GIT Department of Computer Engineering
CSE 222/505 - Spring 2020
Project 2.Assignment Report
Group-14

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Problem Definition

Every university requires a platform to give out information to the students and the ones who want to learn more about the school. However, the way that the university informs should be extensive. Meaning, creating respective platforms for each topic would surely make the process of reaching the information longer and exhausting. For this exact reason, we created a system to make interaction and information transfer between students and professors easier.

The system is going to have multiple user entries. The operations that can be done are limited depending on that user type. Only Administrators have the authority to add/remove users. The people that made an application for the system are going to be examined in detail, if the result shows that they have no involvement with the university then they are not going to be enrolled in the system thus the security problem is going to be solved.

Nutrition is one of the basic needs of every living being. Considering the students spending time at school throughout the day, eating is going to be inevitable. For this requirement, the students have no option other than the dining hall and the canteen. Putting the menus of the said eating centers to the system is going to allow students to make a decision beforehand and save time for themselves.

Our school has a large and merged-with-nature campus. This lovely campus also plays the role of a warm home for animals. However, every good thing brings some hardships with it. There is going to be a map of the campus for the freshmen and guests to find their way to their destination and also for the drivers to understand the one-way roads. To make transportation even easier from the campus, there is going to be a timetable for services and busses on the system.

We are planning to put events like seminars, meetings, and concerts systematically on this platform. For example, a professor is going to be able to arrange a seminar and the involved student are going to be informed about the event.

The forums are going to let some topics can be protected from being lost within personal messages and can be heard from every interested student. Creating lecture groups are going to let students transfer information for that respective lecture. Hospitable students that are willing to share their houses with other students those in need which is going to increase the socialness within the campus.

Our school is located at the boundary line between Gebze and Istanbul which makes it hard to reach from both of the centers. This means almost every student endure long trips to arrive at the campus. For these kinds of reasons, those who own a vehicle can post on the forum or send personal messages to inform other students where he was headed. Thus, one of them gains a companion and the other arrives at his/her destination quicker. We intend to create a platform that would make various types of information about our school swiftly accessible and we believe that it is going to be beneficial for everybody.

System Requirements

Functional Requirements

- The program will be used by students, teachers, administrators and guests. It must support a multi-user interface. Students, teachers and administrators will enter the system by using their usernames and passwords. Guests will be able to use the program without registering the system.
- Administrators will be able to add/remove students and teachers to the system, also they have authority over posts.
- Students can create new posts. Posts will be supported by tagging system to makesearching faster. Some tags will be specific to user, for example; only teachers can post their messages with a “teacher” tag, and student group moderators will create posts with another tag. Other users can mark tags as favorites to follow them.
- Guests can check campus map, food list and they can join seminars.
- Users can send private messages to each other. All messages will be stored in the server side.

Non-Functional Requirements

1 Product requirements

1.1 Usability requirements

The system is user friendly in terms of usability. Users clearly perform their operations by clicking the buttons that are written in English.

1.2 Efficiency requirements

1.2.1 Performance requirements

The system has very little data at first, but as the users use the system, the number of data in the system increases and here, the system needs to increase efficiency by using fast algorithms on top of these data. The system targets this in terms of efficiency.

1.2.2 Space requirements

System will hold users' data on the server side. These datas are login information of the users, conversations between users, food list, posts that users created. Since, all these data tend to be enlarged as the new users register the system, and users make use of the system. Therefore it should be scalable.

1.3 Dependability requirements

Program will use a map to navigate users to their desired destination. In order to use this functionality, it will depend on some third-party map and navigation data.

1.4 Security requirements

System must be able to store users’ passwords encrypted. Posts will be edited only by its creators and administrators.

2 Organizational requirements

2.1 Environmental requirements

The interface works only visual and tactile on the computer, so the environment in which the interface is operated will not limit the users normal detection capabilities.

2.2 Operational requirements

Interaction of users and users is required for each method of the system to work. After all, one of the objectives of this system is to provide communication between users who use the system. It needs the operations it performs for this goal.

2.3 Development requirements

Since the program will be developed by multiple developers, the development environment must enable developers to work together seamlessly.

3 External requirements

3.1 Regulatory requirements

System users have certain powers granted by the system. While these powers are given by the system, the system pays attention to giving it in a way that does not disturb its order and controls them.

3.2 Ethical requirements

Administrators will handle inappropriate posts, and its users. Administrators can warn users and ban them if necessary.

3.3 Legislative requirements

3.3.1 Accounting requirements

The system must have at least one administrator. Administrators can approve students and teachers who are members of the system. Approved students and teachers cannot perform operations restricted by their membership (by the system). A few features of the system can be used without the need of membership with guest login.

