
Design Document

for

Campus Unlocked

Version 0.1

Prepared by

Group #: 10

Group Name: Coding Mavericks

Name	Roll No.	Email
Abhi Jain	210024	abhijain21@iitk.ac.in
Hardik Agrawal	210404	hardikag21@iitk.ac.in
Lakshvant Balachandran	210557	lakshvant21@iitk.ac.in
Anupam Chaudhary	210170	anumpamc21iitk.ac.in
Shishir Gujarey	210977	shishirg21@iitk.ac.in
Mansi Sodani	210591	msodhani21@iitk.ac.in
Aryan Maurya	210202	aryanm21@iitk.ac.in
Rishabh Arijeet	210842	rishabh21@iitk.ac.in
Ashutosh Kumar	210221	ashutoshk21@iitk.ac.in
Harshal Ujjaliya	210417	harshalu21@iitk.ac.in
Govindu Sathwik Reddy	210396	gsreddy21@iitk.ac.in

Course: CS253A

Mentor TA: Anirudh

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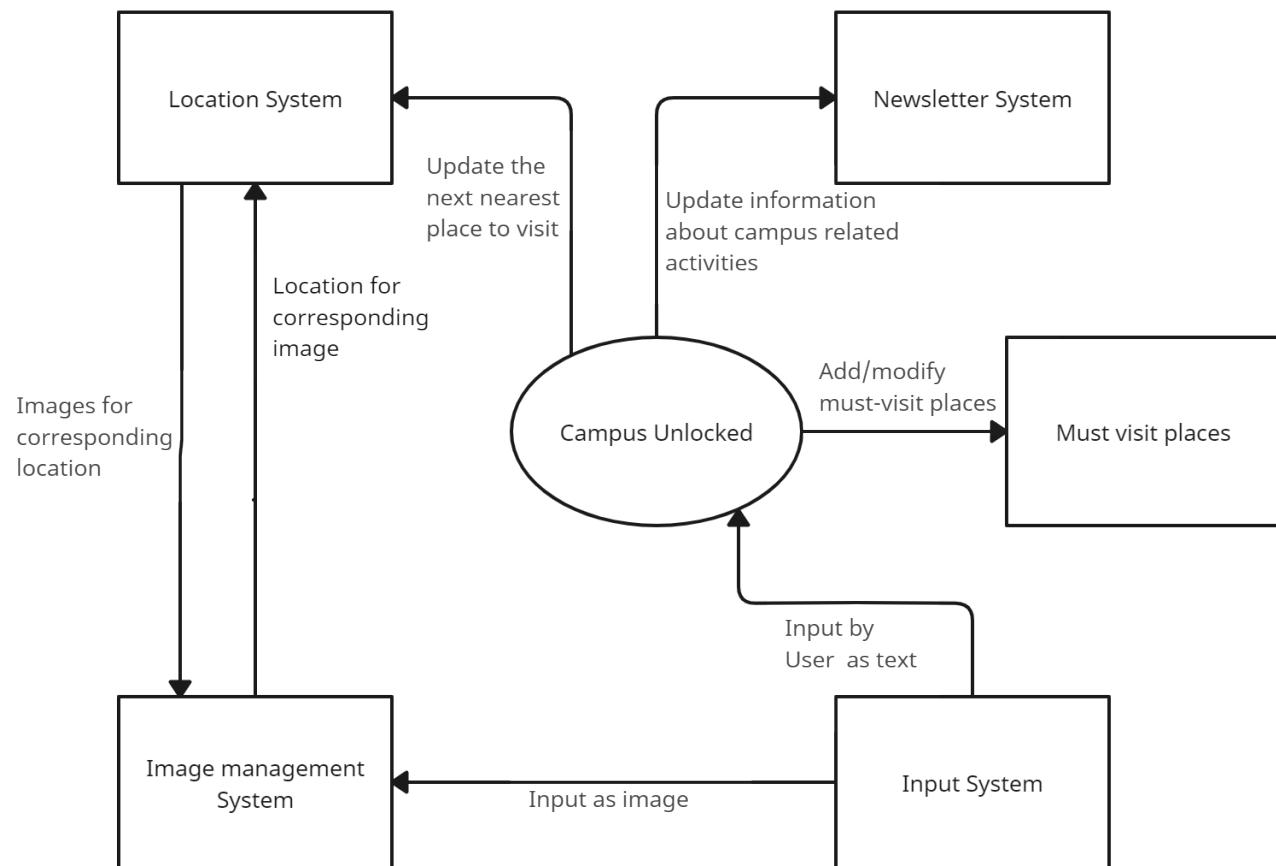
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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1	Abhi Jain Harshal Ujjaliya Hardik Agarwal Mansi Sodhani Aryan Maurya Rishabh Arikeet Shishir Gujarey Lakshvant Balachandran Anupam Chaudhary Ashutosh Kumar Govindu Sathwik Reddy	First Draft	10/02/2023

1 Context Design

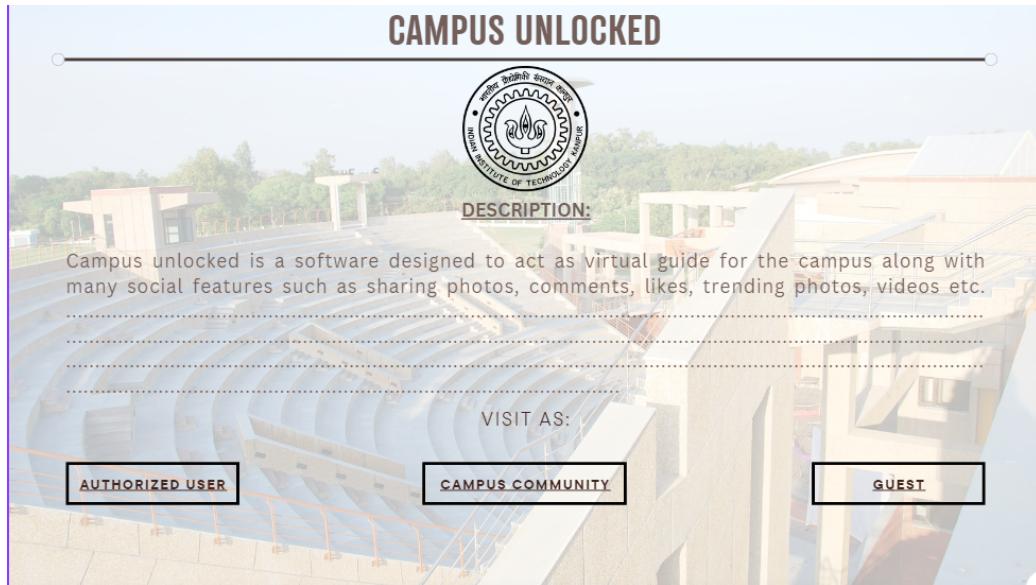
1.1 Context Model



1.2 Human Interface Design

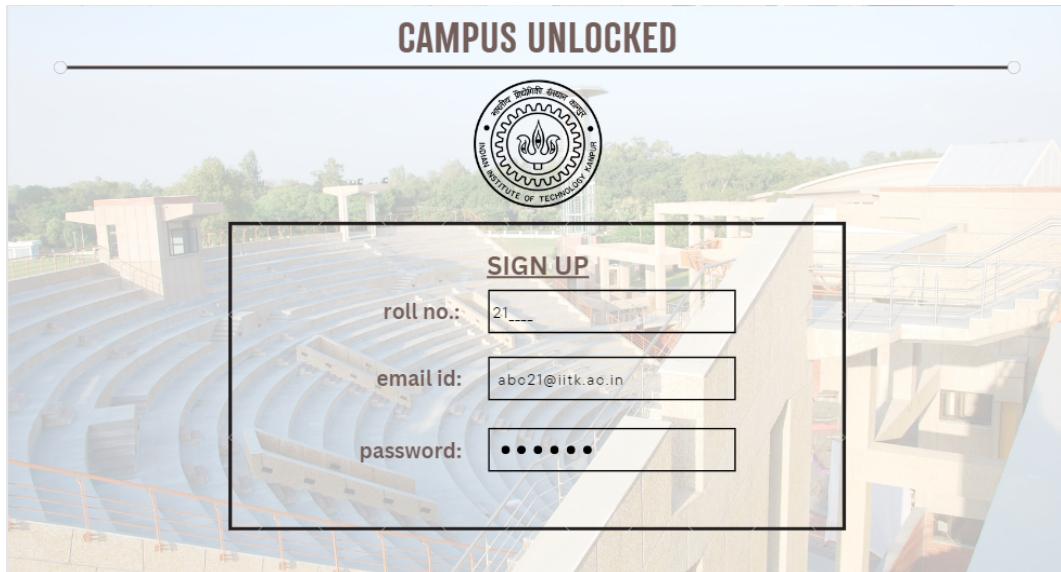
There are eight interfaces in our website, each having its own utility. Each interface is meant to be used for either guest users or registered users. The interface design of campus unlocked with all eight interfaces is given below.

Home Page



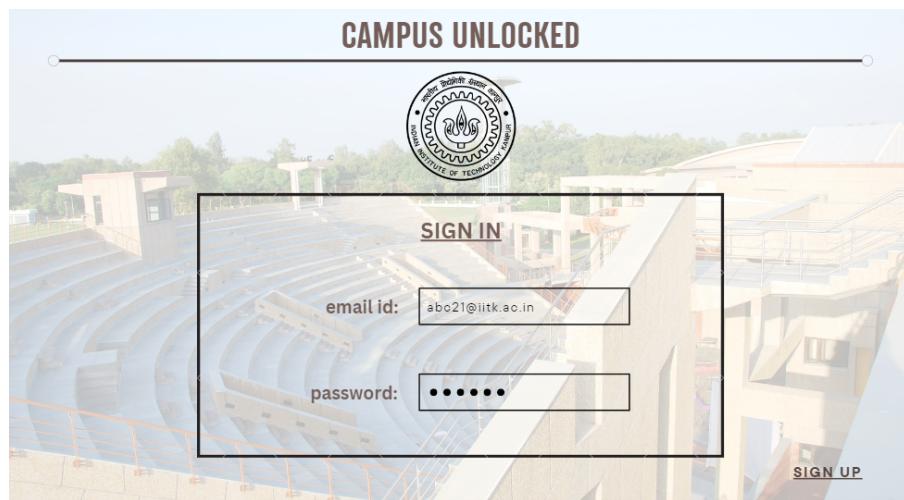
This page differentiates between different types of users, whether you are an authorized user, guest or of the campus community. Users must log in/create an account via their IITK mail Id and a password or can access this as a guest but with restricted features.

