GLA University, Mathura – 2020
Mini-Project 1
Literature Review Report

Team Details

TUSHAR GUPTA – tushar-manish

KARTIK AGRAWAL – kartikagrawal3a

JALANKI NAYAK – jalanki-nayak

YASHVARDHAN GAUTAM – yashgautam172000

Index

Serial No.	Topic	Page No.
1	Problem Statement	3
2	Literature Review	5
3	Agreement Contract	19

Problem Statement

Objective

We want to create a smartphone Application which will be a Chatting App with Professional(Educational) Approach.

Introduction and Motivation

In today's world social messaging apps like **Whatsapp, Hike, Messenger** etc are the most popular way to connect with friends ,family and businesses. Apps like these allow us to do personal chats with a particular person or we can create groups where we can chat with a lot many people. Many businesses are now being run on Whatsapp as a result many official and professional work is now being done on such apps.

Education doesn't remain aloof from such apps; now a days such groups are also used for educational purposes where teachers create groups of their classes and can share information like class activities,pdf notes,video notes,e-books etc.

But using these groups for educational purposes has some limitations. There are various cases like –

- Does the apps comply with GDPR guidelines and especially in case of student.

- Students can be added only with their mobile numbers which are generally of their parents and moreover they quickly become a pit of unknown digits and faceless profiles.

- Whenever student is having some doubt regarding a topic and he/she want to discuss it with class they share their doubts in the group and a discussion starts which most of the time goes in informal direction.

- When teachers want to conduct a quiz among their students,they have to use another platform for organizing and maintaining records of quizzes.

- Teachers usually give assignments to students with a strict deadline but if students submit their assignment in the same group then it will be quite difficult for teacher to manage the assignments. To avoid it, teacher will either provide his/her email id for assignment submission or use another platforms like Google Classroom for work related to assignments.

Proposed Solution

Groups in these Chatting Applications like **WhatsApp** should be used for informal chats and fun. Using these groups for educational purposes is not preferable and has many limitations. To overcome the limitations discussed above, an application need to be made which contains the features of both chatting application and classroom. This application would incorporate the following features which would overcome the limitations in groups of chatting application:

- ➢ For fun and communication with friends and family, you can chat with them personally. Two users can exchange text messages, photos, voice notes and documents.

- ➢ A separate classroom panel will be there in the App which will overcome the limitations of Groups in chatting applications in educational fields.

- ➢ A user can create a classroom and can join an existing classroom.

- ➢ If the User(Teacher) have created a classroom, he/she can upload the assignments, can conduct quizzes and can monitor the list of Users(Students) who have joined the classroom.

- ➢ If the User(Student) have joined an existing classroom, he/she can view and submit the assignments, can attempt quizzes.

- ➢ Inside the classroom, there will be a discussion panel which will be accessible to both Teacher(Who have created the classroom) and students(Who have joined the classroom). This discussion panel can be used for organized, professional discussions

Such an Application must be used as digital education is increasing day by day. Furthermore, the application must be well tested so that the user of the application will have confidence while using it. The success of the project is measured by the number of features completed(implemented, tested, documented and delivered).

Has the Idea Been Implemented by someone in Past?

Yes, the basic idea i.e. a Chatting Application is a common idea and is implemented numerously with different twists. Some famous examples are WhatsApp, Hike etc. These chatting applications are used for fun and interaction with friends and family informally and are not suitable for Professional or Educational purposes. Our attempt is to give it an Educational approach.

Literature Review

There is numerous active chatting app worldwide, among those WhatsApp scores the highest rank around the globe. WhatsApp was founded by Jan Koum and Brian Acton who had previously spent 20 years combined at Yahoo. WhatsApp joined Facebook in 2014, but continues to operate as a separate app with a laser focus on building a messaging service that works fast and reliably anywhere in the world. As per the record it serves 2 billion users worldwide .WhatsApp is available in 180 countries and 60 different languages. Due to its many features it is covering large users.

It provides us many features to communicate and share stuffs to friends and family easily and cost efficiently.