3.3.2 Safety/security requirements

In some parts of the system, the interaction of users with each other is very much in the foreground. This also has insecurities, for example, malicious users can abuse this system. For this situation, there are measures that the system should take.

User Requirements

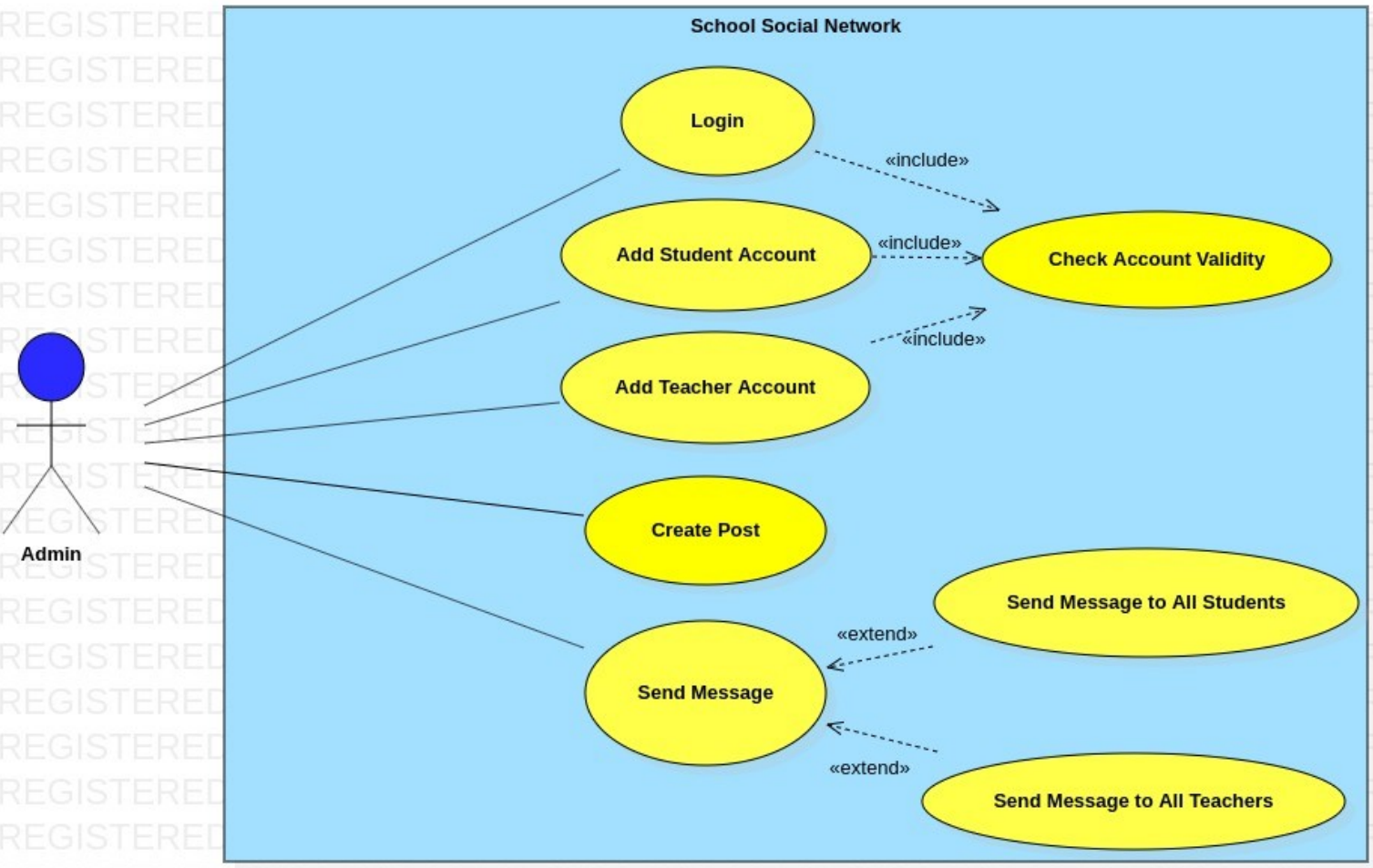
Users of the System

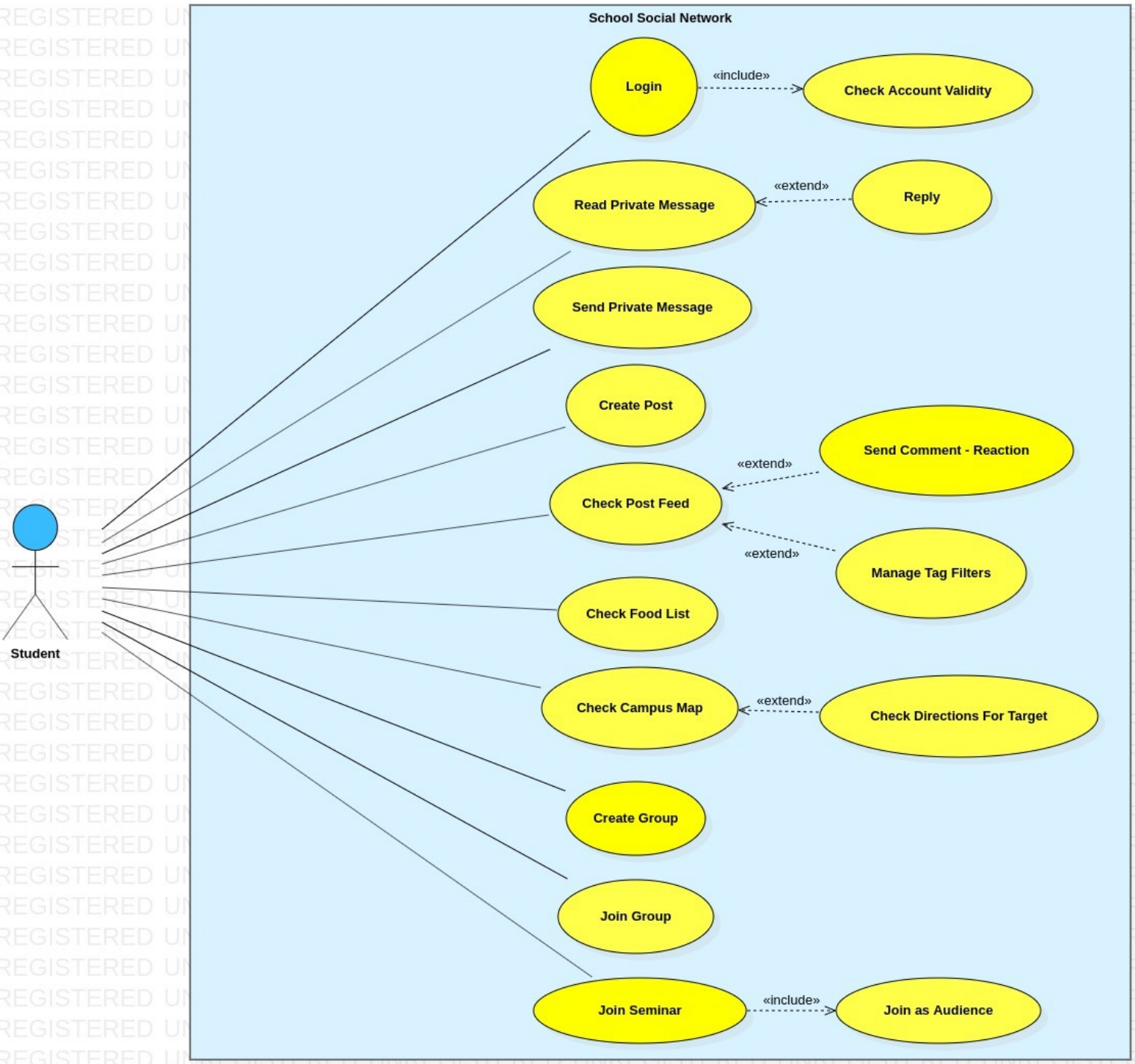
-Students
-Teachers
-Guests
-Admin