Sign-up



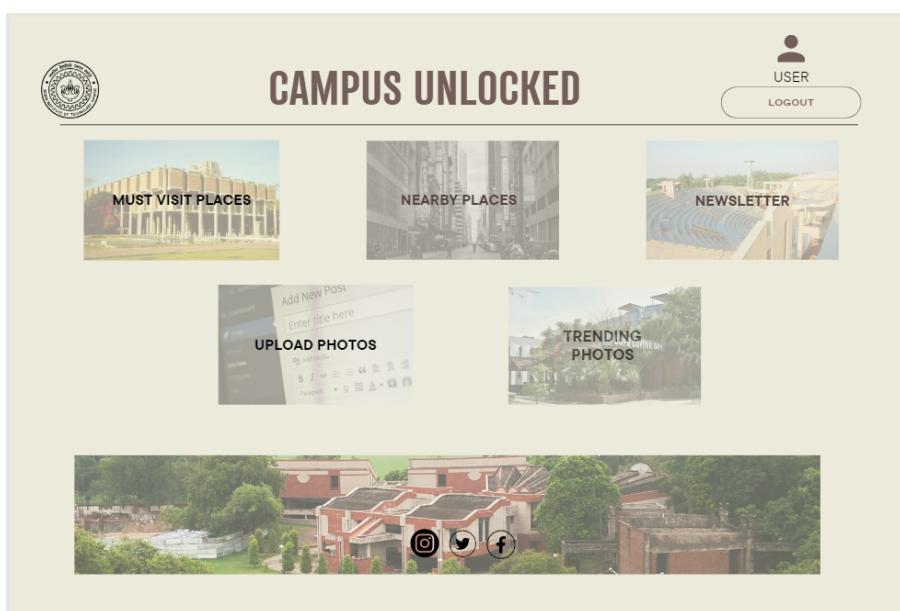
New users have to create a new account via IITK email-id. While creating an account the user will receive an OTP on his/her IITK email ID which would be used for verification.

Sign-In



Registered users have to sign in using their email-id and password.

Main-Webpage



Nearby-Places

The nearby places webpage would have an input box for the current location of the user. From that input, the user will see a list of boxes for each location near the input. This would contain all the details of the location. The details of the location would contain the timing, the

map link, permissions and the description.

The screenshot displays the 'Nearby Places' section of the 'CAMPUS UNLOCKED' application. At the top, there's a circular logo on the left, the title 'CAMPUS UNLOCKED' in the center, and a user icon with the word 'USER' on the right. Below the title, it says 'Nearby Places'. Underneath, it shows the current location as 'Library'. There are three numbered cards: '01 CCD' (with a photo of a modern building), '02 LHC' (with a photo of a brick building), and '03 Shiru Cafe' (with a night photo of a cafe). Each card includes a 'Learn More' button at the bottom.

Must Visit Places

The must visit places webpage would contain a list of top 5 authorized user fed locations in Boxes, with each box containing all the details of the given location. The details of the location would contain the timing, the map link, permissions and the description.

The screenshot displays the 'Must Visit Places' section of the 'CAMPUS UNLOCKED' application. At the top, there's a circular logo on the left, the title 'CAMPUS UNLOCKED' in the center, a search bar, a 'Homepage' button, and a user icon with the word 'USER' on the right. Below the title, it says 'Must Visit Places'. There are five boxes, each containing a circular image and a detailed description of a location: 'OAT' (IIT Kanpur provides rooms for all the clubs of Students' Gymkhana in its Students), 'Lecture Hall Complex' (IITK has world class lecture halls equipped with latest technology), 'P.K. Kelkar Library' (IITK has world class lecture halls equipped with latest technology), 'Rajeev Motwani Building' (Rajeev Motwani building is one of the two CSE dept buildings.), and 'Airstrip' (Airstrip is one of the specialities of IITK. It is the only airstrip owned by an educational institute in India).

Newsletter

The newsletter webpage would contain all the list of events taking place in the near future on campus along with its description. This would have no option of user interaction.

Event	Date	Venue	Time
Antaragni	01/01/23	Auditorium	14:00-16:00
Udghosh	01/01/23	Hockey ground	14:00-20:00
Techkriti	01/01/23	Audi	14:00-20:00
Events	02/01/23	OAT	13:00-18:00

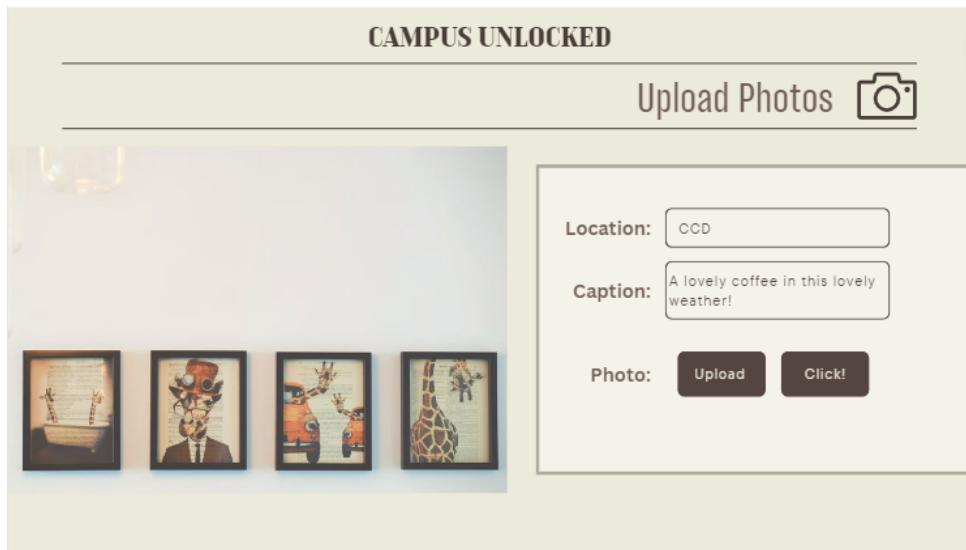
Trending Photos

The trending photos web page would contain the top few liked images along with the location and the name of the person publishing it. It would also give the user an option to like, comment or report below the image.

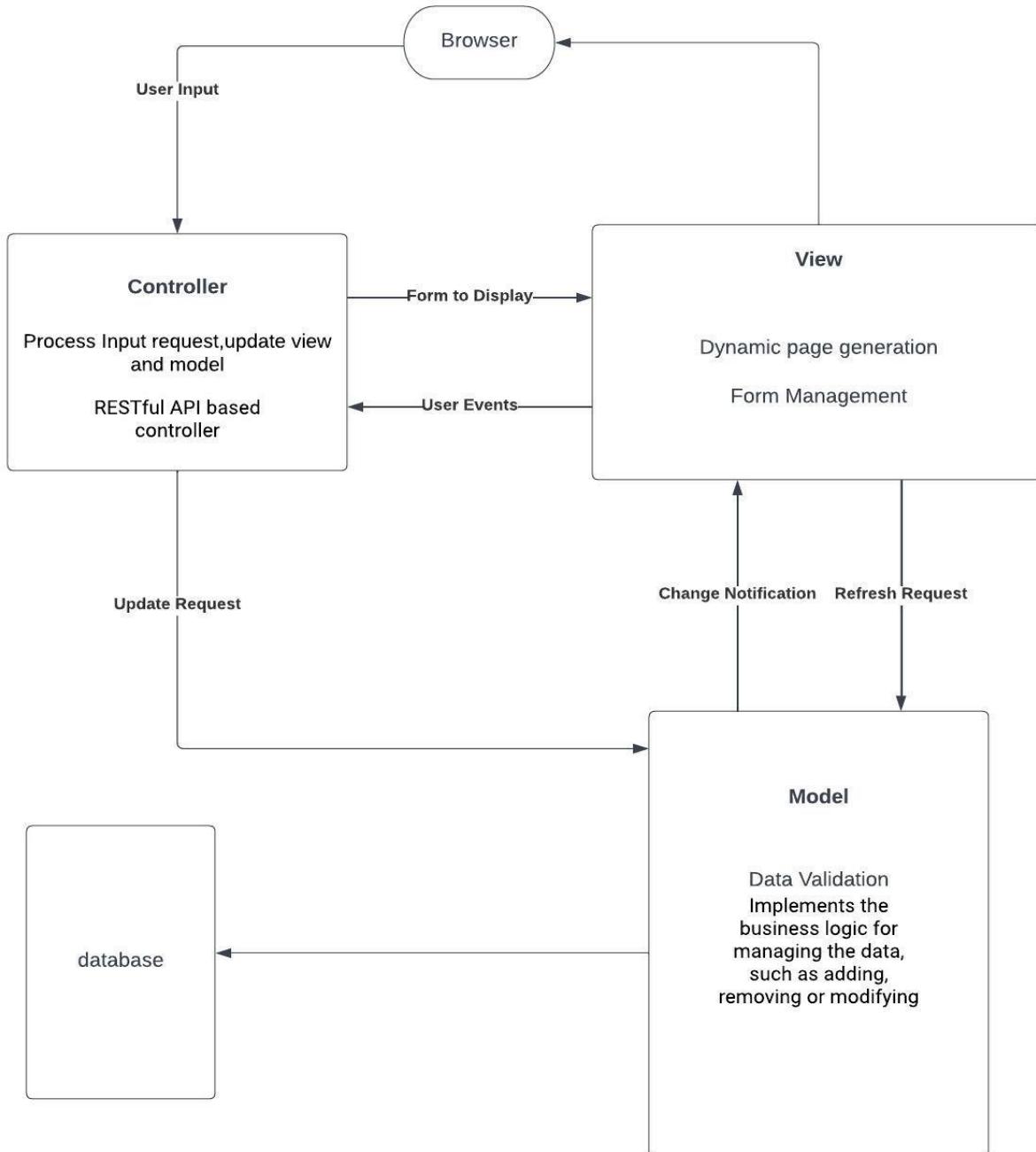
Photo Location	Photo Name	Action
library	library	like
CCD	CCD	comment
Mama Mio	Mama Mio	like
RM	RM	comment
DOAA	DOAA	comment

Uploading photos

The Upload photos webpage would give the user an option to upload photos by either clicking or uploading. Here, the user is supposed to enter the location of the photograph, the caption and the photograph itself.



Campus Unlocked is implemented using the model view controller described as follows-



Brief description of function of different components:

Model and Database:

- Holds the data for the application, such as user id, events , campus location , images etc.The data model is described in detail below.

- Implements the business logic for managing the data, such as adding or removing courses from the student's schedule.

View:

- Renders the data from the Model in a user-friendly format, such as a web page.
- Receives user inputs, such as selecting a course or changing the student's personal information.

Controller:

- Acts as an intermediary between the Model and the View.
- Receives user inputs from the View, processes them, and updates the Model accordingly.
- Updates the View with the latest data from the Model.

Data Model:

- User: This is the central entity for the app and consist of attributes like user id, name, email, password, profile picture, and role (student, faculty, or admin).(static data type)
- Campus locations: This entity will store information about the campus location and could include location no, location name, description, and the images linked to the particular location.(static data type)
- Images,comments and likes: This entity will store all the images and will be linked to respective locations,comments and likes.(dynamic data)
- Event: This entity will store information about events happening in the campus, such as event id, event name, event description, event date, and event location.(dynamic data)
- Notification: This entity will store notifications for the users, such as notification_id, notification_title, notification_message, and date.

Why are we using this: The Model-View-Controller (MVC) architectural pattern is a good fit for the Campus Unlocked app because it provides a clear separation of concerns. This separation of concerns makes it easier to maintain and extend functionalities of the app over time, as well as make it easier to test individual components in isolation. Additionally, the MVC pattern is widely adopted and well understood for web app development, making it easier to for naive developer like us.

