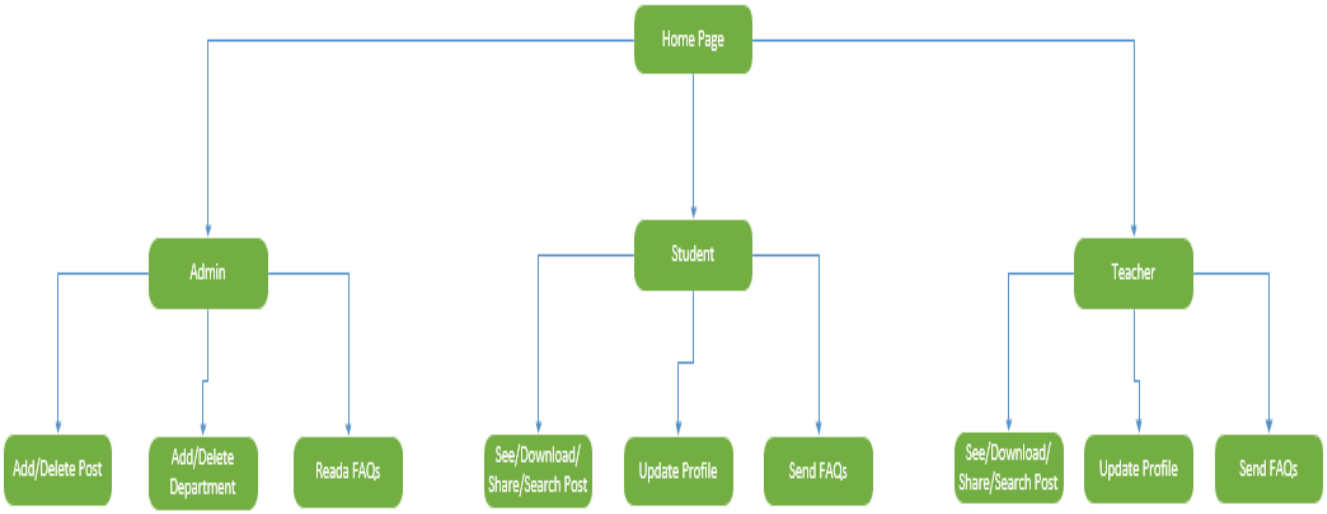
System Design

Chapter 4: System Design

A successful project demands the better architecture of the project that explains its progress in the way that how it will be implemented and how it will be used. Its features are explained below to sit the projects structure in the mind.

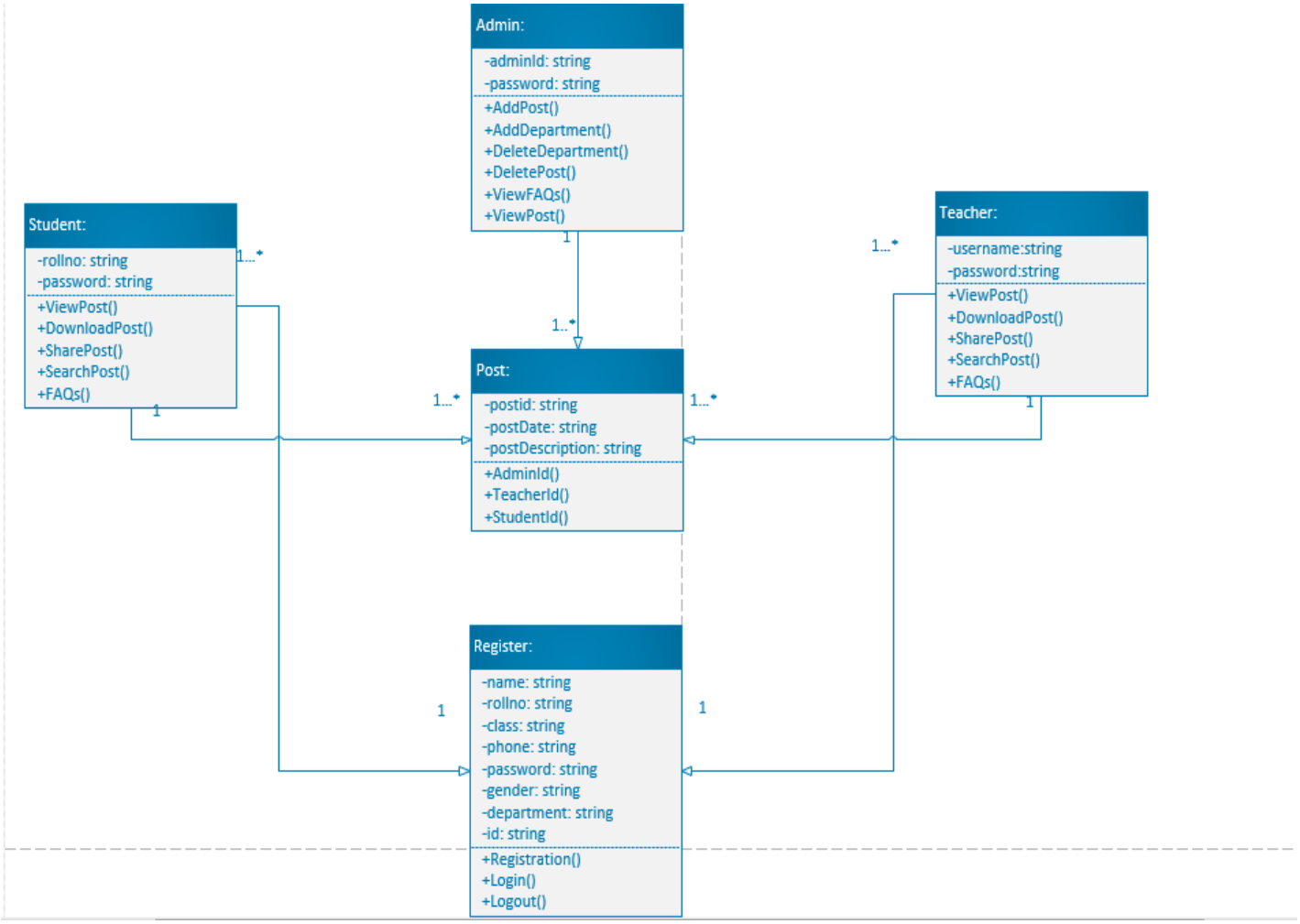
4.1. Architecture Diagram

Software architecture refers to the high level structures of software, the discipline of creating such structures, and the documentation of these structures. It is the set of structures needed to reason about the software system. Each structure comprises software elements, relations among them, and properties of both elements and relations. The architecture of a software system is a metaphor, analogous to the architecture of a building.