Features of WhatsApp :

- **One to One Chat :** WhatsApp provide one to one chat. In this user can communicate to each other via text message and voice notes. User can also share the necessary stuff to each other such as images, documents, videos, contact and can also share their current location to their family and friends. All the data is highly encrypted and gives asurety to the user that their communication is totally secure.
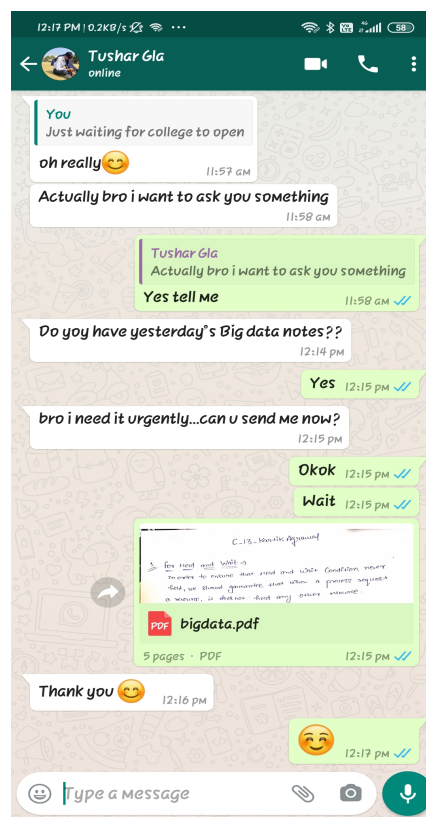
- **Group Chat :** WhatsApp also allow users to create group with no members limit. This allow user to communicate with more than one person at a time and can also share files. The one who create group is known as the admin and he has additional option such as :-
    - Admin can set the permission where only Admin can message.
    - Can Remove any member of the group at any point of time.
    - He has the option to make another user of the group as a admin.
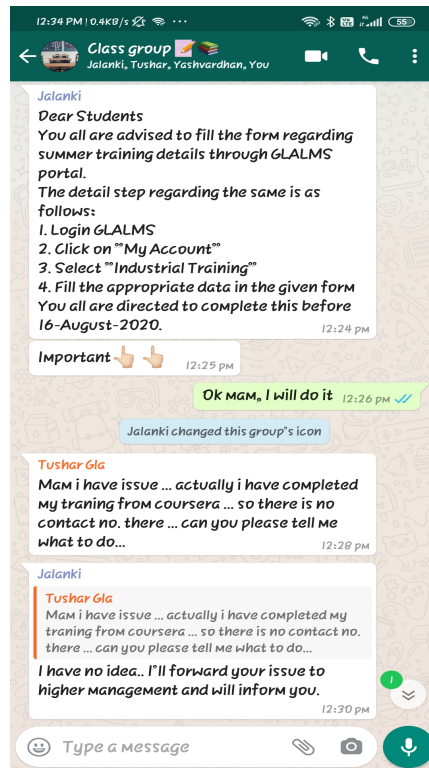
- **Voice and Video Call :** WhatsApp provides voice call option where it uses **Opus voice codec which uses MDCT(Modified Discrete Cosine Transform) and LPC(Linear Predictive Coding) audio compression algorithms**. It also provides Video Call option of maximum 8 people at a time which help users to get the live experience of the event or you can have a video conferencing.

- **Status Update :** WhatsApp also provides a feature called as Status where user can regularly update the happenings of their lives. User can upload Photos, Videos and Plain text as their Status and can see other's status also. People generally uses this feature for expressing their feelings on special occasions like festivals, Birthdays or Anniversaries etc. or for updating their friends and family about the happenings of their lives.

Above listed are the features that WhatsApp offers us.
The basic idea of our project has been taken from WhatApp. The basic working and Chat mechanism will be based on WhatsApp

Login / Signup

The first screen after the splash screen will a Login/Sign Up form where user can enter their name and phone number for submitting their details and using the application.

Submit

Back

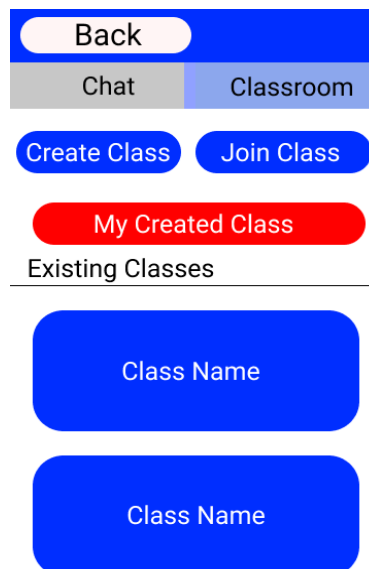| Chat | Classroom |

Name

Name

Name

Name

Name

Name

The next screen that will appear after login screen will be the Chat portion where user can see the list of recent chats as shown in the figure. User can simply start chatting with anyone by clicking on their name shown on screen.