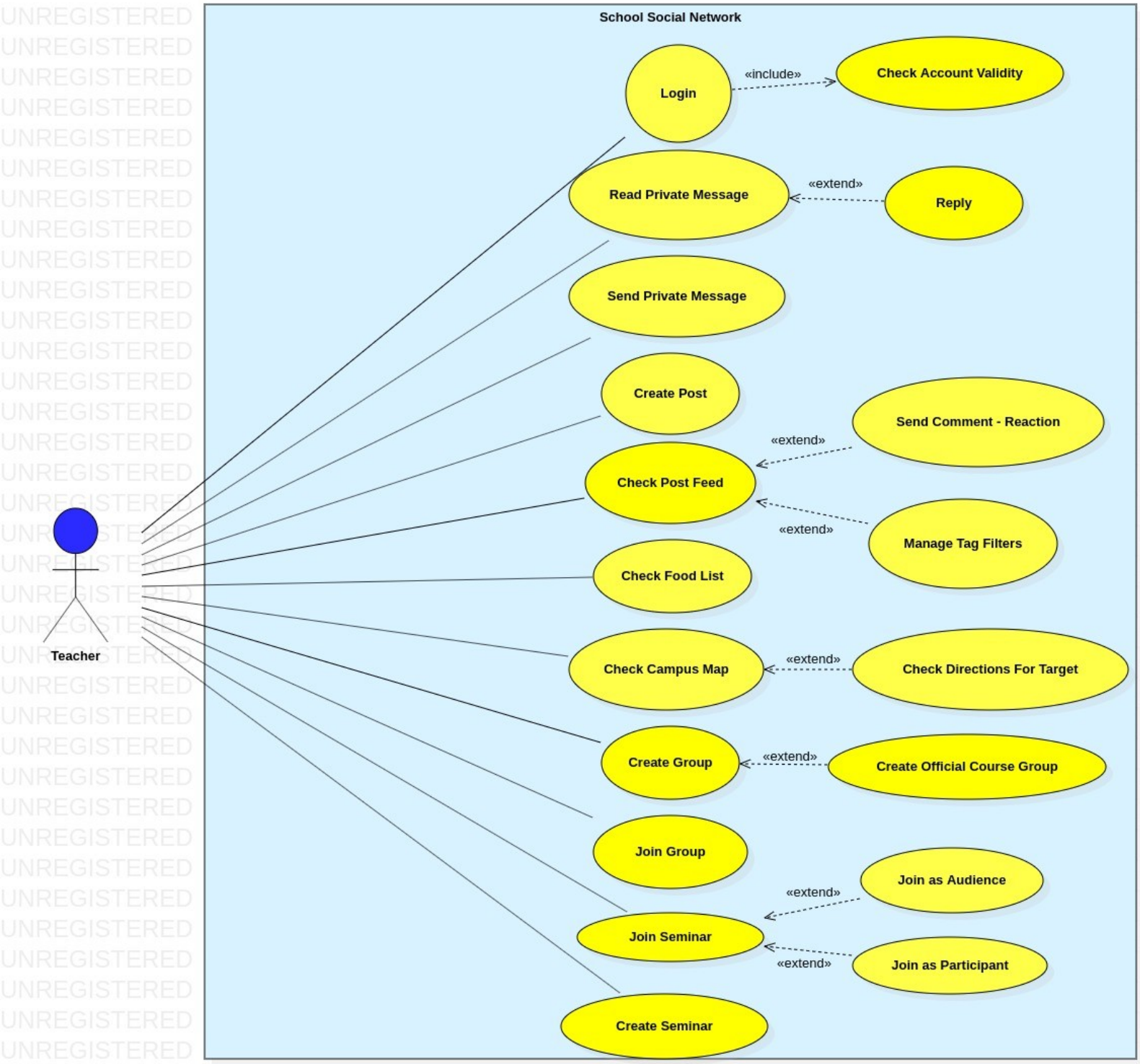
We provide a system to use for the school things and they can control the actions which is indicated in use case diagrams, They can message with each other and we can think that its like semi-social media app to show our users posts such as activities or looking for helps, flat mates etc. We know that we are not social in school so even a student want to helps other one. she/

he can be shy or can not know in what subject they need each other so they can create study or activity groups etc. Also we know that our teachers are still researching something so they would like to give a seminar so they can create seminars to tell some subjects school studens even a guest can take apart too. Guest has a limited session such as check posts, foods, seminars because this app will be for the students who are share same school.You can check the use case diagrams to get more information.