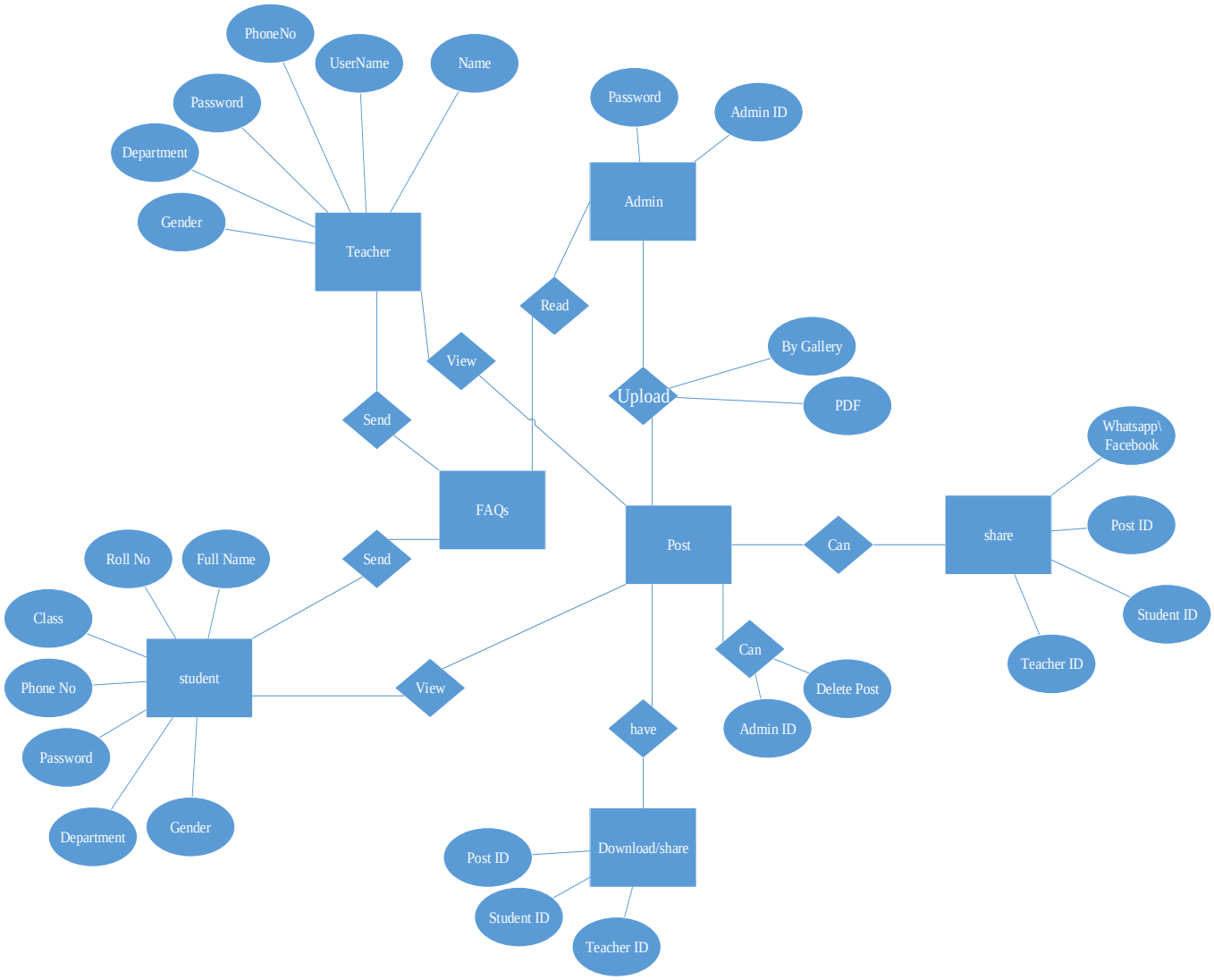
4.2. Domain Model

Domain model is a way to describe and model real word entities and relationship between them.



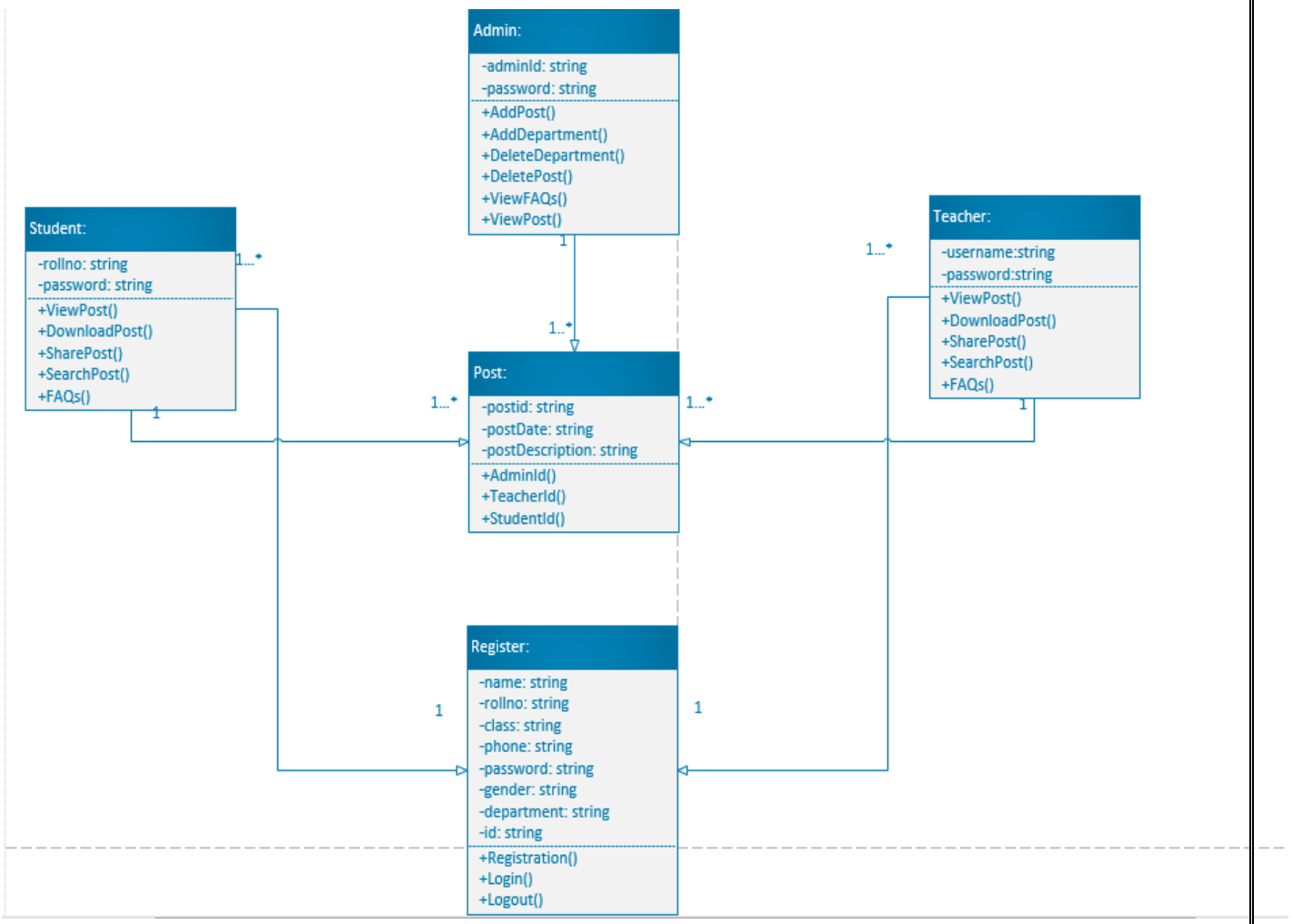
4.3. Entity Relationship Diagram with data dictionary

Data flow diagram (DFD) represents the flows of data between different processes in a business. It is a graphical technique that depicts information flow and the transforms that are applied as data move form input to output. It provides a simple, intuitive method for describing business processes without focusing on the details of computer systems



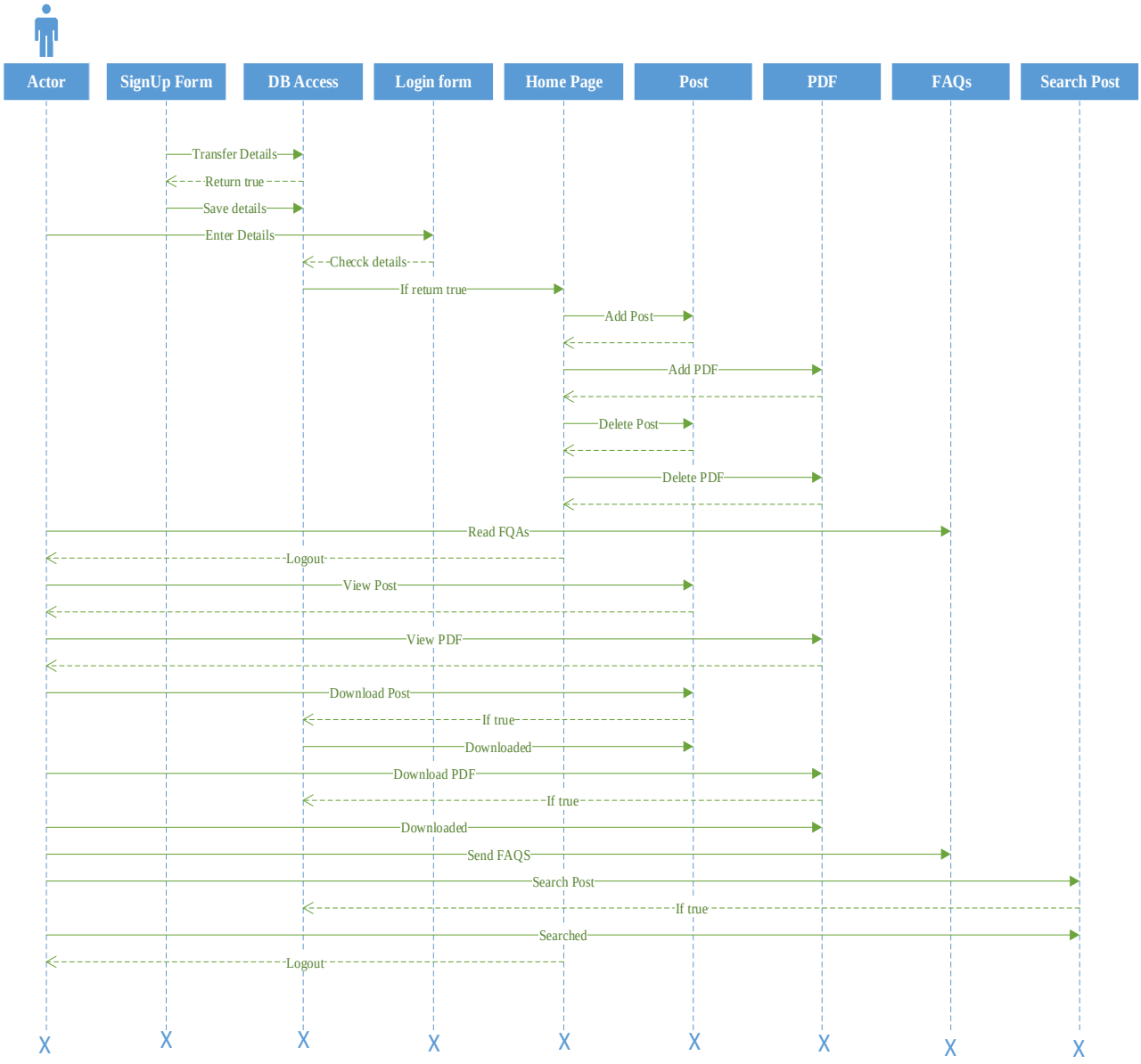
4.4. Class Diagram

Describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.