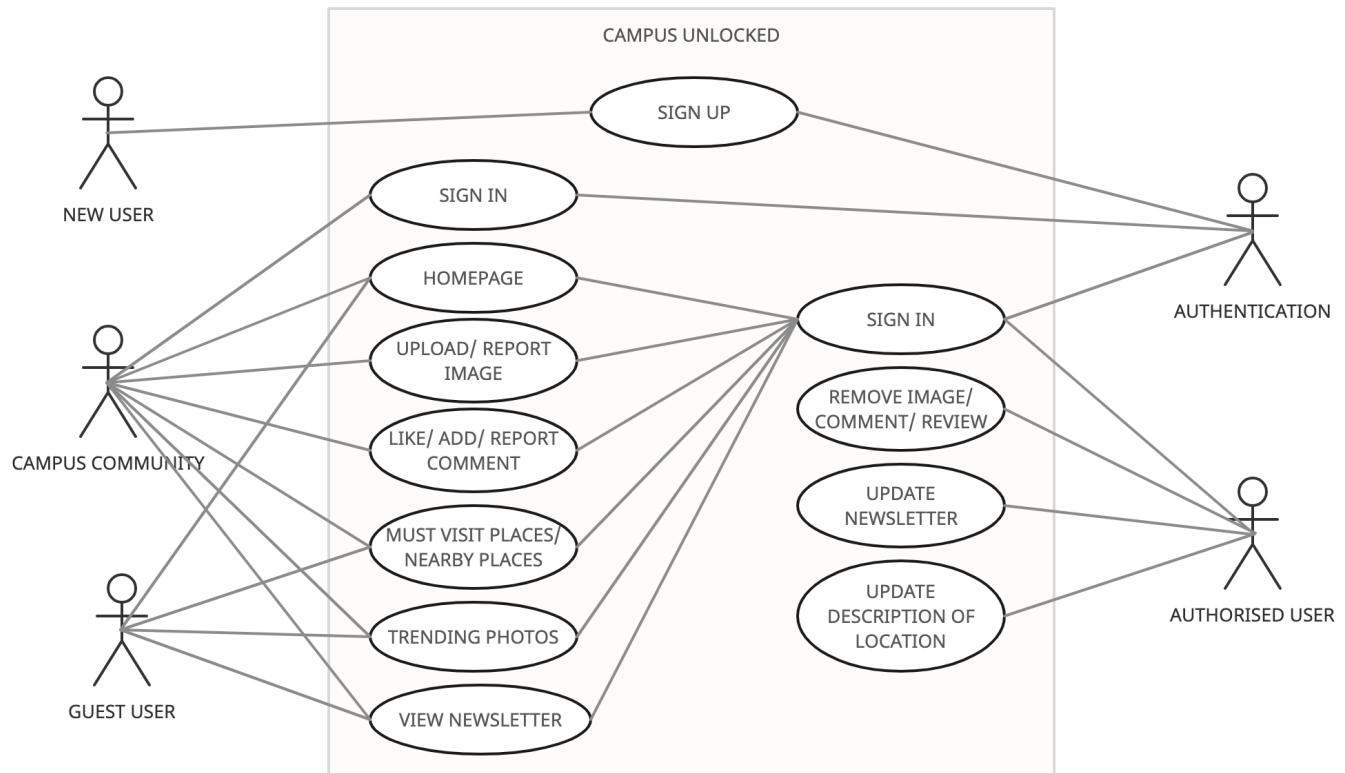
Disadvantages: One disadvantage is that we need to write some additional code for full functionality, even if we know that our implementation is simple in the starting stages.

3 Object-Oriented Design

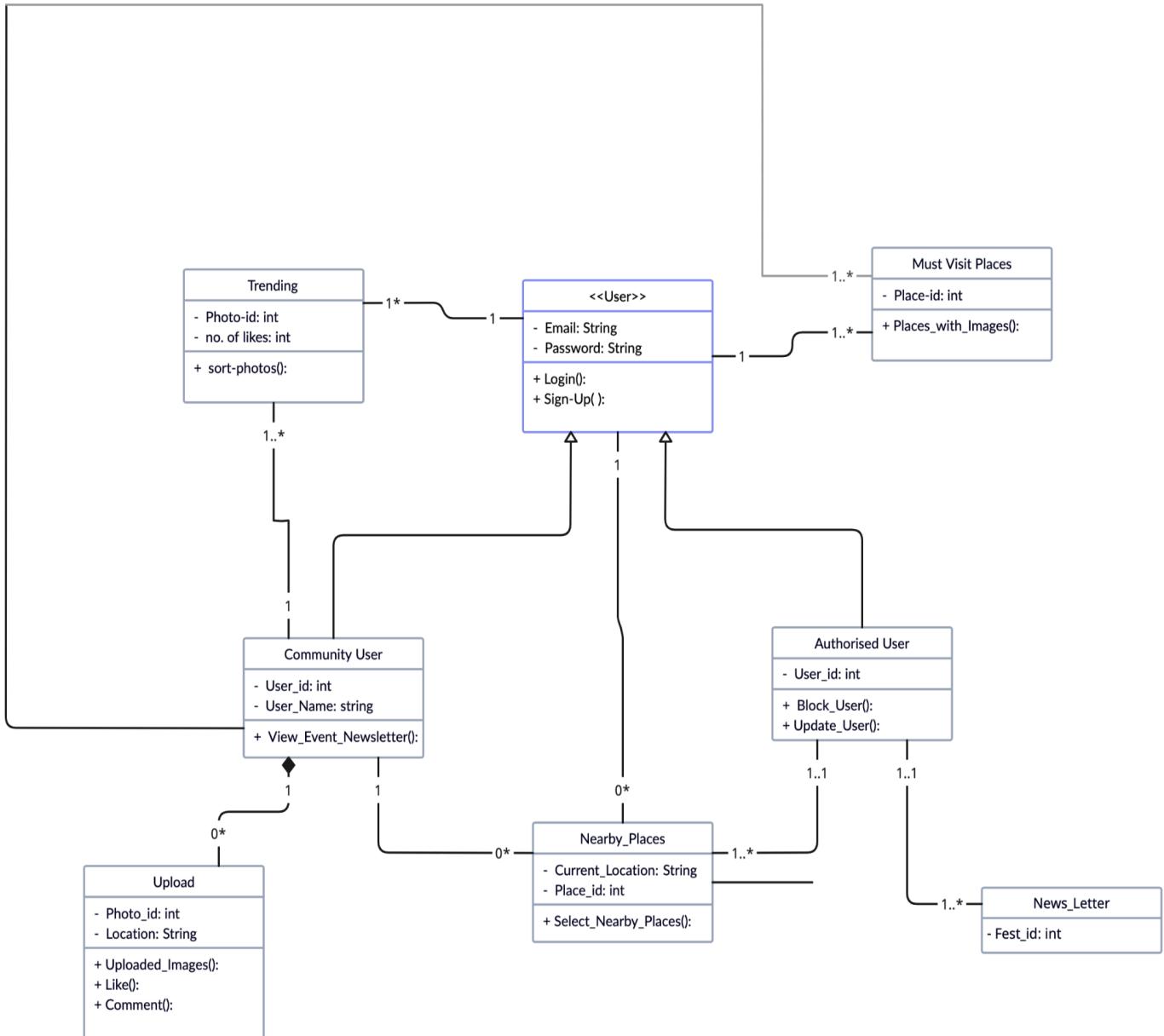
3.1 Use Case Diagrams

We have given a consolidated diagram showing different use cases provided:

- User registration/sign-up using IITK credentials.
- Must visit places and nearby places, short descriptions and photos.
- Uploading images, adding comments, like the photo.
- View newsletter and update.
- Top photos of the week.