Use Case Diagrams






School Social Network
Login
«include»
Check Account Validity
Read Private Message
«extend»
Reply
Send Private Message
Create Post
Send Comment - Reaction
«extend»
Check Post Feed
«extend»
Manage Tag Filters
Check Food List
Check Campus Map
«extend»
Check Directions For Target
Create Group
«extend»
Create Official Course Group
Join Group
Join as Audience
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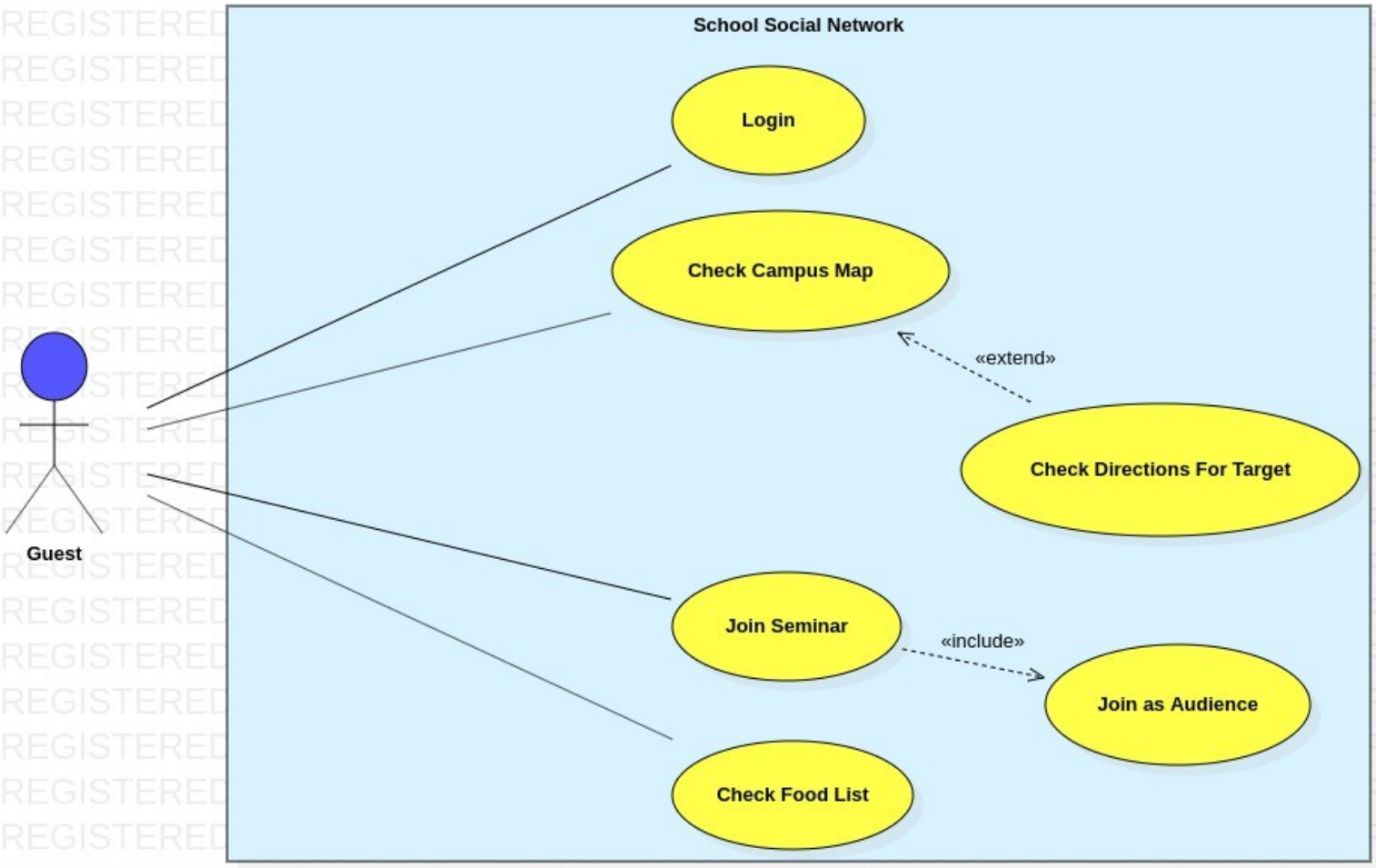
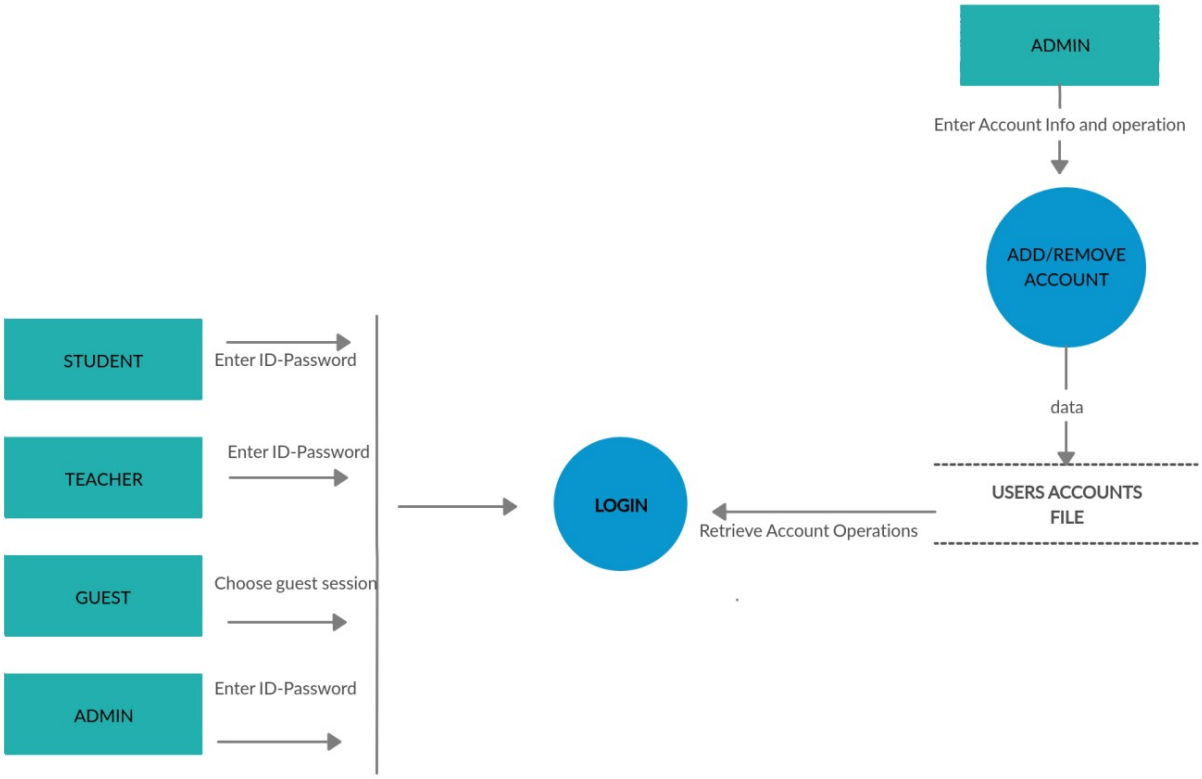
Join Seminar
«extend»
Join as Participant
Create Seminar
Teacher