4.5. Sequence / Collaboration Diagram

In UML, sequence diagrams are typically used to describe system dynamics. Sequence diagrams depict system dynamics by showing the participating objects (classes, components, etc.) in the interaction and the sequence of messages exchanged.



4.6. Operation contracts

Signup

Use Case: Signup				
Project Name: Connected Board				
ID: ORCS-001				
Summary: User and owner can register him/her-self to use this site further				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
After successful signup user/admin will redirect to login screen	User/owner will register to the database	Wi-Fi Connection Enabled	Click Signup text Fill all input fields Click Signup	User/Owner will register and redirect to Login Screen

Table 4.1 Sign up Use case

SIGNIN

Use Case: Sign In				
Project Name: Connected Board				
ID: ORCS-002				
Summary: User will login to use the site.				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**

This site required the login to use other features	Allow Access the user/owner to use other feature	Wi-Fi Connection Enabled	Enter Email Address Enter Password Click Login	User/owner will login successfully and will redirect to Home Screen

Table 42 Sign in Use case

LOGOUT

Use Case: Logout				
Project Name: Connected Board				
ID: ORCS-003				
Summary: all sessions will be revoked and user will redirect to login screen				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
This allow user/owner to login with another account or revoke all login sessions	To remove login sessions from current device	Have to Login First. Need Established Wi-Fi connection	Click to Profile Click Logout	User/owner will redirect to Login Screen and ask for login

Table 4.3 Logout Use case

Show Profile

Use Case: Show profile
Project Name: Connected Board
ID: ORCS-004
Summary: User/owner can view record

Description	Objective	Pre-Condition	Basic Flow	Expected Result
Through this user/owner can view their record.	To view their own detail and if they want to update & delete	Wi-Fi Connection Enabled. Must login	Click Login Go to Profile	After logging in user/owner can view their profile.

Table 4.4 Show Profile Use case

Search Post:

Use Case: Search Post				
Project Name: Connected Board				
ID: ORCS-009				
Summary: User can search post				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
Through this user can search post	To provide the facility to user that he can search post	Wi-Fi Connection or Data Volume Enabled.	Simply visiting our portal he can search post	User will be able to make search with respect to description.

Table 4.5 Logout Use case

Download Post:

Use Case: Download Post				
Project Name: Connected Board				
ID: ORCS-009				
Summary: User can download post.				
Description	**Objective**	**Pre-**	**Basic Flow**	**Expected**

		Condition		**Result**
Through this user can download post	To provide the facility to user that he can download post	Wi-Fi Connection or Data Volume Enabled.	Simply visiting our portal he can download post	User will be able to download post.

Table 4.6 Logout Use case

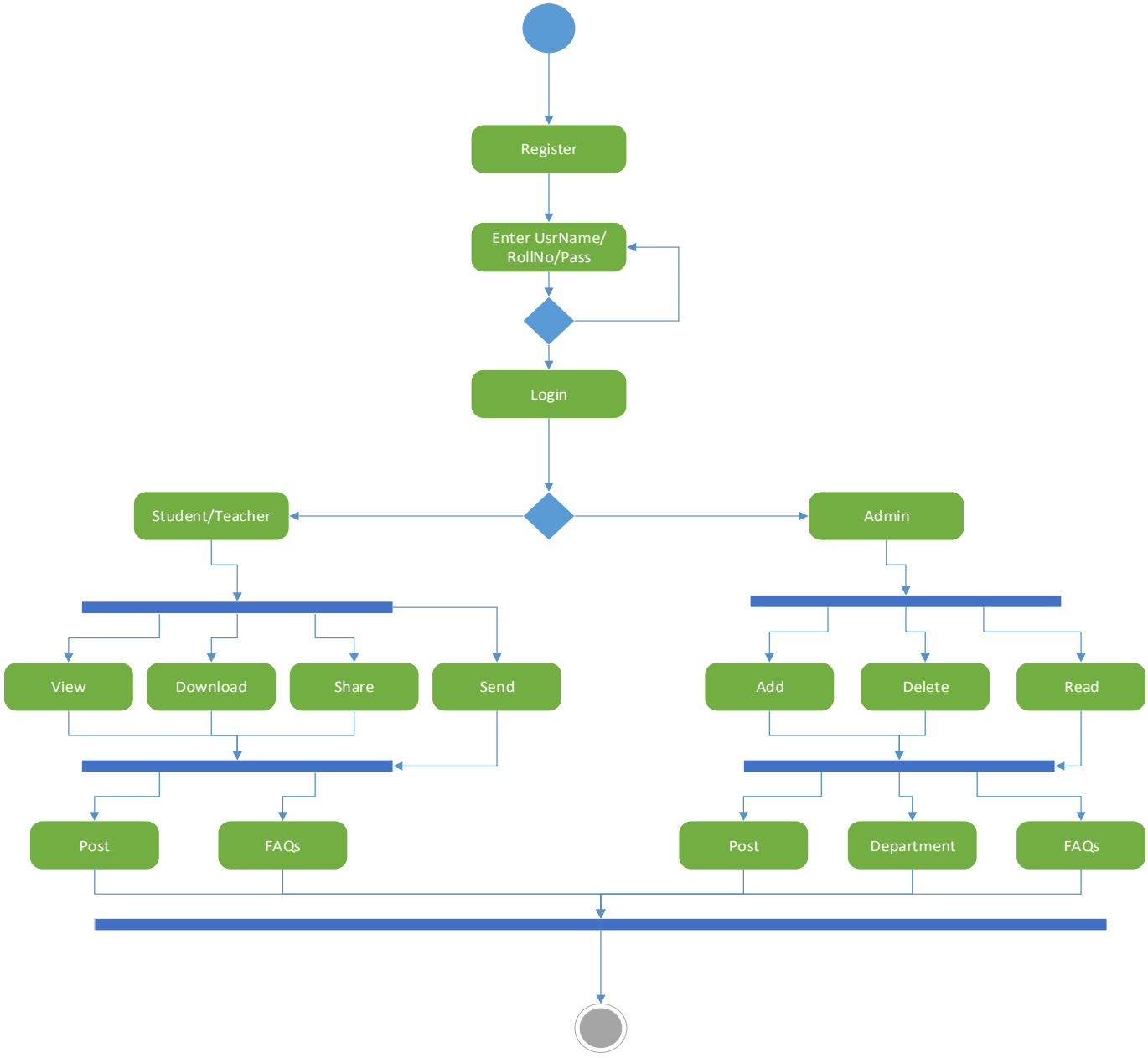
Send FAQs:

Use Case: Send FAQs				
Project Name: Connected Board				
ID: ORCS-009				
Summary: User can send FAQs.				
Description	**Objective**	**Pre-Condition**	**Basic Flow**	**Expected Result**
Through this user can send FAQs	To provide the facility to user that he can send FAQs	Wi-Fi Connection or Data Volume Enabled.	Simply visiting our portal he can send FAQs.	User will be able to send FAQs.