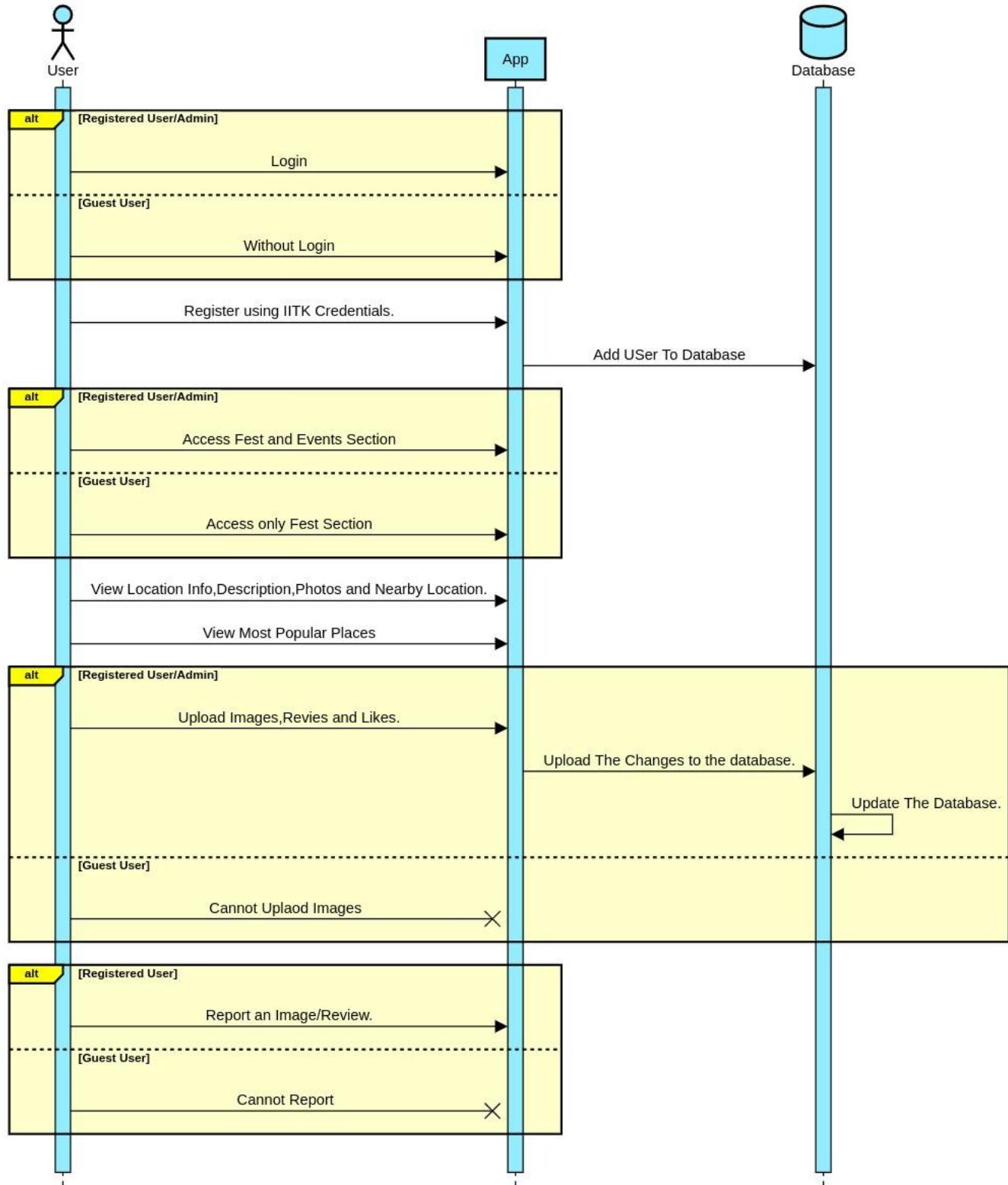


3.2 Class Diagram

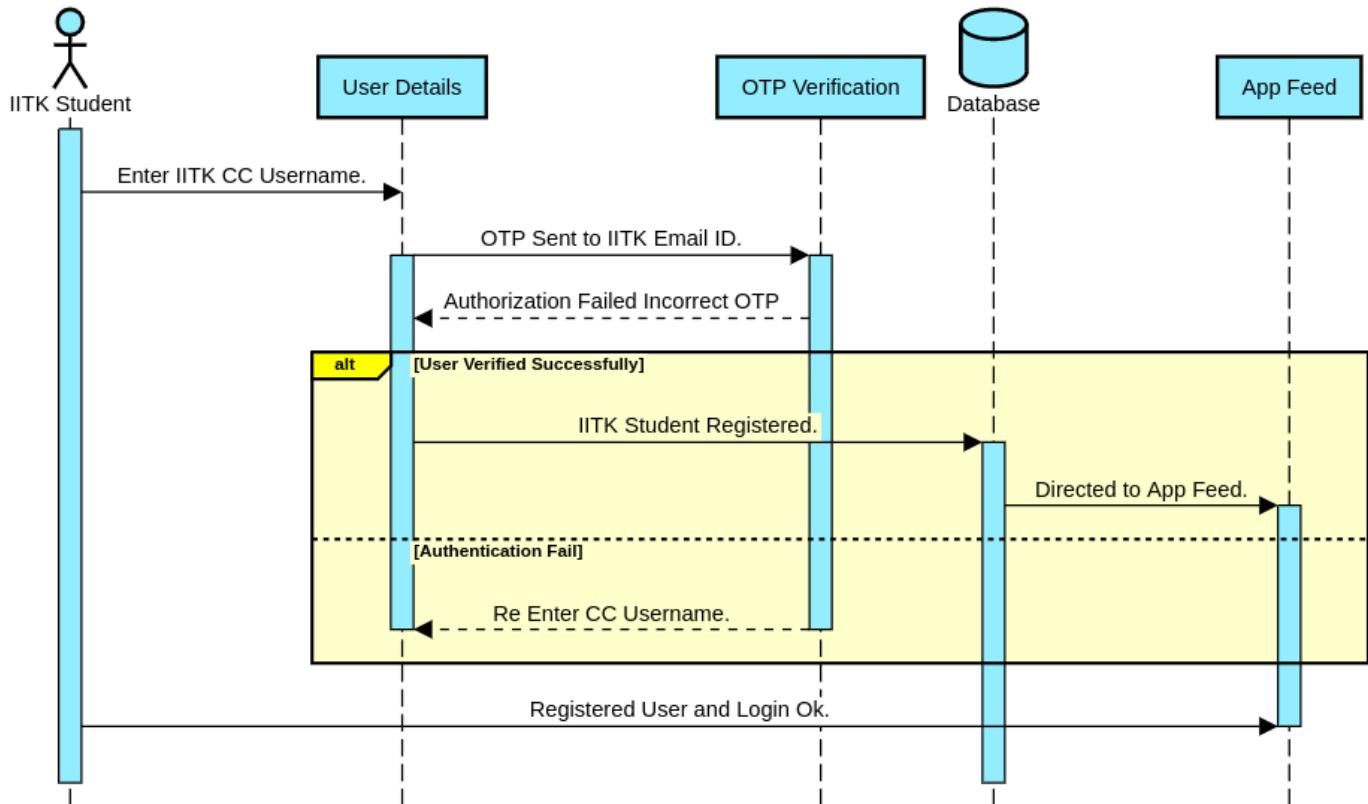


3.3 Sequence Diagrams

- Overall Sequence Diagram:

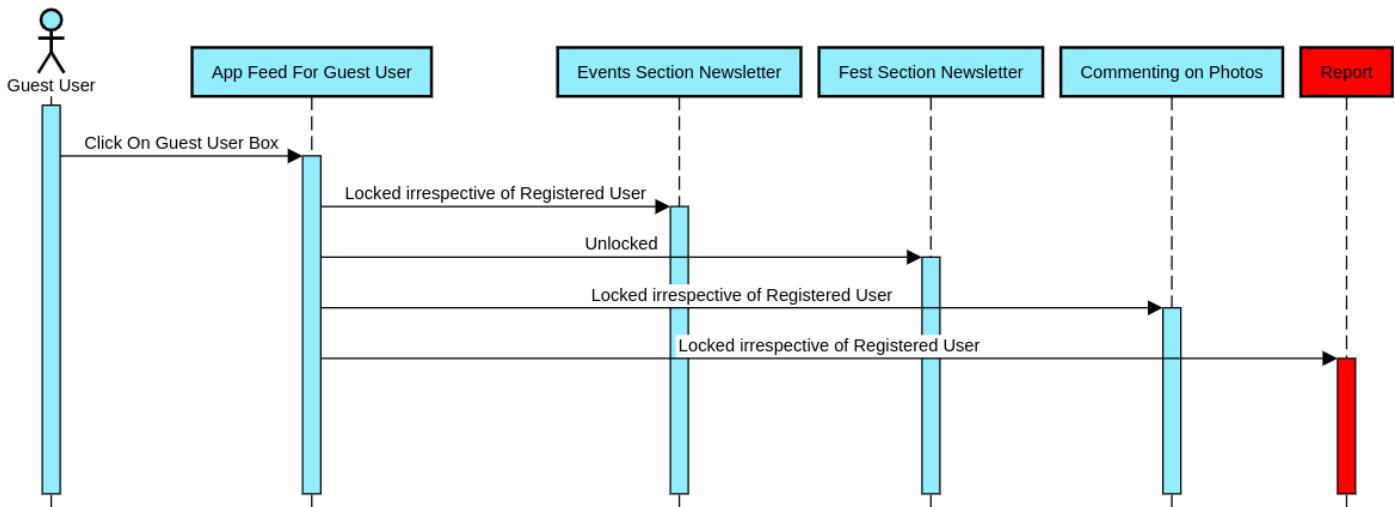


1. Register

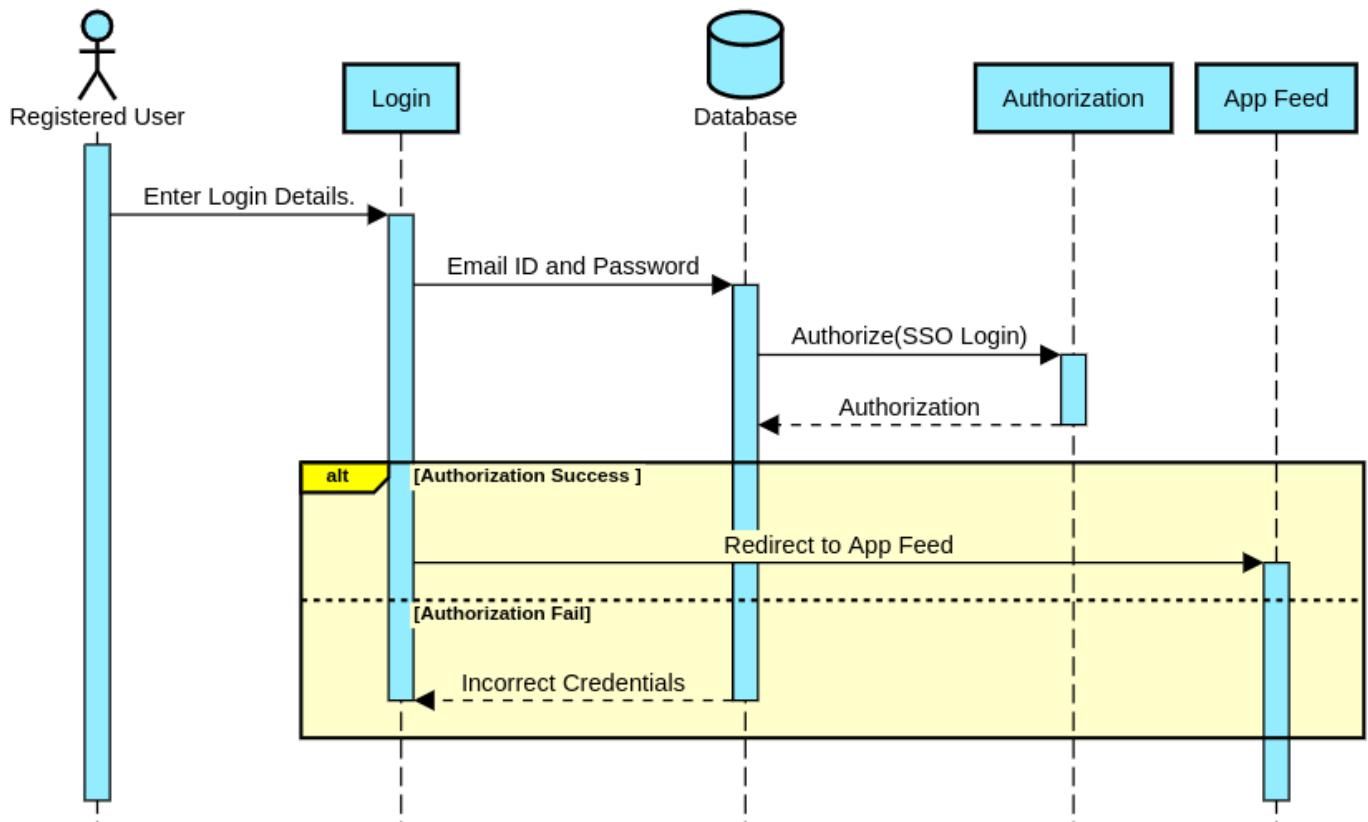


2. Login

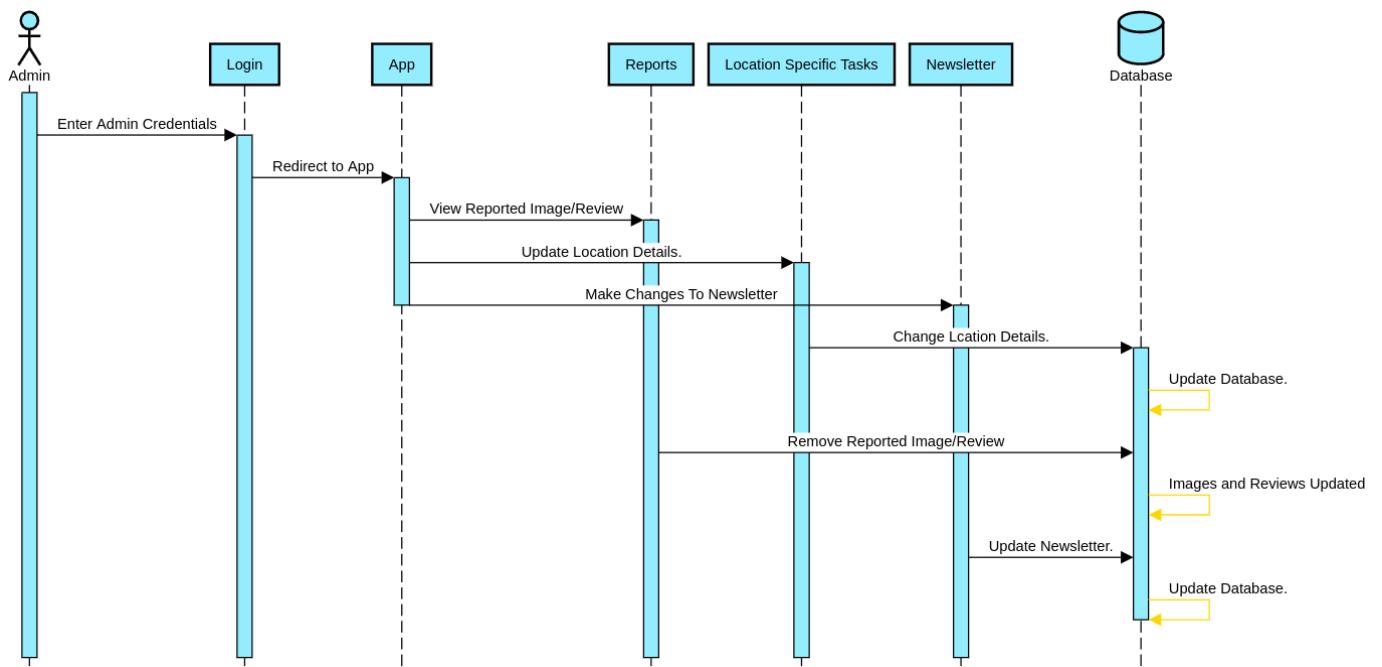
a. Guest User



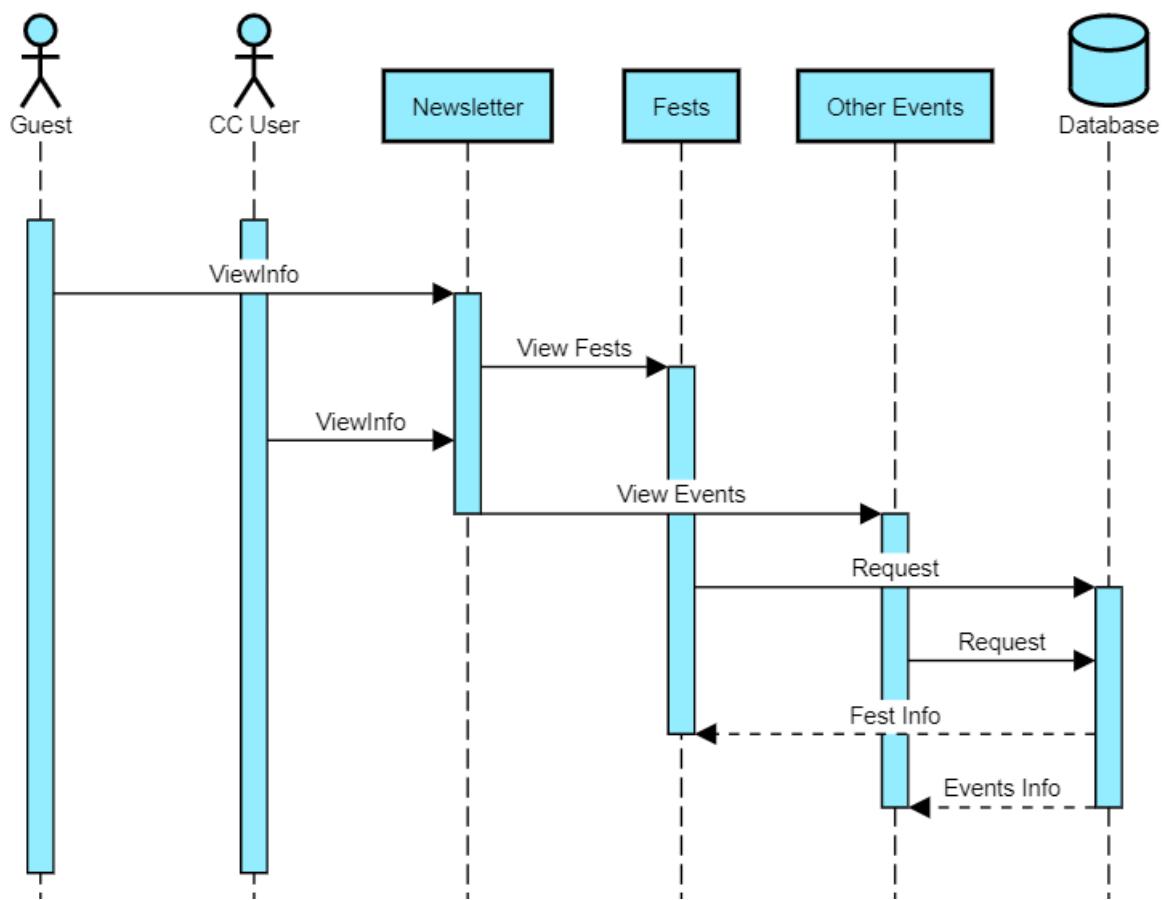
b. Registered User



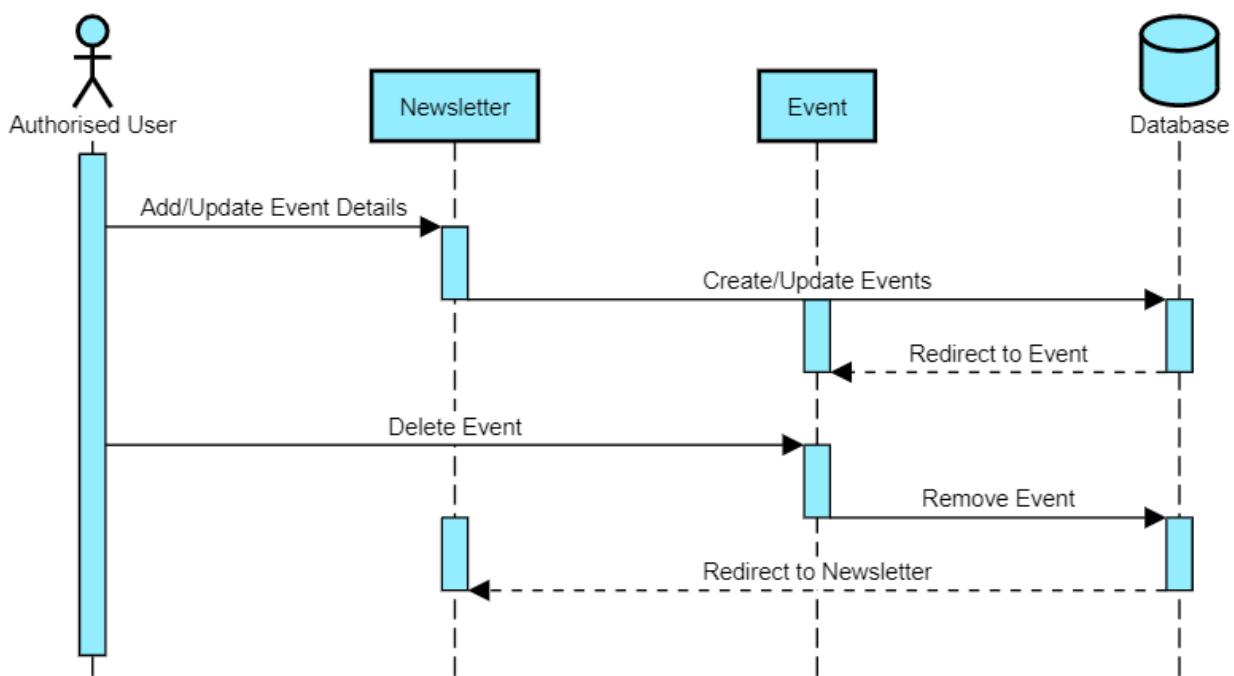
c. Authorized User



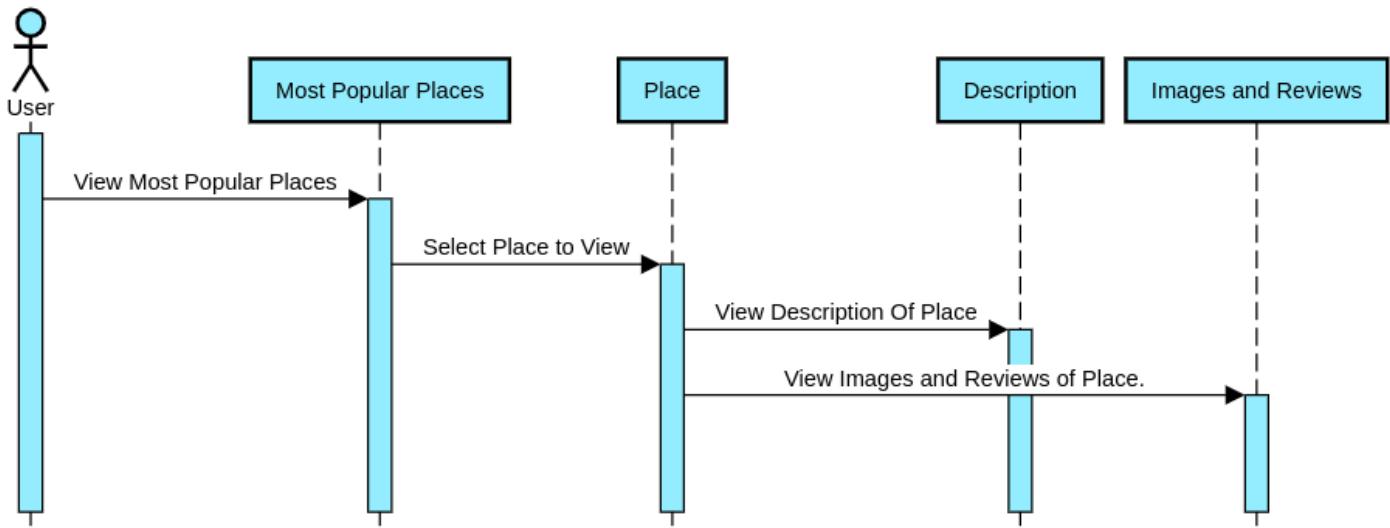
3. View Newsletter



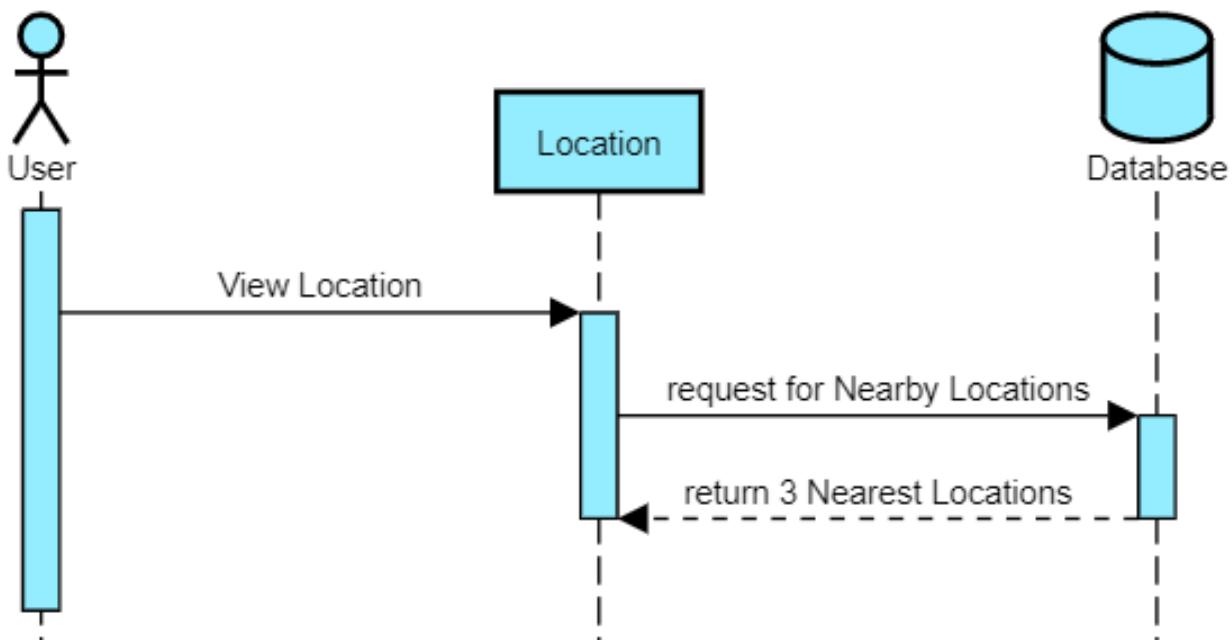
4. Edit Newsletter



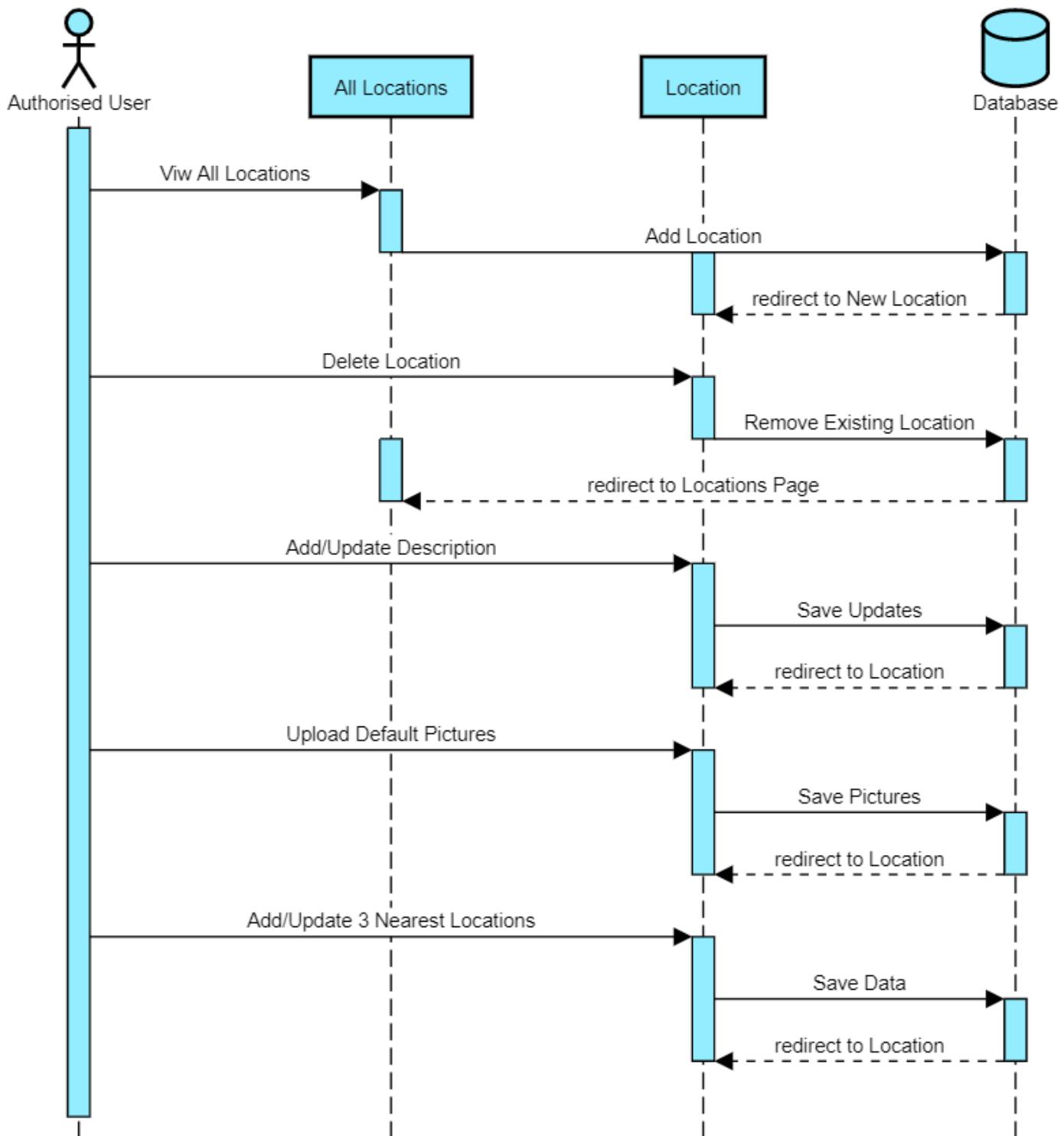
5. View Must Visit Places



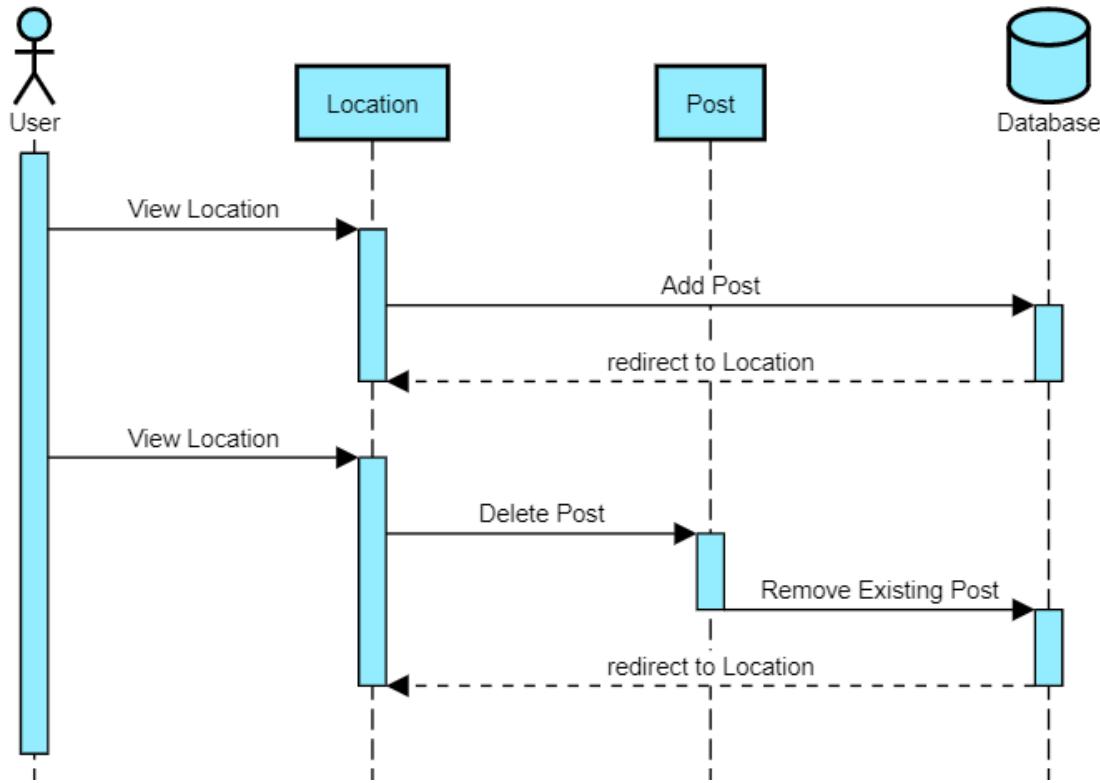
6. View Nearby Locations



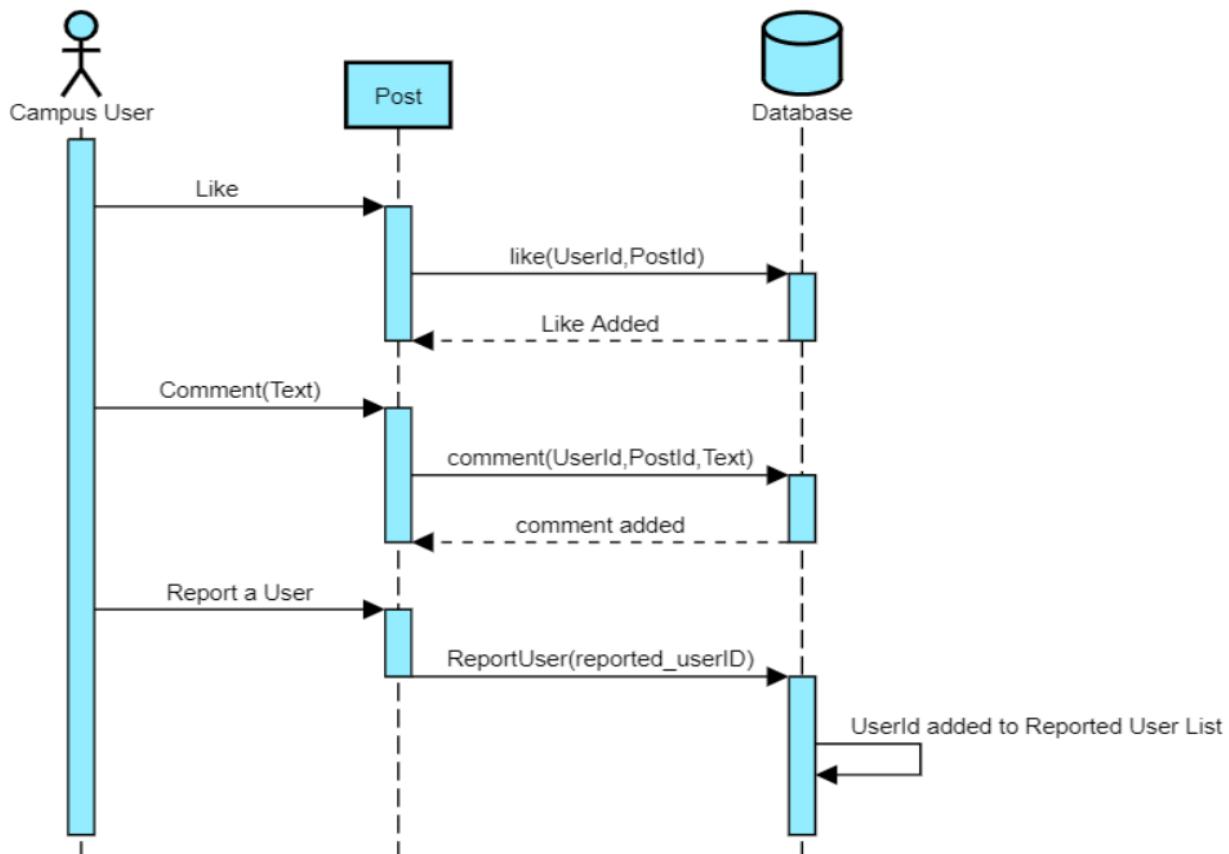
7. Location Specific Tasks



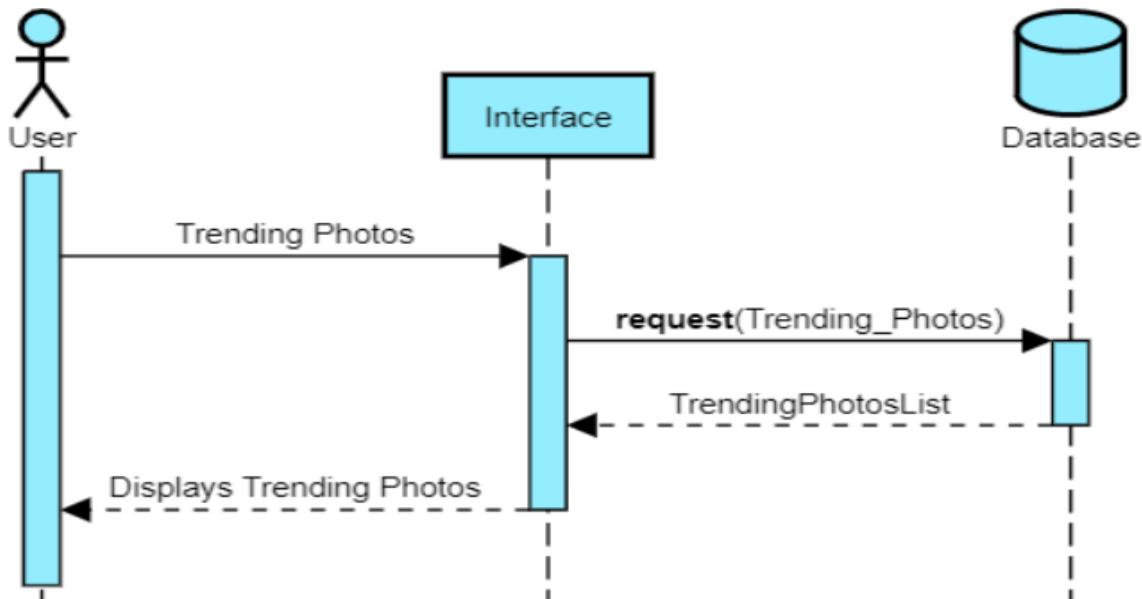
8. Posting a Photo/View Location



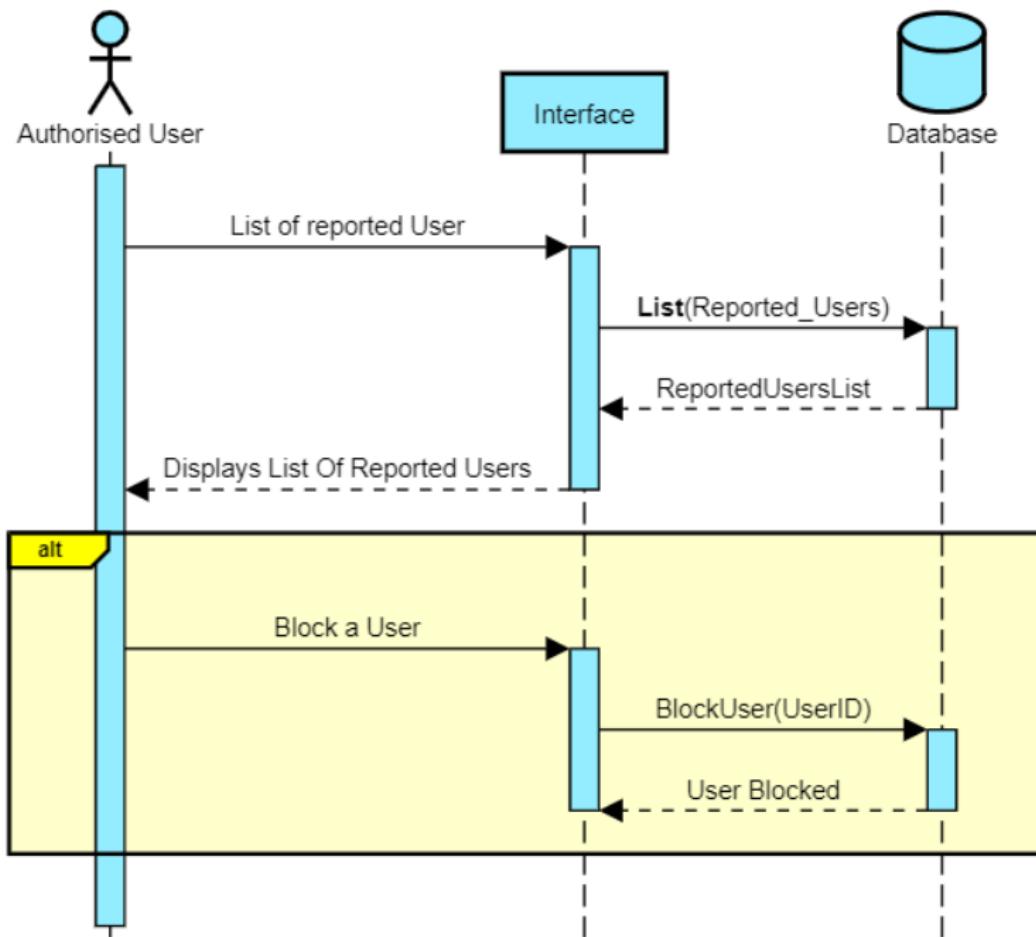
9. Like, Comment, Report



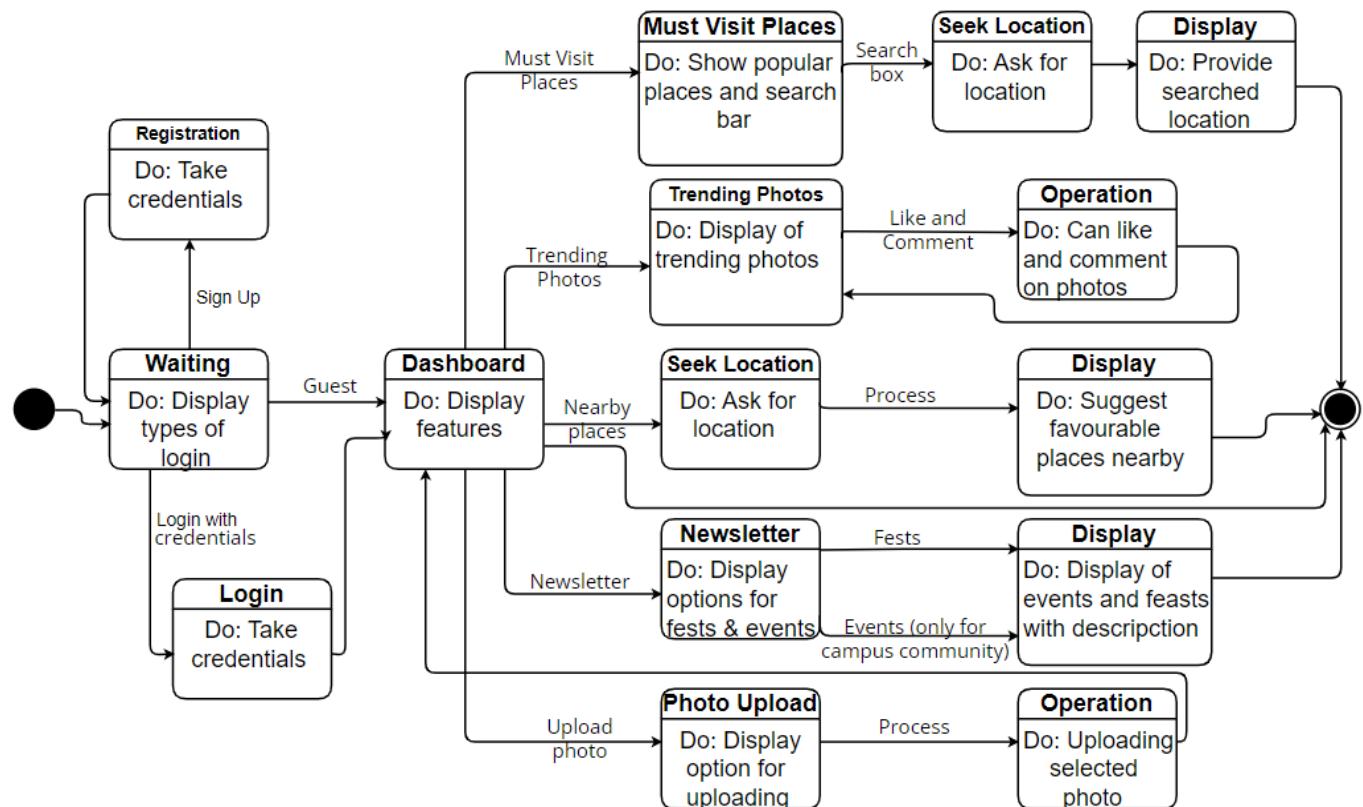
10. View Most liked Pictures



11. Block a User



3.4 State Diagrams



STATE	DESCRIPTION