This is how the chat window will look like. All the previous messages if any will occur on the screen. User can send and receive text, photos, links, and documents via chat.
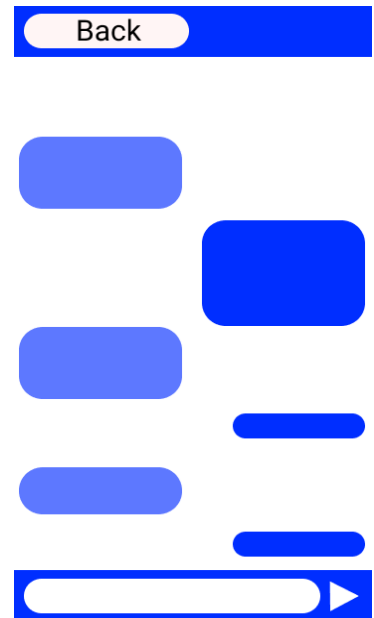
These are the functions that will be working the same as WhatsApp. There are some other functions whose working will be completely different from WhatsApp. WhatsApp group's functionality is almost the same as personal chats with some more additional features like group video call and many more but in our application, we are trying to give these groups a professional and more specifically an educational approach. The name given to this portion is **CLASSROOM**. This Classroom feature will let you perform almost all the task related to studies earlier for which we were using different platforms.

Back

Chat | Classroom

Create Class | Join Class

My Created Class

Existing Classes

Class Name

Class Name

Our Classroom will have following features:

    i. **Create Classroom:** User can create a classroom having a randomly generated unique id.

    ii. **Join Classroom:** User can also join an existing classroom by entering the unique id of the classroom.

If the user have created a class, he/she will have the following privileges:

- User can see the details of those members who have joined the classroom.
- User can upload assignments with deadlines and can monitor the list of students who have submitted it.
- User can upload the quiz which will start at the time given by them. Quiz can be assigned in two ways:
  - Each question will have a time boundation.
 - Overall time limit for quiz.

                          Real time monitoring will be there using quiz.

- User can manage the students. He/She can either add a student or delete a student from the class.

Back

Students Details

Upload Assignment

Upload Quiz

Manage Students Account

Discussion Panel
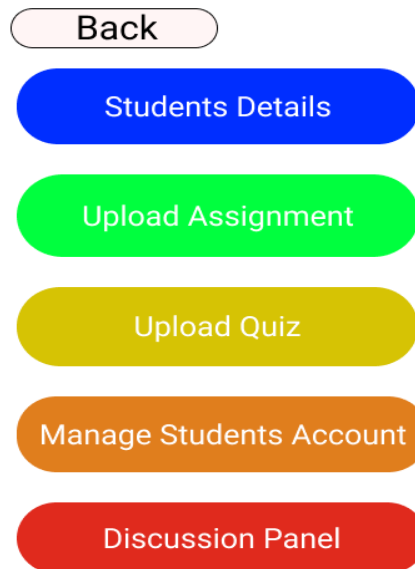
If the user have joined a classroom, he/she will have the following privileges:

- User can see the list of assignments along with their deadlines. One can submit the assignment in the form of photo or document, just by clicking on it.
- User can see the list of quizzes allotted to them by their teacher along with their starting time. One can only attempt the quiz by clicking on it once it has been started by the teacher.
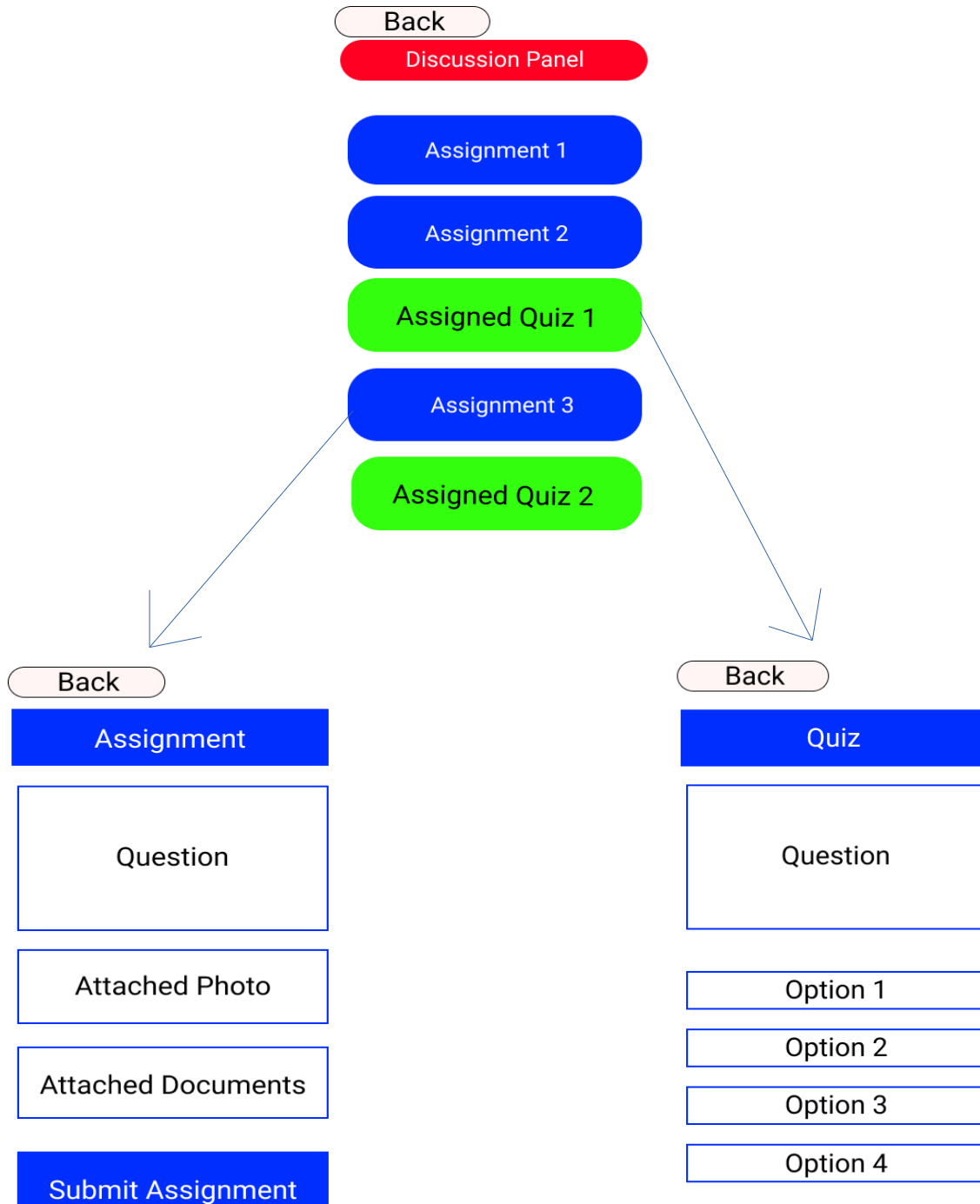
Along with this, there will be a discussion panel which will be open for both Teacher and Students. It will serve two purposes:

- Students can ask their queries and whom so ever knows the answer can respond to that query. A list of query will be displayed in discussion panel from where students can view a query and its answer.
- It can act as Poll. Teacher can launch a Poll in the form of question and students can vote in the form of answer.
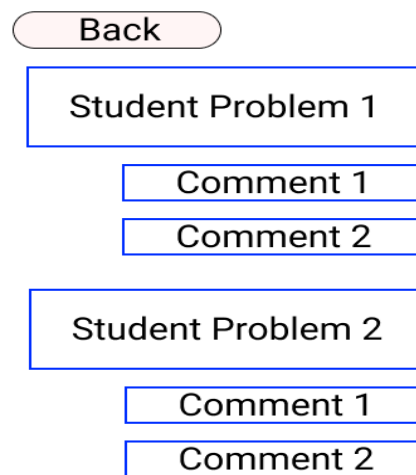
Software Requirements Specification (SRS)

Purpose

However, the purpose of this project is to create a Chat application with educational approach, the objective of this process is as follows:

- To develop a personal messaging solution to enable user to communicate with each other.

- To develop a Classroom panel to enable user to perform educational works inside a single platform, previously for which multiple platforms were required.
- The project should be very easy to use enabling even a novice person to use it.

Functional and Non-Functional Requirements

Category 1 users: Personal chat

**Category 2 users:** Educational Groups (Classroom) admins and users

- **Functional Requirements**
  - Users for category 1 must be able to register application through valid phone number. If user skips this step, application should close and this phone number will be unique identifier for its account.
  - For adding new contacts in category 1 the application should detect all contacts from the user's phone book who have registered on StuFun. If any of the contacts have not yet registered on StuFun, user should be provided with an invite option that sends those contacts a regular text message asking them to join StuFun application.
  - Category 1 user can send instant message to anyone on his contact list and would be notified when message is successfully delivered to the recipient by displaying a tick sign next to the message sent.
  - For attachments users should be able to send images, Documents and links. Supported image formats(JPG,PNG,GIF), document files like word,excel,ppt,pdf will also be supported.
  - Category 1 users must be able to get information on whether the message sent has been read by the intended recipient. If recipient reads the message, 2 ticks must appear next to the message read.
  - Category 2 users will also register to application like category 1 users.
  - An educational group (Classroom) will be created by an admin and he will remain the sole admin.
  - To enter in an educational group invites will be send through StuFun app or through email and users will have a name predecided with their admin.
  - Category 2 users can not send instant messages to other members of Classroom but admin and users will be addressing in a common discussion panel to the group as whole.
  - Assignments can be send to users of Classroom by the admin with a date and time deadline and users can submit their inputs in terms of text and multimedia files.
  - Quizzes with real time monitoring can be organized for users of Classroom by the admin with starting date and time. Users can attempt the quiz once it is started .