Table 4.7 Logout Use case

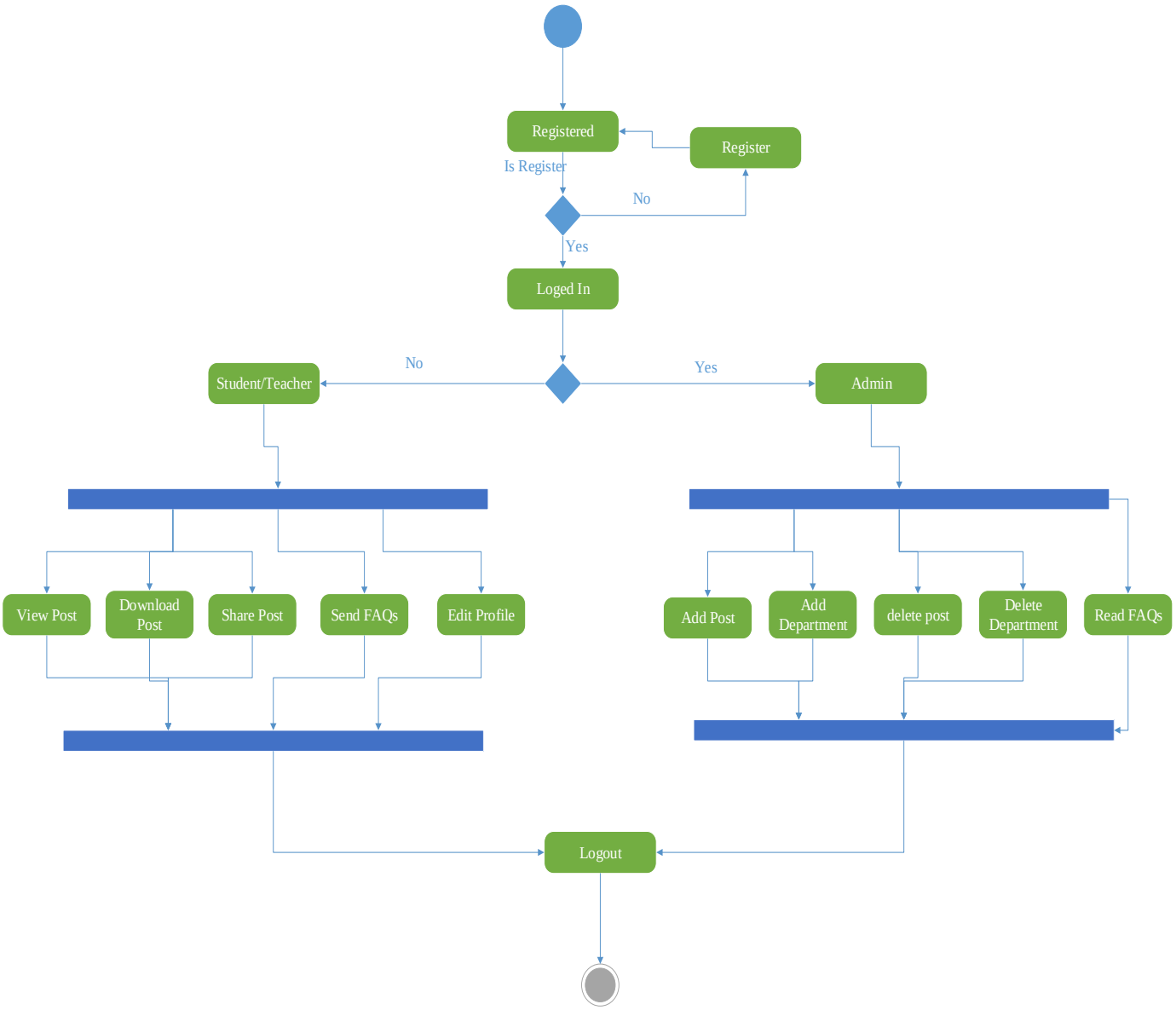
4.7. Activity Diagram

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the **Unified Modeling Language**, activity diagrams are intended to model both computational and organizational processes (i.e. workflows)



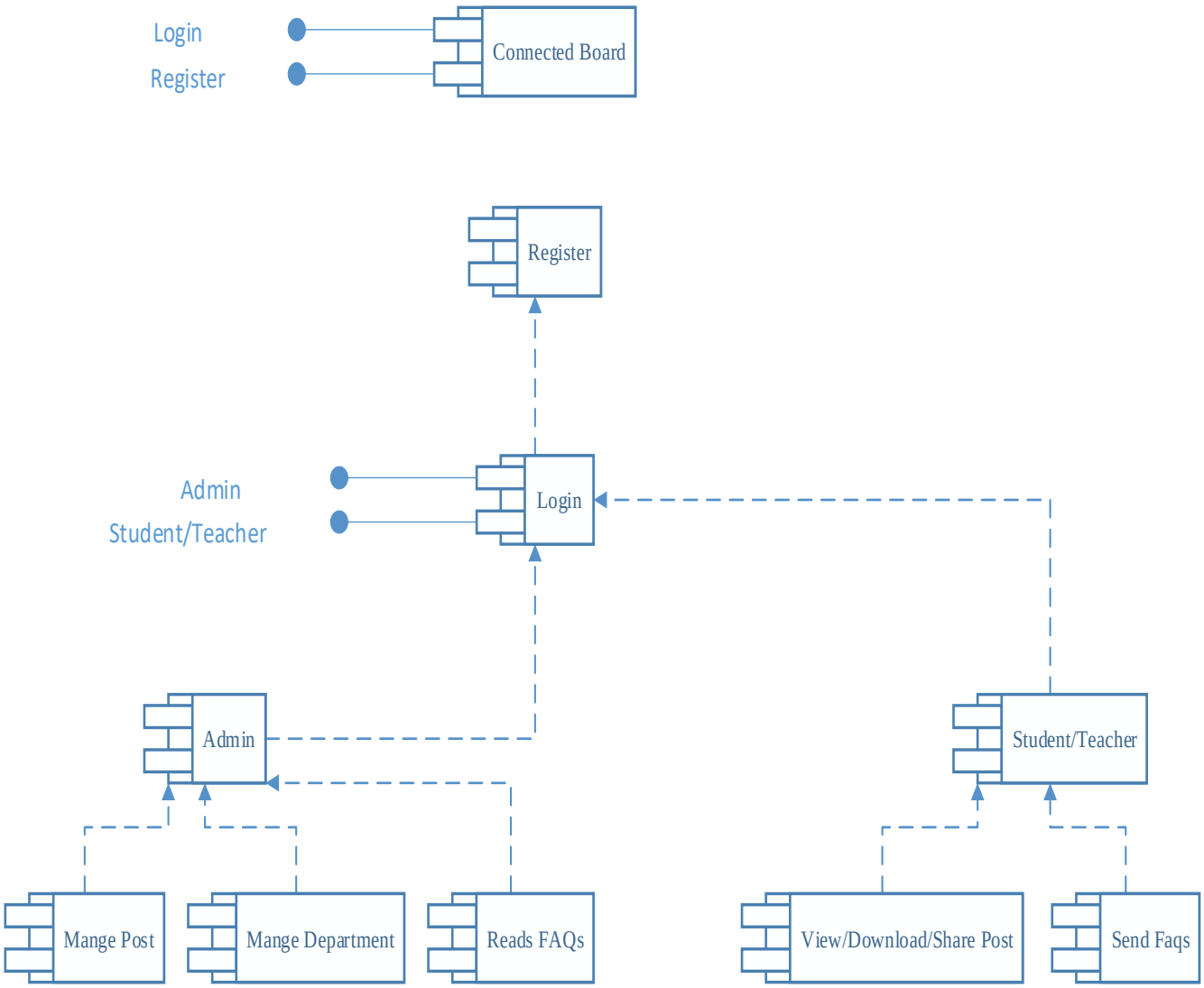
4.8. State Transition Diagram

This diagram is describing the behavior of application and its state.