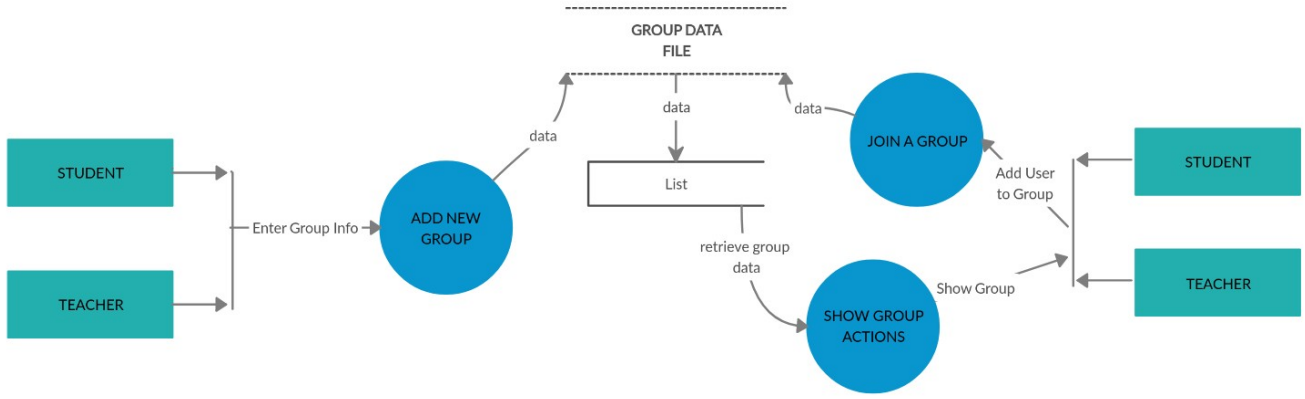
Module Diagrams

1.LOGIN



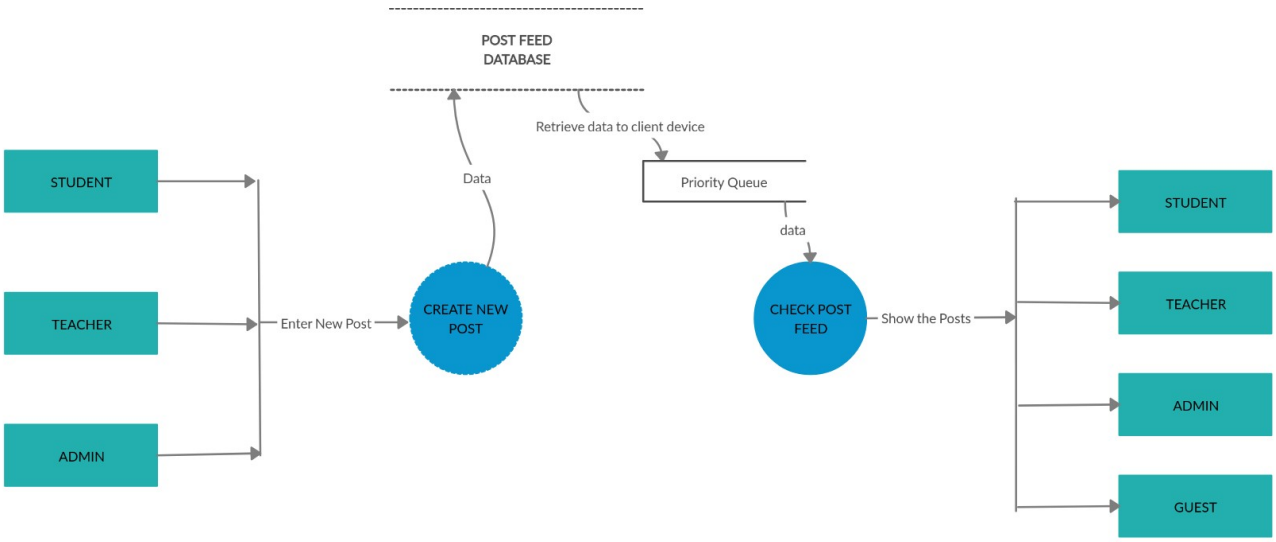
When the user wants to login/register to system we will use database methods which are indicated in implementign details.