Waiting	Website is waiting for user to select login type. The Display shows types of logins and sign-up option.
Registration	Website takes the required credentials for registering a new account.
Login	Website takes the credentials and login. If the credentials are of an Authorised user, then he will get access to edit data.
Dashboard	Displays the activities user can perform (some will get access to additional options based on credentials) and waits for user to select an option.
Must visit Places	Displays Must visit Places and search bar to search place of interest.
Trending Photos	Displays Trending Photos of the week based on likes.
Seek location	Ask the location of the user or location which he wants to search about
News letter	Displays two options fests and events (events will blocked for guest users) and waits for user to select an option.
Photo Upload	Asks the user for photo and caption which he wants to upload.
Operation	Performs the operation based on inputs such as uploading photo or like, comment

STIMULUS	DESCRIPTION
Display	Displays the photo with caption(description) or Information about the events, fests and also shows options to like or comment (if applicable)
Sign up	The user has pressed sign up button.
Login with credentials	The user has opted to Login with credentials
Guest	The user has opted to guest login
Must visit Places	The user has selected to go to Must visit places section.
Trending photos	The user has selected to go to Trending photos section.
Nearby Places	The user has selected to go to Nearby places section.
News Letter	The user has selected to go to News Letter section.
Upload Photo	The user has selected to go to Upload Photo section.
Search Box	The user has selected to search place of interest.
Like and comment	The user has liked or commented on Photo.
Process	Initiating the user request
Fests	The user has selected information about Fests option
Events	The user has selected information about Events option