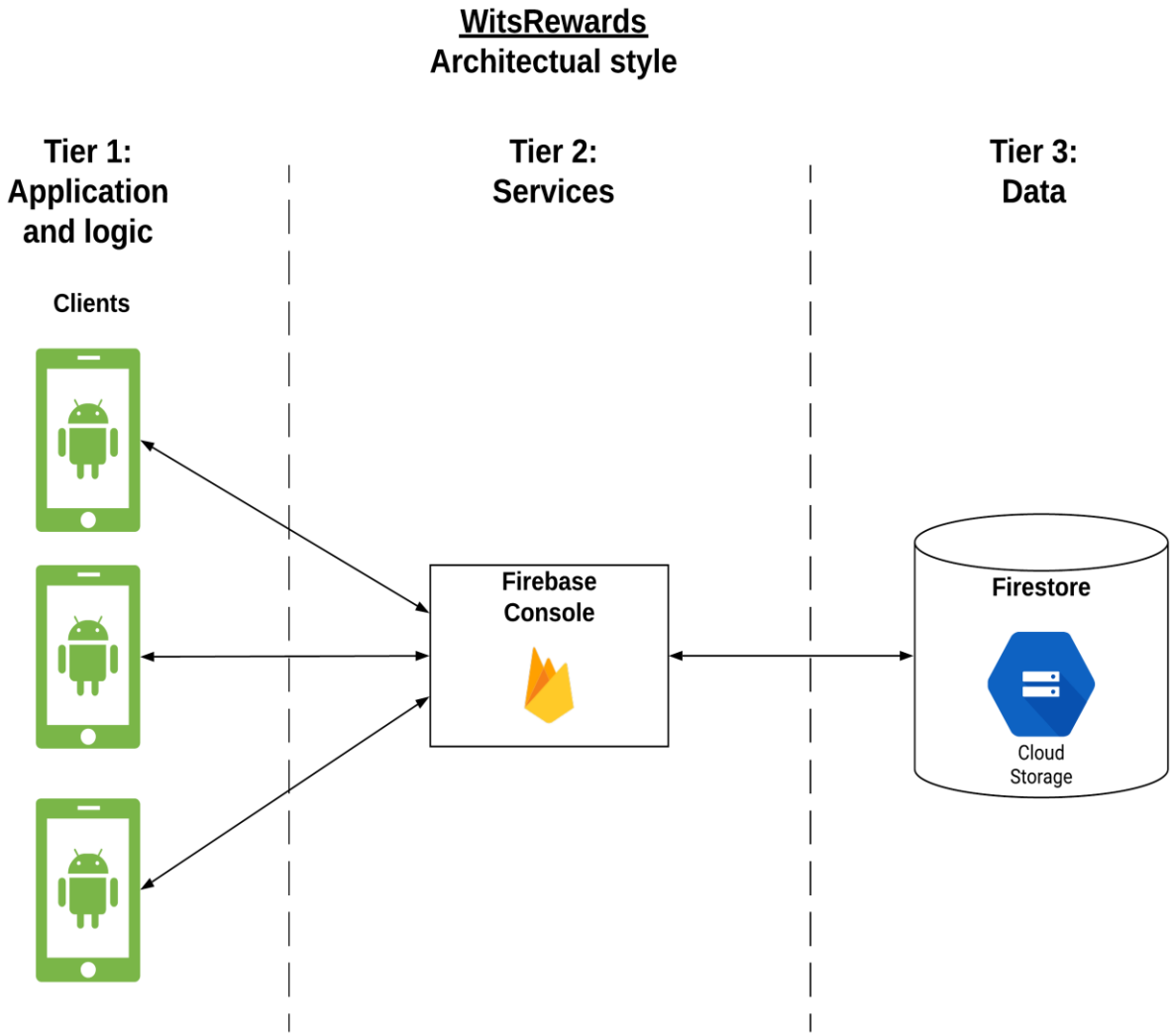
4.9. Component Diagram

This diagram is showing the relationship between components in our application.



4.10. Deployment Diagram

A **deployment diagram** in the Unified Modeling Language models the *physical* deployment of artifacts on nodes. To describe a web site, for example, a deployment diagram would show what hardware components ("nodes") exist (e.g., a web server, an application server, and a database server), what software components ("artifacts") run on each node (e.g., web application, database), and how the different pieces are connected (e.g. JDBC, REST, RMI).



Chapter 5

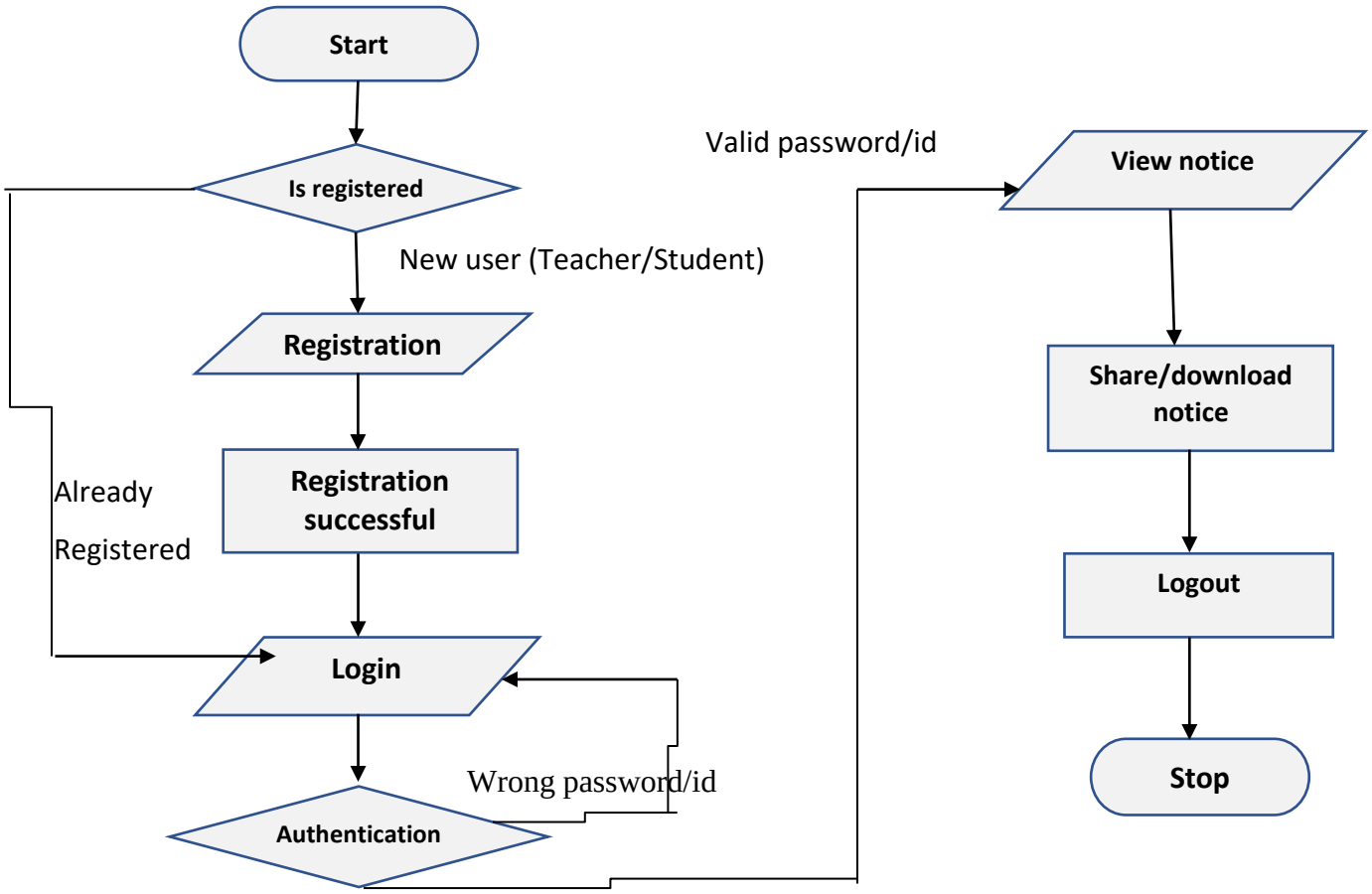
Implementation

Chapter 5: Implementation

This chapter describes all the tool and techniques related to the project. It also describes all the implementation strategies including implementation standards and guidelines that can be helpful during development control flow of all business logics and data. Descriptions about libraries and firebase services along with components of this application and development environments have also been mentioned in this chapter.

5.1. Important Flow Control/Pseudo codes

Flowchart



5.2. Components, Libraries, Web Services and stubs

We created balance between processes and the used technologies.

We used Agile SDL model that is change-orientated at any stage of development.

We kept in mind the Want vs. Needs of the users.

This application is specially focused on client satisfaction which it should fulfill.

Our project is designed to fulfill the needs of modern medicine consumers

5.3. Deployment Environment

The notice board shows its posts to the user through fetching all data from the database it means the project holds cloud computing that store the data about login information of the user, other posts are directly posted in the application. But each page is connected to the database somehow to complete the actions.

5.4. Tools and Techniques

Development Tools

Android Studio 4.0 for Windows 64-bit

Database Tools

Firebase

UML Tools

MS Visio 2016, Star UML

Operating Environment

Android Mobile 5.5 and above

5.5. Best Practices / Coding Standards

One of the best approaches is to either use a framework, or imitate their folder structure.

- **Commenting and documentation**
  Commenting code more useful than ever. Following certain standards in comments allow IDE and other tool to utilize them in different ways.

5.4.2. Consistence Naming Scheme

Name should have **word** boundaries. There are two popular options: Camel case: First letter of each word capitalized, except the first word. Underscores: Underscores between words

- Capitalize SQL special words
- SQL special words and function names are case insensitive; it is common practice to capitalize them to distinguish them from your table and column names.

5.4.3. Read Open Source Code

Project built with the input of many developers. These projects need to maintain a high level of code readability so that the team can work together as efficiently as possible.

5.4.4. Avoid Deep Nesting

To many level nesting can make code harder to read, For the sake of readability, it is usually possible to make changes to code to reduce the level of nesting.

5.6. Best Practices / Coding Standards

Superior coding techniques and programming practices are hallmarks of the professional programmer. The bulk of programming consists of making a large number of small choices while attempting to solve a large set of problems. How wisely those choices are made depends largely set of problems and the programmer's skill the expertise.