2.CREATE/JOIN GROUP



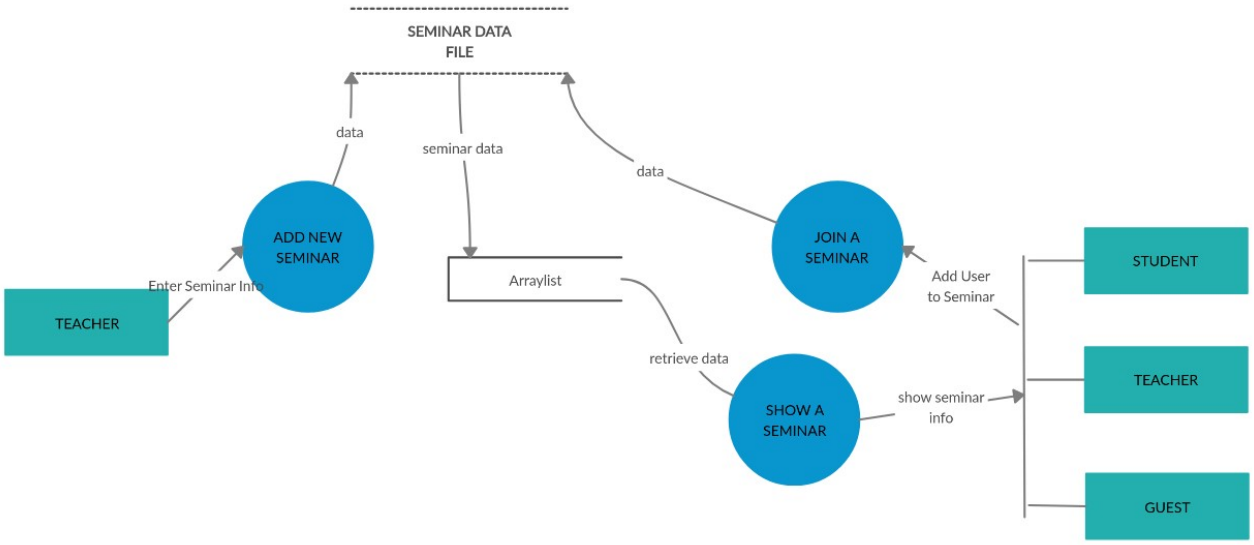
We will keep group data in a linked list such as people of group and group info and since there is not any restriction about number of people we keep them in an list so we will save memory.