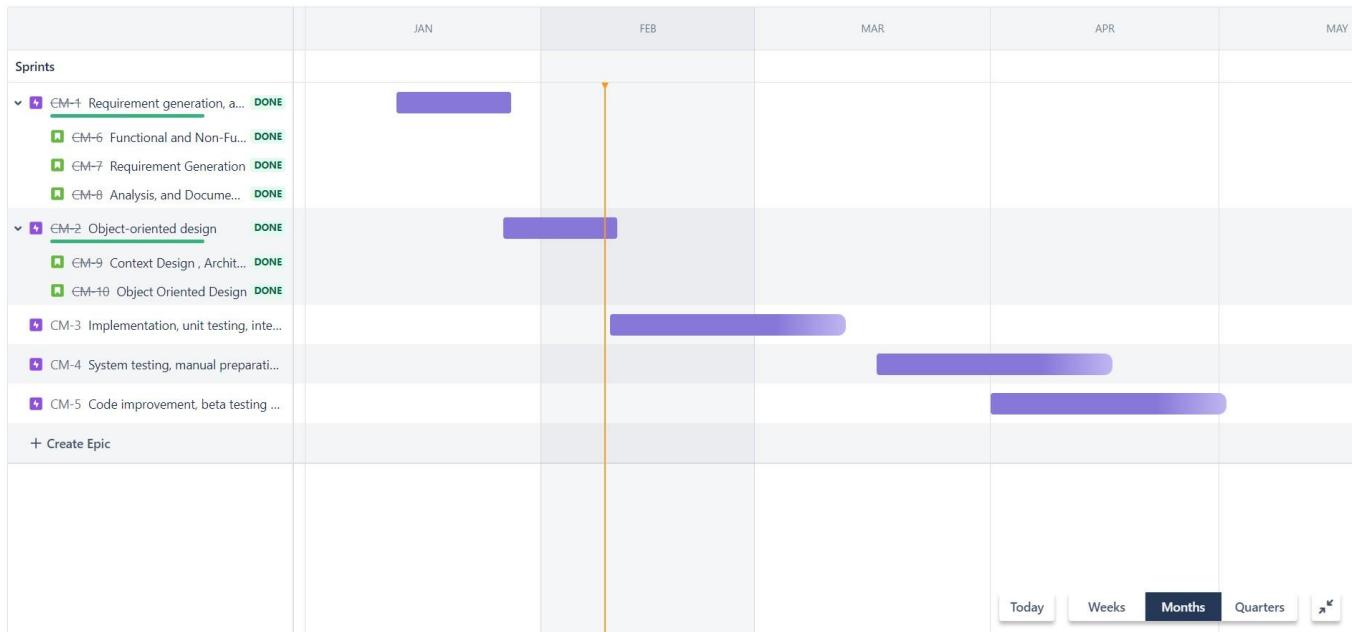
4 Project Plan

4.1 Timeline of the development of Campus Unlocked:-

1. 13th January 2023 - 27th January 2023: Documentation of Software Requirements Specification (SRS).
2. 28th January 2023 - 10th February 2023: Documentation of Software Design Documentation.
3. 11th February 2023 - 17th March 2023: Implementation and Testing:- Member wise classification of tasks as well as the required software is given below. Major tasks including writing the source code, designing the web page, making and testing unit as well as integrated test cases would be done during this time. Testing would be done by members of respective functions. Implementation Document and Source Code in a Github Repository will be delivered.
4. 18th March 2023 - 31st March 2023: System and Manual Beta Testing:- Further necessary testing would be done during this week. This would include testing the system as a developer as well as (Beta) testing as an End User. Testing Document and User manual will be delivered.
5. 1st April 2023 - 14th April 2023: Code Improvement and Beta Testing:- With the results of the previous testing sessions, improvements on the software would be done to increase speed, security and its overall quality. Beta Test Report will be delivered.
6. 15th April 2023 - 21st April 2023: Addressing Beta Testing Feedback and Delivering the Final Project Report

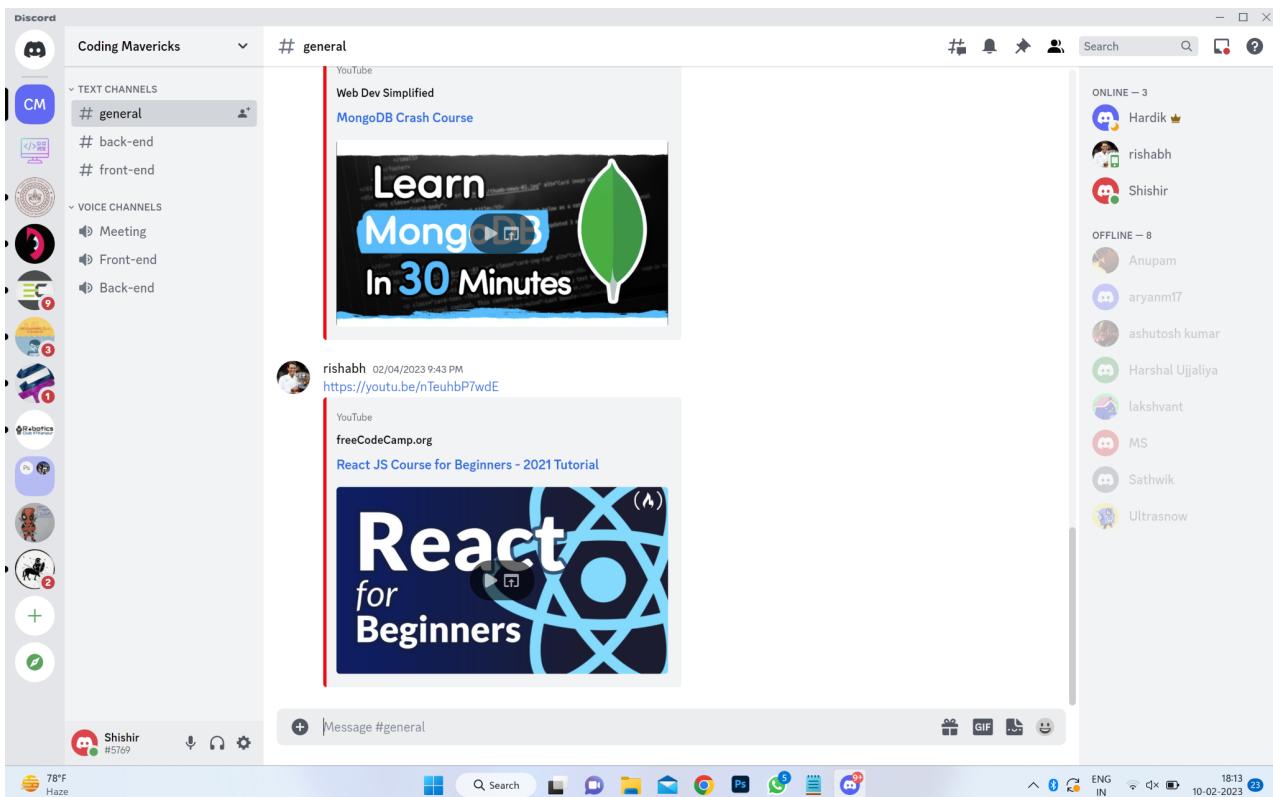
We have set up a JIRA board for the project planning and developing a Gantt Chart.

- Work has been divided into Epics, which is further divided into Stories.
- We will have weekly sprints where each team member will have clearly defined work.
- Every team member has internally taken the responsibility to focus majorly on either frontend or the backend.
- Our current Gantt chart looks like this:



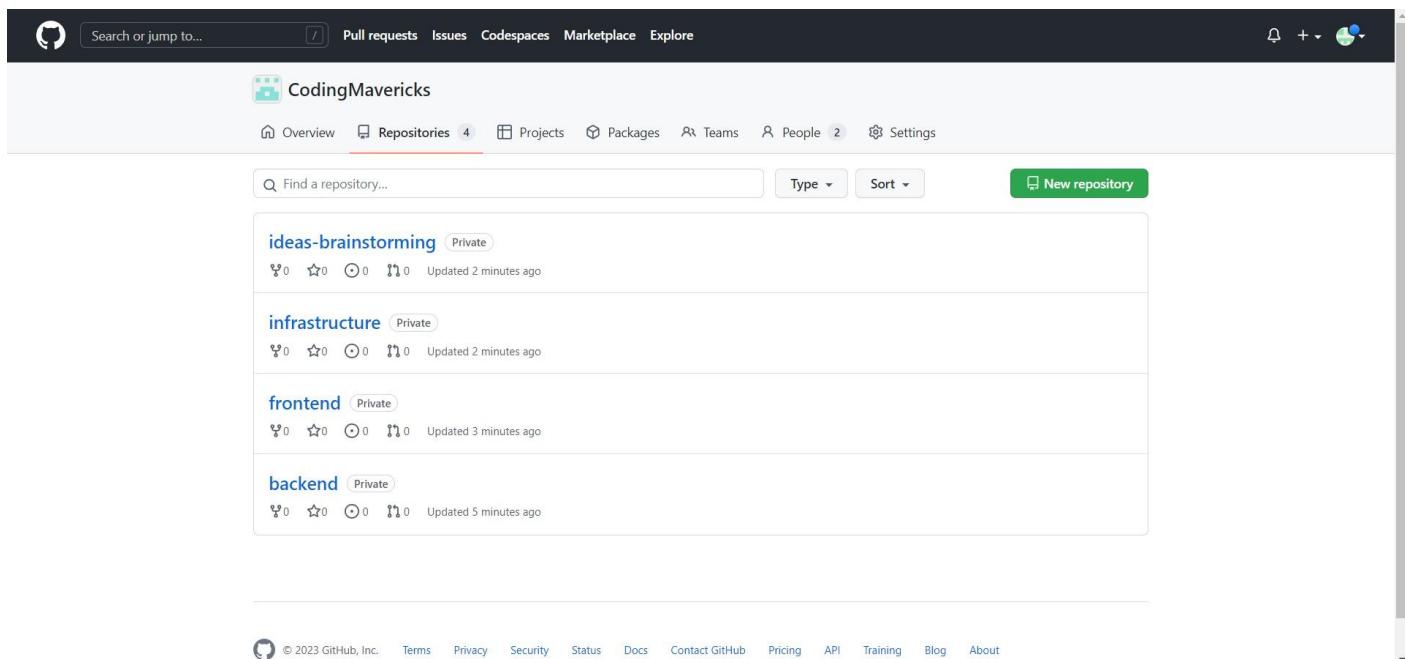
4.2 Communication

- The team communicates internally via a Discord Server both via messaging and voice calls.
- The server is divided into channels based on the scope of work so that discussions are organized based on their context.



4.3 Code Collaboration

- An organization has been set up on GitHub for storing and collaborating on the source code of this project.
- Currently, the organization hosts four repositories (all private access):
 - store-it-backend
 - store-it-frontend
 - store-it-infrastructure
 - idea-brainstorming
- We will maintain two environments (dev and prod) for the implementation.
 - Dev: where development happens
 - Prod: the hosted version for public use (latest release)
- We aim to keep high code coverage of the codebase via unit tests.



The following are the broad classification of the tasks along with the names of team member responsible for it:-

1. **Front End Design:** A front-end designer not only creates the aesthetics and wireframes for the product but also turns them into reality via code. Any component of the website which the end User is able to manipulate can be classified as Front End.

The members responsible for Front End Development are:-

- Shishir Gujarey
- Rishabh Arjeet
- Hardik Agrawal
- Anupam Chaudhary

The following software might be useful for Front End Development:-

- a. React JS: A free and open-source front-end JavaScript library for building user interfaces based on UI components.
- b. JavaScript: JavaScript, often abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS.
- c. HTML: A standard markup language for documents designed to be displayed in a web browser.

- d. CSS: Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML

- 2. Backend Design:** It is everything that the users don't see and contains behind-the scenes activities that occur when performing any action on a website. It focuses primarily on databases, backend logic, APIs, and Servers.

The members responsible for Back End Development are:-

- Abhi Jain
- Harshal Ujjaliya
- Ashutosh Kumar
- Aryan Maurya
- Lakshvant Balachandran
- Sathwik Reddy
- Mansi Sodhani

The following software might be useful for Back End Development:-

- a. **JavaScript:** Can be used for both Front and Back End Development.
- b. **MySQL:** MySQL is an open-source relational database management system.
- c. **Node.JS:** Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser.
- d. **MySQL:** MySQL is a free and open-source document-oriented database that is very much popular among web developers.

Appendix A - Group Log

Meeting Minutes	Agenda
31th Jan 2023 5:00 pm - 7:30 pm	Started working on a draft of the Software Design document and divided the subsections among the members.
6th Feb 2022 1:00 pm - 1:45 pm	Meet with TA. Updated TA with our current progress. Discussed any issues we were facing. Planned the further steps of development.
7th Feb 2022 5:00 pm - 7:30 pm	Made changes suggested by TA. Completed all the subsections of the document.
9th Feb 2022 6:50 pm - 7:20 pm	Meet with TA. Updated TA with our progress and made final changes to the documentation as suggested by TA.