Below are some of the practices that we have used to ensure the success of this project:

- To conserve resources and ensure that the size of a variable is not excessive, we were selective in the choice of data type.
- We kept the lifetime of variables as small as possible when the variables represent a finite resource for which there may be contention, such as a database connection.
- We kept the scope of variables as small as possible to avoid confusion and to ensure their maintainability. In addition, when maintain legacy source code the potential for inadvertently breaking other parts of the code can minimize if variable scope is limited.
- We used variables and routines for one and only one purpose and avoided giving them multiple purposes.
- When writing classes, we avoided the use of public variables. Instead, we used procedure to provide a layer of encapsulation and to allow an opportunity to validate changes.

5.7. Version Control

Title	Version control
Description	Connected Board
Created By	Raza Rahim, Zohaib Mohy Ud Din
Date created	

Maintained by	Raza Rahim, Zohaib Mohy Ud Din

Version number	**Modified By**	**Rationale**	**Date Modified**
V0.1	Raza Rahim	First Draft	
V0.2	Zohaib Mohy ud Din	Review by Architect	
V0.3	Raza Rahim, Zohaib Mohy Ud Din	Wider review by Project team	
V0.4	Raza Rahim, Zohaib Mohy Ud Din	Final Review by all stakeholders	
V0.5	Raza Rahim, Zohaib Mohy Ud Din	Final version of signature	
V1.0	Raza Rahim, Zohaib Mohy Ud Din	Issued	
V1.1	Raza Rahim, Zohaib Mohy Ud Din	Updated Deliverables	

Chapter 6

Testing and Evaluation

Chapter 6: Testing and Evaluation

One of the best ways to check the running functionalities of the project is to test it, whether by you or someone other. It is the job that is most important at the end of every part of the project. It is tested and then passed on for further integration.

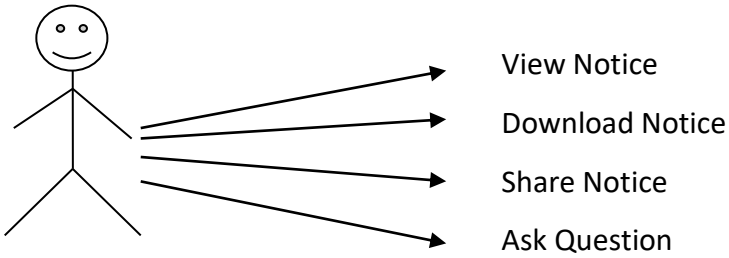
6.1. Use Case Testing

Use case testing is defined as a black-box test technique in which test cases are designed to execute scenarios (and optional and exceptional scenarios).

- Use case testing defines the outcome errors during project use.
- Its steps define the attraction between the actors and project (application).
- It captures the functional requirements of the project.

User

Actions



A user can perform many of the functions here

If User is trying to Log in:

Main Success Scenario	**Step**	**Description**
A:User S:System	1	A: Enter ID & Password (to Login)
	2	S: Validate Password
	3	S: Allow Account Access
Extensions	2a	**Password not valid** S :Display Message and password incorrect
	2b	**Account already registered.** S :Can't Login

Login Page scenario

1. Verify that your touch is on the "Username" text box on the login page.
2. Verify that page load have Username, Password, Sign in button, and Register link.
3. Verify that tab functionality is working properly or not
4. Verify that Enter/Tab key works as a substitute for the Sign in button
5. Verify that all the fields such as Username, Password contain a valid placeholder.
6. Verify that User is able to Login with Valid Login data.
7. Verify that User is not able to Login with invalid ID and invalid Password.
8. Verify that User is not able to Login with Valid Username and invalid Password.
9. Verify that User is not able to Login with invalid Username and Valid Password.
10. Verify that User is not able to Login with blank ID or Password.
11. Verify that User is not able to Login with inactive Login data.
12. Verify that clicking on back button after successful login should not take User to again login mode.
13. Verify that the password is in encrypted form when entered.

14. Verify the password can be copy-pasted.
15. Verify that spaces should not be permitted before any password characters tried.
16. Verify that whether User is quiet logged in after series of actions such as log in, close browser and reopen the application.
17. Verify that the logout link is redirected to login/home page
18. Verify that User is redirected to Notice board page after successful login
19. Verify that User is redirected to Create an account page when clicking on Login
20. Verify that validation message is displayed in case when User leaves Username or Password as unfilled.
21. Verify whether the login form is revealing any security information by viewing page source.
22. Verify that the referred fields of check box are correctly checked when the user try to login in this referral field such as student, teacher or admin.

6.1. Unit testing

The developer test each component of the project it is much difficult form of testing that each part is integrated if something is missing or unreachable.

Test type	order testing
Test case number	1
Test case name	Registration
Test case description	The user should enter valid, name, roll number, class, phone, password, confirm password.
Item to be tested	All the valid fields must be filled else it could identify whether user is registered or not and select all field and with the record in the database.
Specification 1.all field must filled 2.can't fill all field	1successful registered 2.failure message

Test type	order testing
Test case number	2
Test case name	User authentication
Test case description	The user would be entering his/her accurate user id and password so that he/she can be able to go for further process. The test case will check the application with same scenario a user can be login with the correct user id and password.
order to be tested	Verification of user id and password with the record in the database.
Specification 3.correct user id /password Incorrect user id /password	1successful login 2.failure message

Test type	order testing
Test case number	3
Test case name	Login
Test case description	The user should be enter valid name, password.
Item to be tested	Verification of user name and password with the record in the database.
Specification 1correct user name /password 2.Incorrect name /password	1successful login 2.failure message

Test type	order testing
Test case number	4
Test case name	Logout
Test case description	The user should be enter valid name, password.
Item to be tested	Verification of user name and password has logout with the record in the database.
Specification	1successful logout

6.2. Equivalence partitioning

Integration testing is done to test the functionality of different units when combine together. It test the working of modules together. Integration testing will test for this stuff of module. These modules show a cause and effect relationships, if there occurs some change in one module then the effect should be happened in some other module also.

6.3. Boundary value analysis

Performance testing is the general name for test that check how the system behaves and perform. Performance testing examines responsiveness, stability, scalability, reliability, speed and resource usage of your software and infrastructure under a workload.

6.4. Data flow testing

It is one of the testing strategies, which focuses on the data variables and their values, used in the programming logic of the software products, by making use of the control flow graph. Data Flow Testing is the form of white box testing and structural type testing, which generally keeps checking at the points, where the data values are being received by the variables and at the points when it is called for use. Is used to fill the gap between the path testing and branch testing. The basic idea behind this form of testing is to reveal the coding errors and mistakes, which may result into improper implementation and usage of the data variables or data values in the Programming code i.e. data anomalies, such as:

- Checking all the data variables, present in the programming code have been initialized
- Checking all the condition properly works.
- Checking all the condition will be terminated in define condition.
- Checking all the variable data type and size it is defined properly.
- Checking all the variable data type and size it is defined properly.
- Removing that code of line that is not used in this project.
- Removing that code of line that is not used in this project.
- Checking if the initialized data variables have been used, at least once, in the programming code.

6.5. Unit testing

When we started developing this project we divided it in modules then started to code and created functions. Then we tested those functions to ensure correctness. After that, we combined all the modules to shape them into the **ORCS** application.

Tools: Unit tool was used for unit testing

Tested by: Team

6.6. Integration testing

Integration testing is done to test the functionality of different units when combine together. It test the working of modules together. Integration testing will test for this stuff of module. These modules show a cause and effect relationships, if there occurs some change in one module then the effect should be happened in some other module also.

6.7. Performance testing

Performance testing is the general name for test that check how the system behaves and perform. Performance testing examines responsiveness, stability, scalability, reliability, speed and resource usage of your software and infrastructure under a workload.

6.8. Stress Testing

Stress testing is the testing that checks the upper limits of your system by testing it under heavy loads. The testing examines how the system behaves under high loads, and how it recovers when going back to normal usage. In addition stress testing also examines memory leaks, slowness, and security issues and data corruption

Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1. Project Summary

We have created an android mobile application that helps the students to reach to the latest news and announcements of the university. We know that every student wants to get the news about their university events, chairman orders, new changings and other decisions that are taken by the owners.

7.2. Achievements and Improvements

We have created our project successfully after a timed process that gives a value to our IT career. Even though each component is tested and launched after a successful test. Many bugs and errors are removed according to our human effort. All allowed techniques are used to make this system available. Admin have full control to again integrate it further. For an accurate appreciation and FAQs section is allowed for the users to comment their issues, satisfactions and other queries that admin will see only.