- Admin of educational group will also be having functions like live poll through discussion panel and notifications of such will also be managed similar to the likes of schedule reminders and alert.

- **Non-Functional Requirements**
  - **Performance:** It must be able to perform in adverse conditions like ; slow internet speed,low memory and RAM on device,low battery and should provide uninterrupted connections and must have a high data transfer rate.
  - **Scalability :** StuFun should be able to provide instant messaging services to 1 thousand users at any given time and a similar service to 10 educational groups of 100 users each.
  - **Security Requirements and Privacy:** StuFun provides encryption as to prevent unauthorized access to a message midway as it will use a SSL standard encryption to secure data.
  - **Robustness**: In case user's device crashes, a backup of their chat history must be stored on remote database servers to enable recoverability,also they can have auto backup of their data.
  - **Availability:** The StuFun internal sever has to be available 24 hours of the day.
  - **Maintainability:** Only maintainers will be allowed to connect to the internal servers.
  - **Portability and compatibility:** User can easily logout from one device to other with their recent chats easily available though other resources might require some time.Also a large number of android devices will be supported as the app will be light and fast.
  - **Operational Requirements:** Application must work on all mobile and tablet devices. User interface must be consistent on all devices.
  - **Long Term Plans:** Future plans include providing inline document viewer that lets users view pdf and word attachments within the application chat window itself. Further optimizations can be made to improve performance especially over the network. This includes making most network specific requests as non-blocking background processes. We also aim to expand our infrastructure to include more database servers so as to take back up of user data more frequently.