7.3. Critical Review

The thing that controls the whole system is to manage it on time. As the notice board of the university will have the responsibility to post the latest and important news of the university. So the main thing is to have no carelessness in updating and posting the notice. All the users will rely on the work of the system. So the happiest moment is to arrive at right time having right news always.

7.4. Lessons Learnt

The main purpose of the application is to make aware all the students and teachers of the university about all occurring and new events including festivals, arrival of some VIP guest , announcement of upcoming exams and etc.

- The notice board will provide the important news that will helps the user to get in touch with all the new events.
- It will reduce the time for teachers and management to go to the classes and announce the news.
- All the users including teachers and students will have equal access to the management by using the FAQs section.
- A best job for the system controller will be available who could easily handle it.

7.5. Future Enhancements/Recommendations

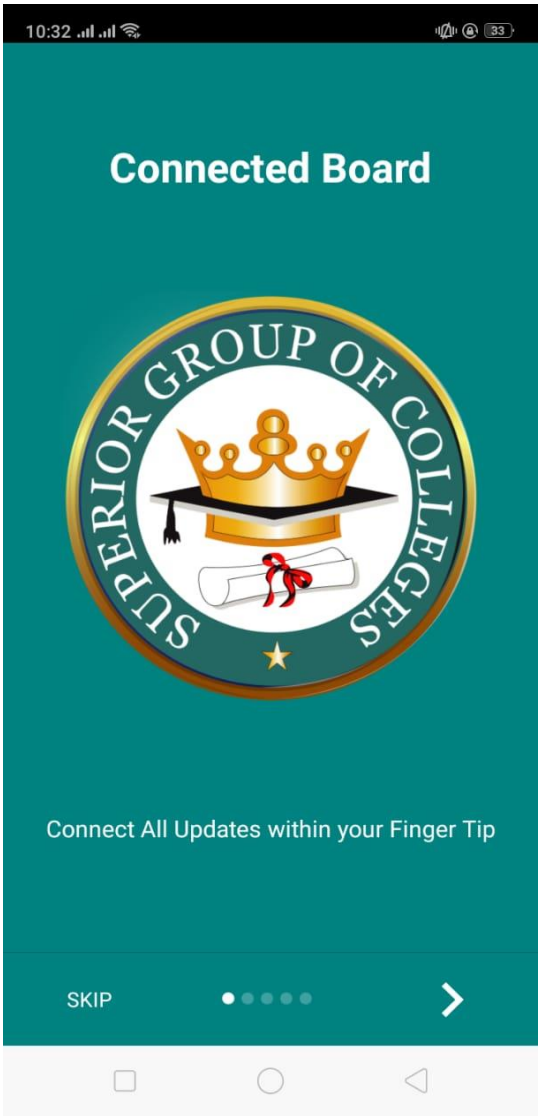
May be in future more departments would be added and some more features like uploading comments and views, direct message to the management, editing profile, changing the themes would be the part of version 2.0.

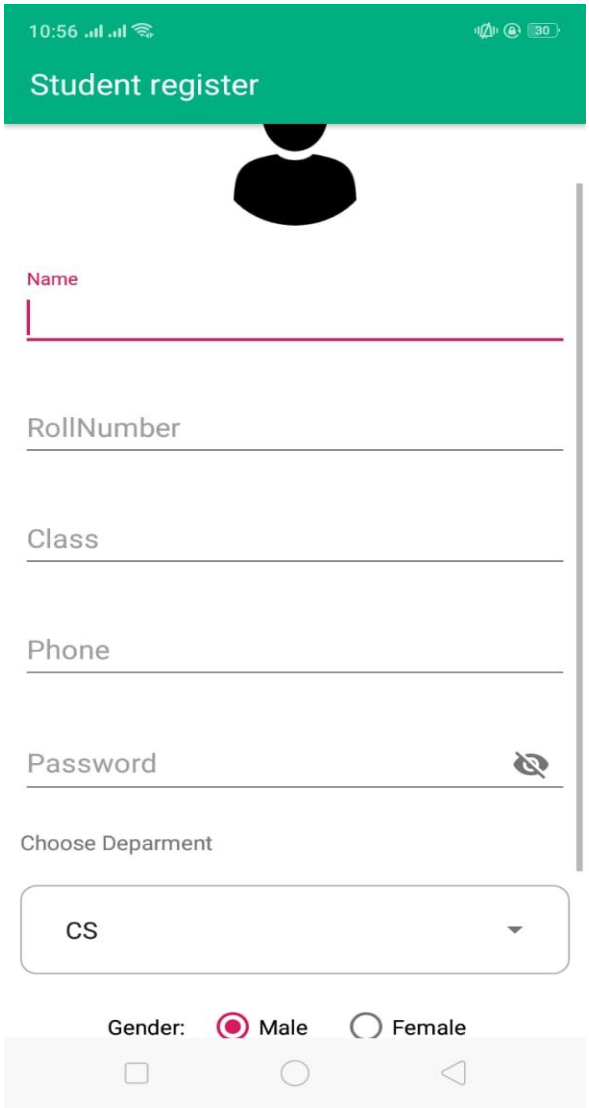
Hopefully, concluding the system to be the part of university IT department.

APPENDICES

2.3.1.1 Signup Activity

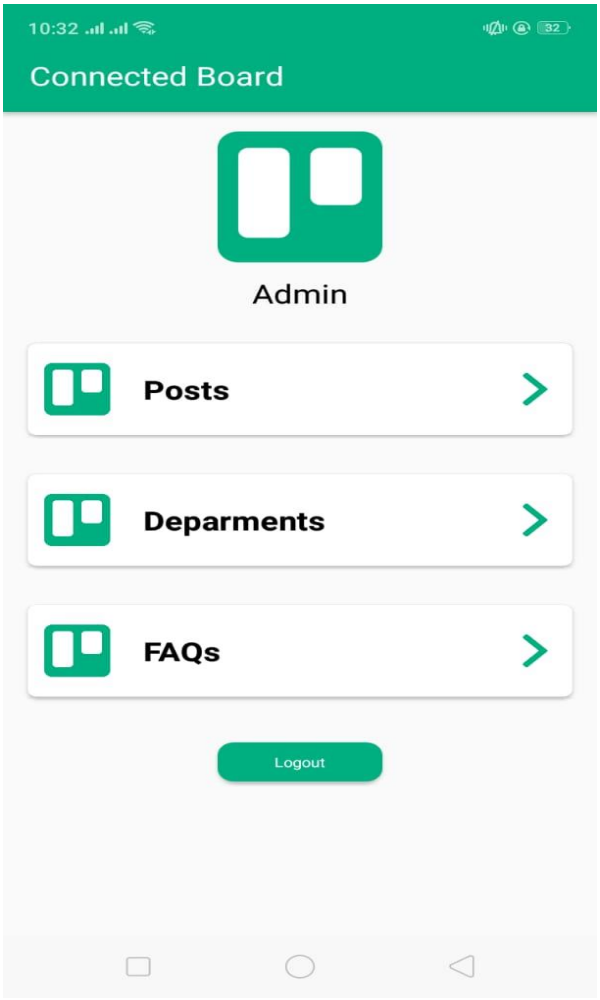
The only user interface needed for this project will be the user entrance which will be approachable on computers and mobile phones. Every university will have their unique id and passwords.

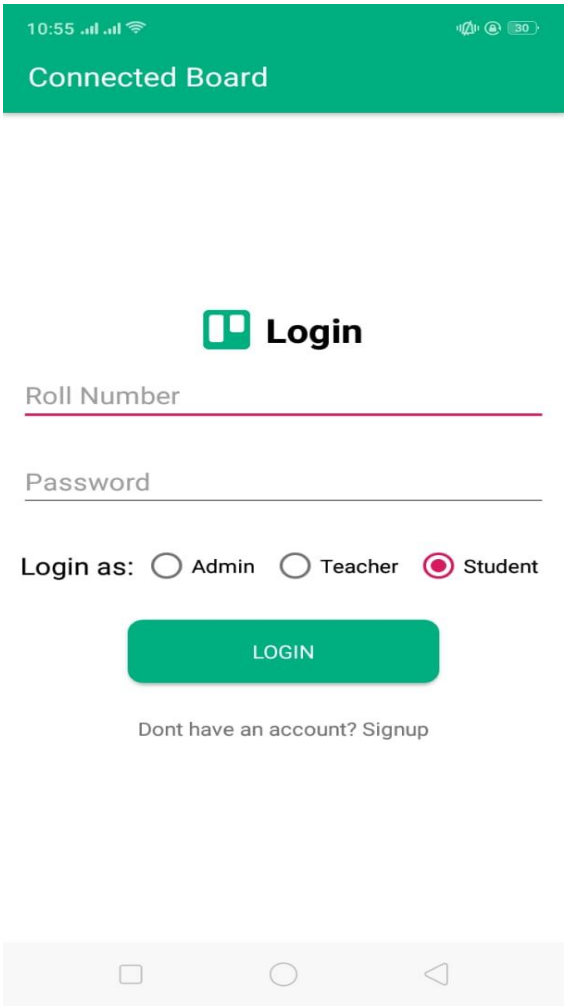




2.3.1.2 Admin Home Activity:

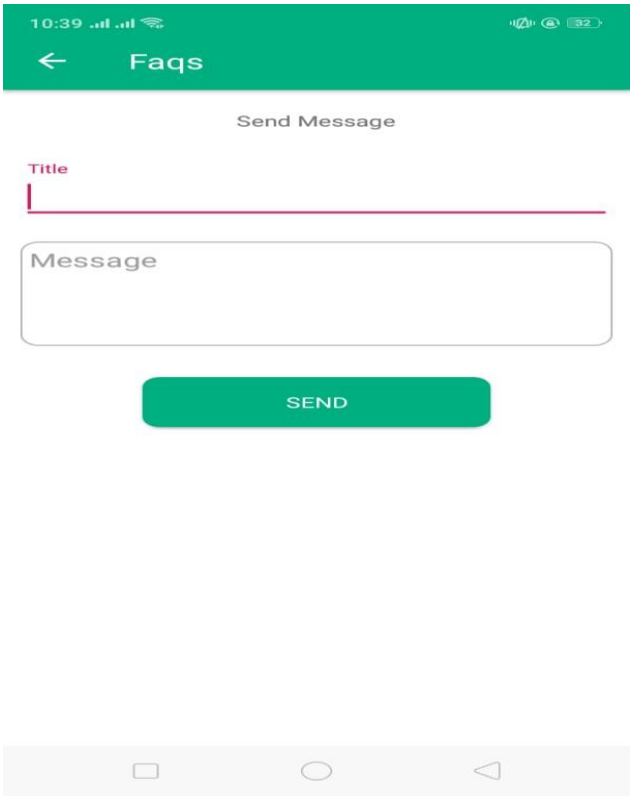
The admin can upload files, text/images, can upload pdf and can upload the pictures taken from the camera. So that the students can view tasks and information respective to their university.



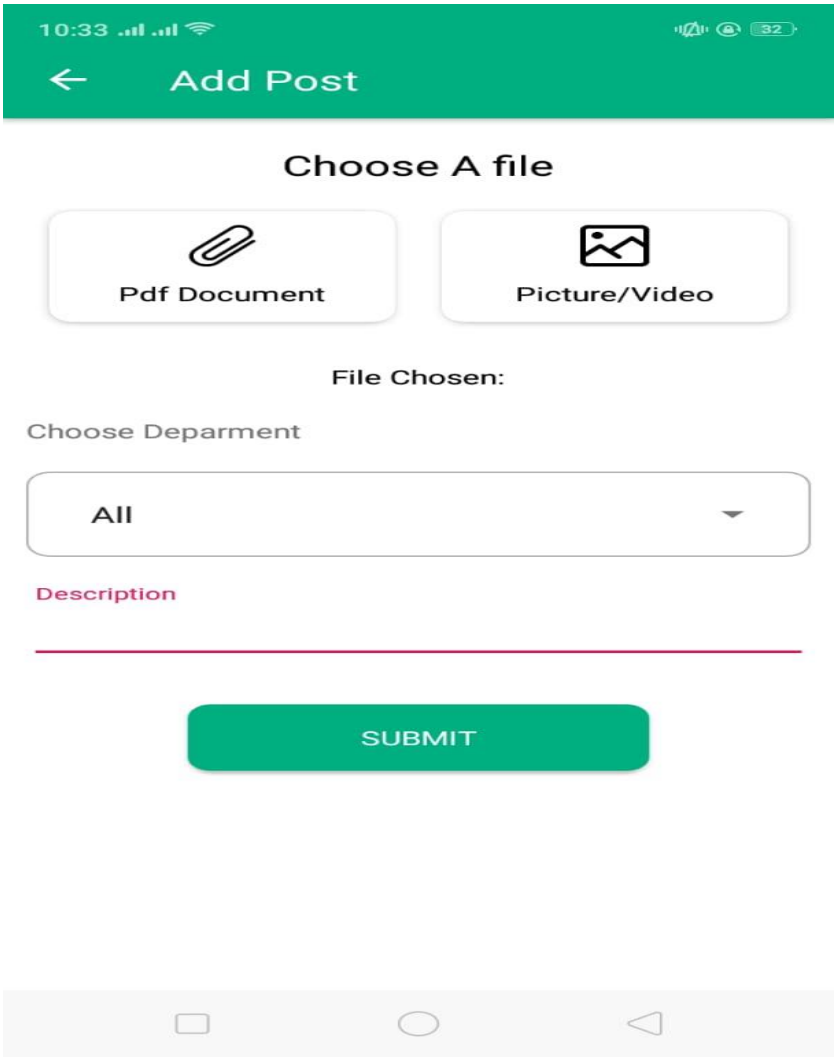


2.3.1.3 FAQs Activity

After the students and teachers log in to his/her account the students can FAQs related to university and admin read FAQs.



Add Post:


10:33
Add Post
Choose A file
Pdf Document
Picture/Video
File Chosen:
Choose Deparment
All
Description
SUBMIT

Home Page:


10:38
Connected Board
Search
SUPERIOR COLLEGE OF LAW
A Complete Career Building Institute of Pakistan
WE MAKE YOUR FUTURE SUPERIOR
Admissions Open
LL.B.
Affiliated with University of the Punjab
Limited Seats are available for Scholorship
WE ARE PROUD OF YOU
Gold Medalist
University of the Punjab
LL.B-II Company Law (2015)
2nd Position
University of the Punjab
LL.B-I (2017)
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28 May
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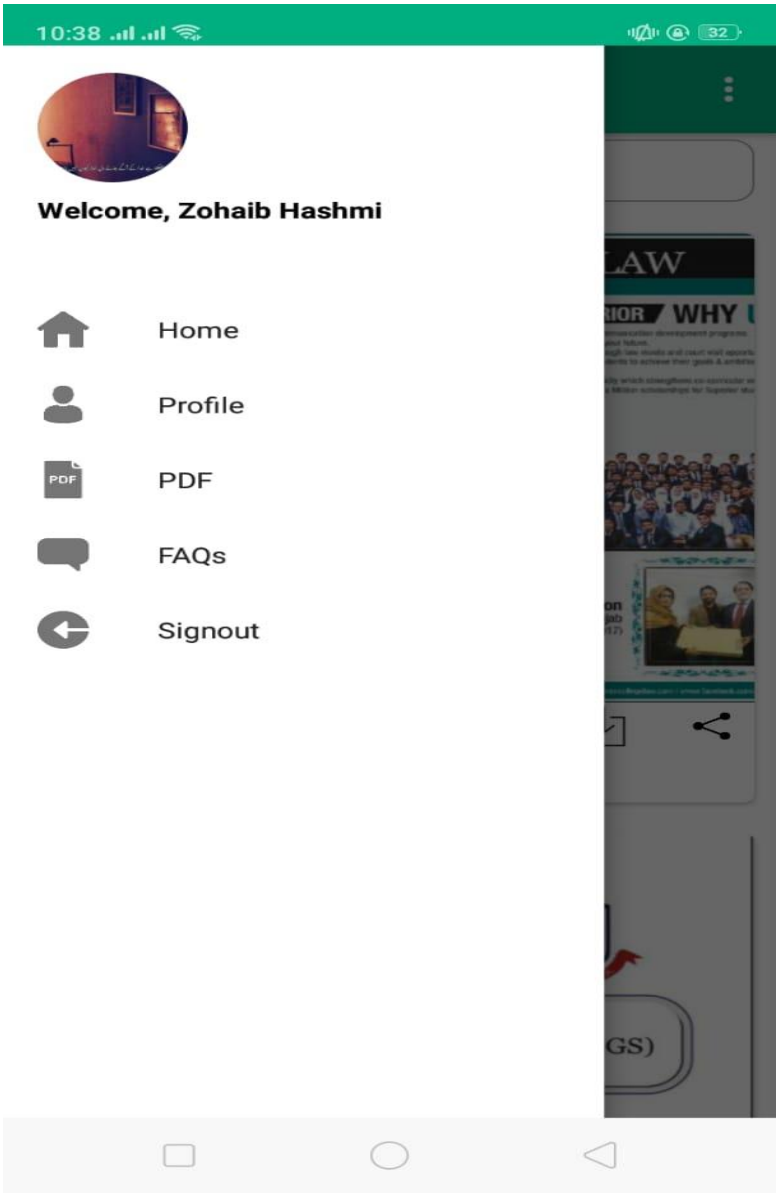
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Reference and Bibliography

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