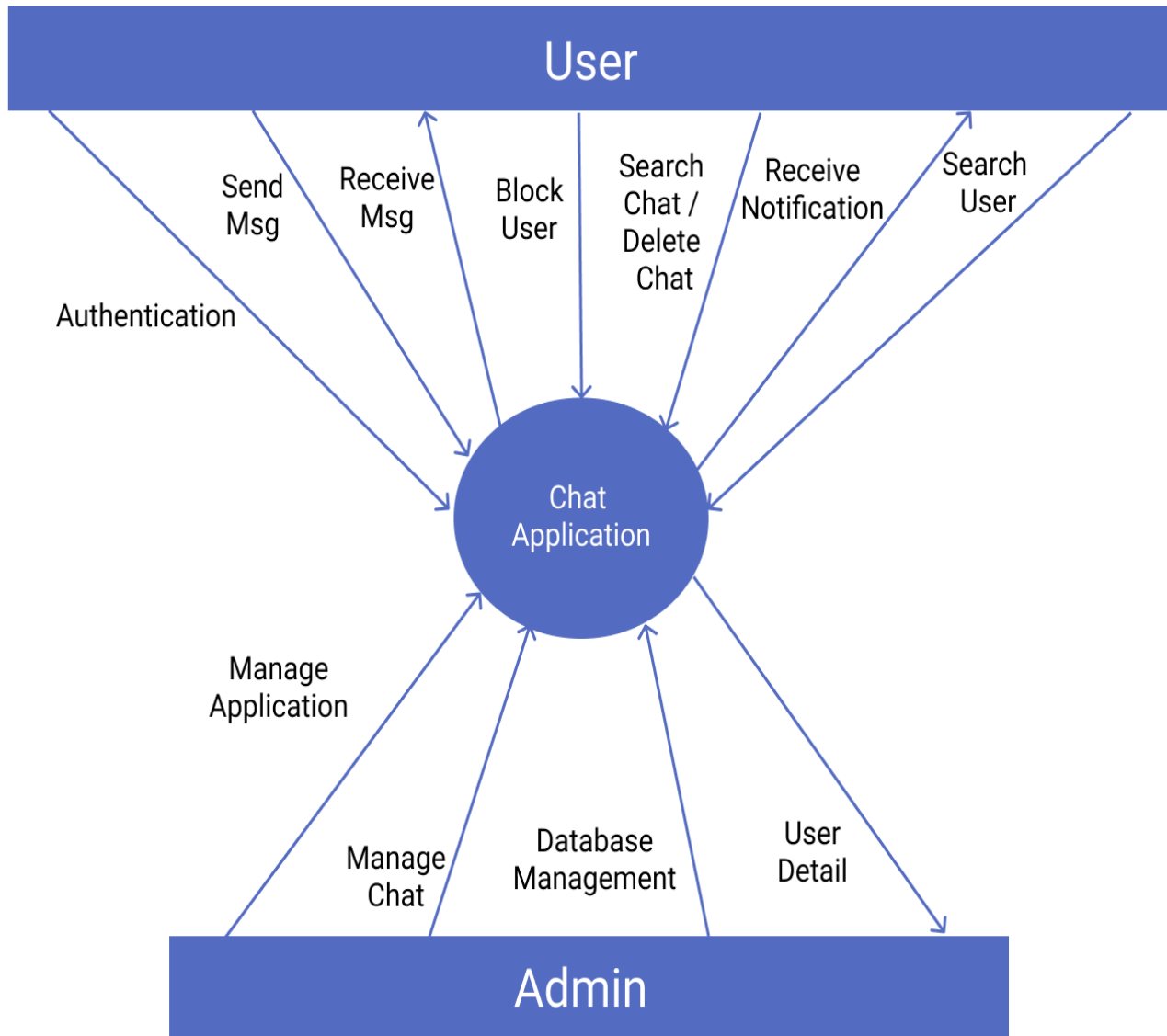# Use Case Diagrams

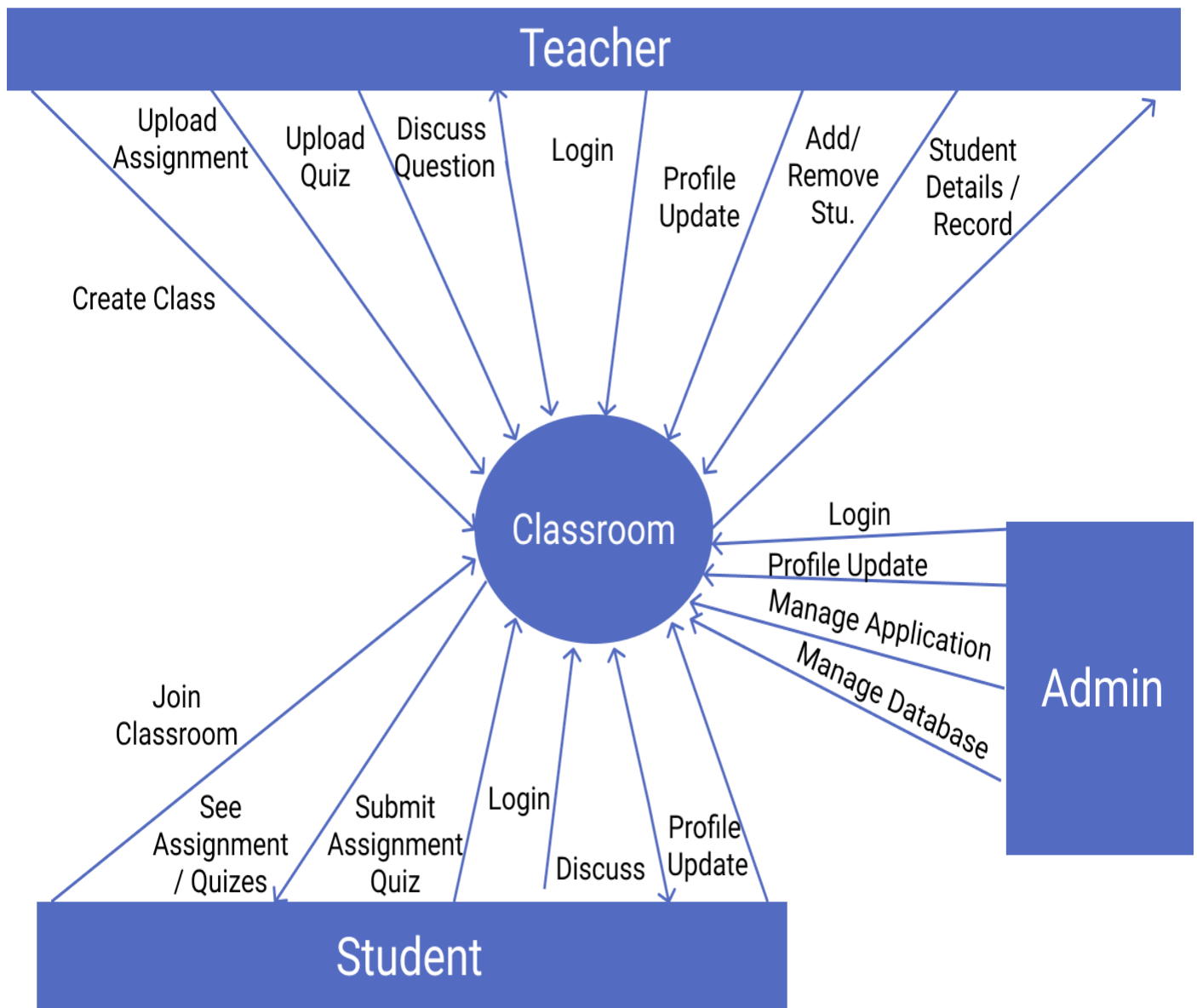## 1. Personal Chat:
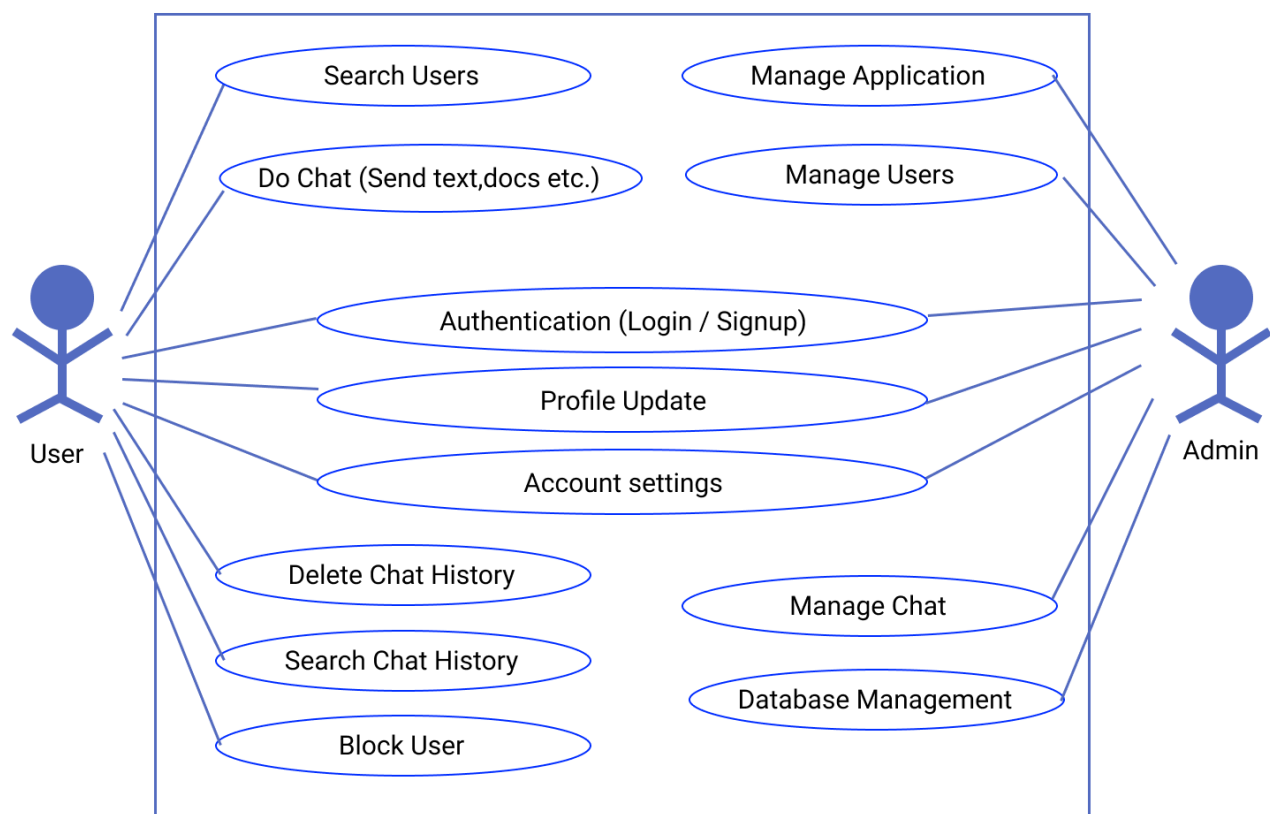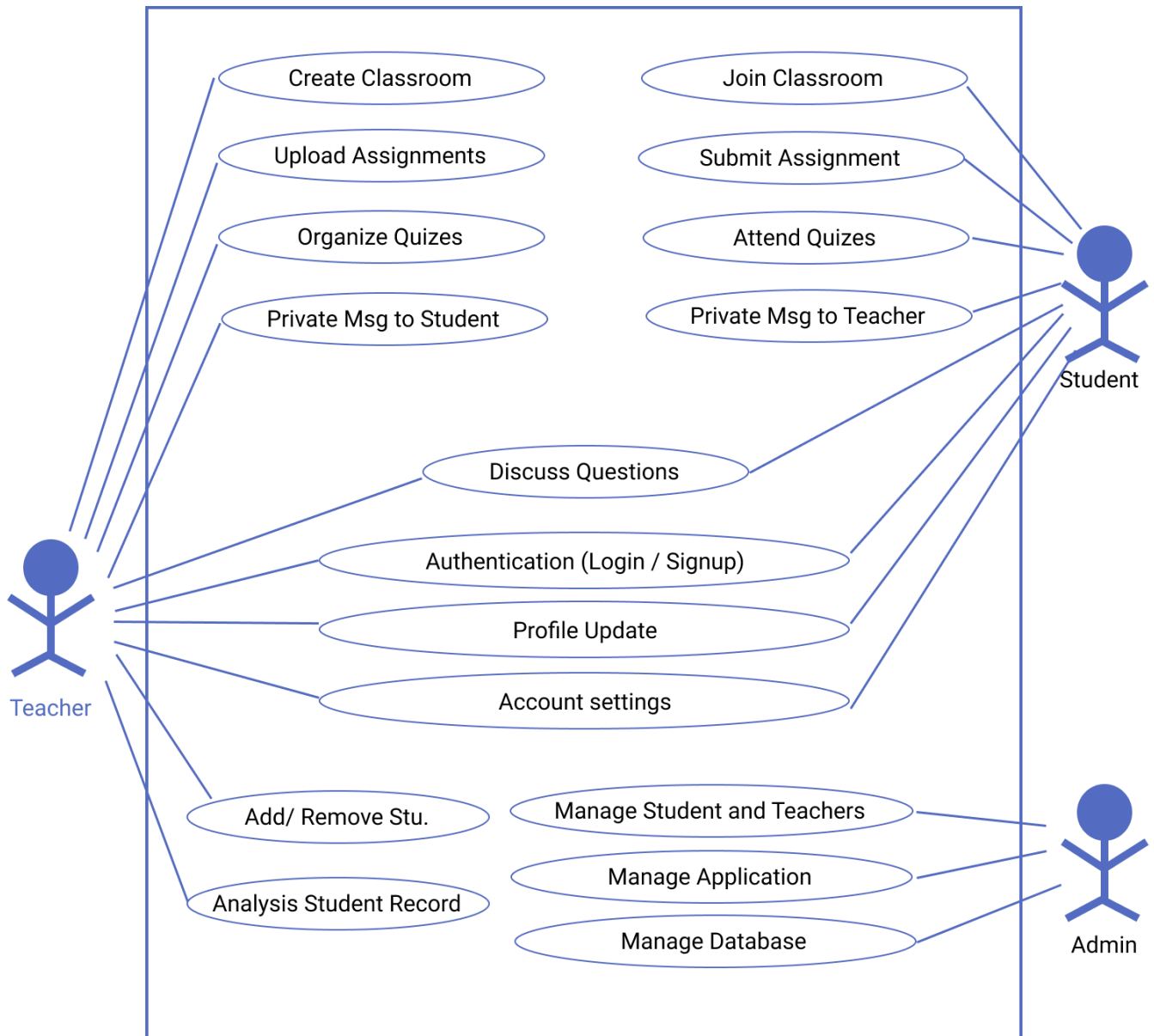
2. Classroom:

Data Flow Diagrams

1. Personal Chat:

2. Classroom:

AGREEMENT CONTRACT

I hereby declare that all the information given in this report is correct and is written by me or a team member. I acknowledge that the contents of this report are not plagiarized, and if it is found otherwise the project mentor has the rights to cancel my/my team's project at any time and could waive my/our rights to warrant a justification.

I also acknowledge that all the future work done in this project would be sincere, honest and would be held to proper standards explained throughout the duration of this project, to me or my team (members) or my team leader by the project mentor.

I recognize that this project is a huge learning opportunity for me as well as my team members and I would do my utmost to not put any stakeholders in a position of jeopardy or cause problems/worries/delays, with/without justifiable intent or reason from my side for that matter.

I understand that the stakeholders in this project would be putting in a lot of effort and time that would ultimately benefit everyone. I agree to acknowledge and respect the virtues of my team and my mentor and understand that they would as well in return.