3.POST FEED ACTIONS



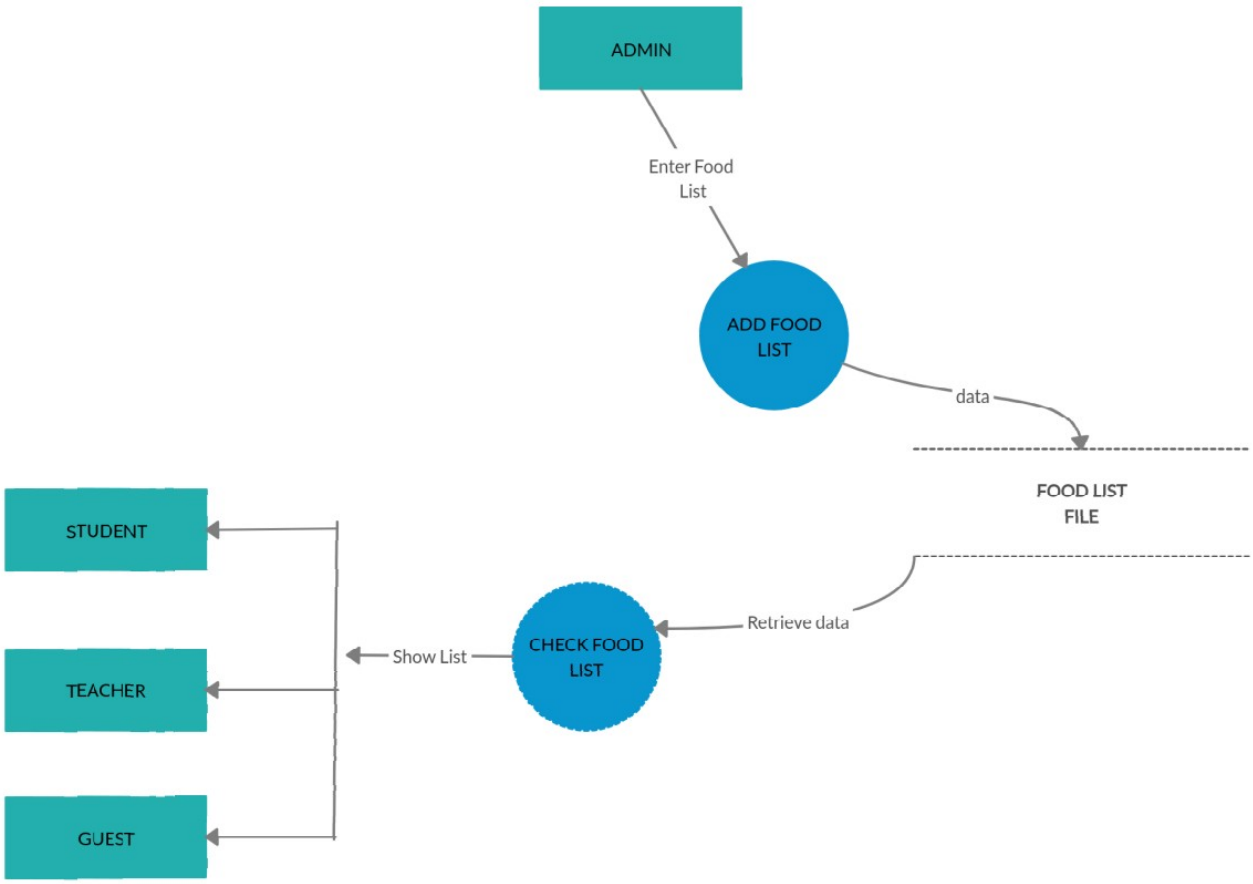
While using the post feed action we store data in database by using database methods which are indicated in implementation details.When user wants to use check post feed process we take data and place them into a priority queue according to their precedence such as firstly we show posts which are posted by teachers also we consider the post date.

4.SEMINAR ACTIONS



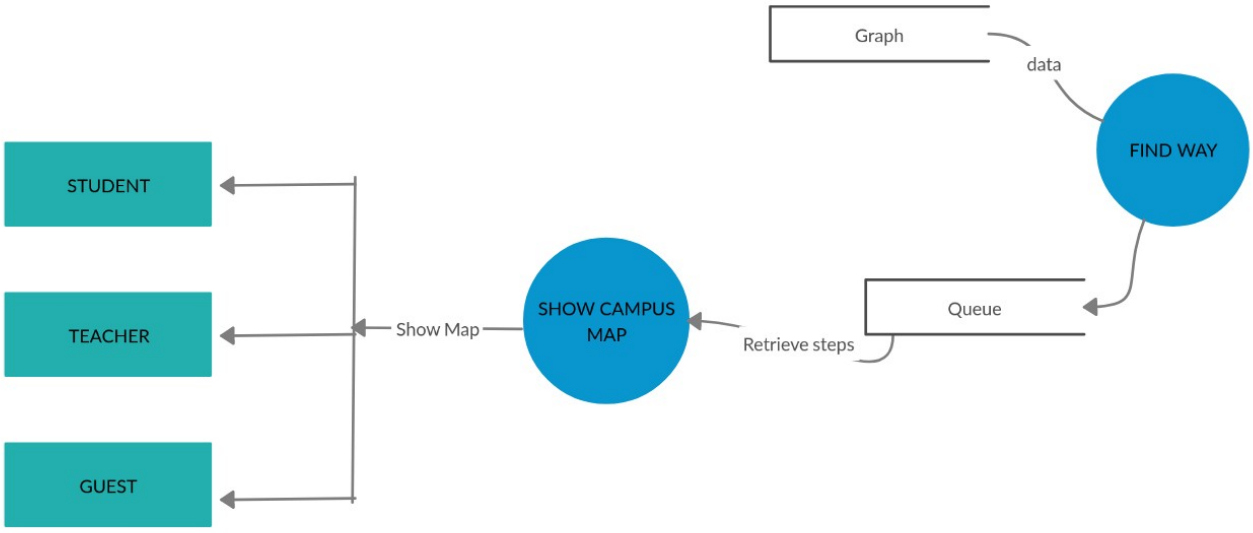
We will keep the seminar data (such as seminar subject, organizator,audiences) in an arraylist because the number of people will be fixed by organizator and it won't change.

5.FOOD LIST ACTIONS



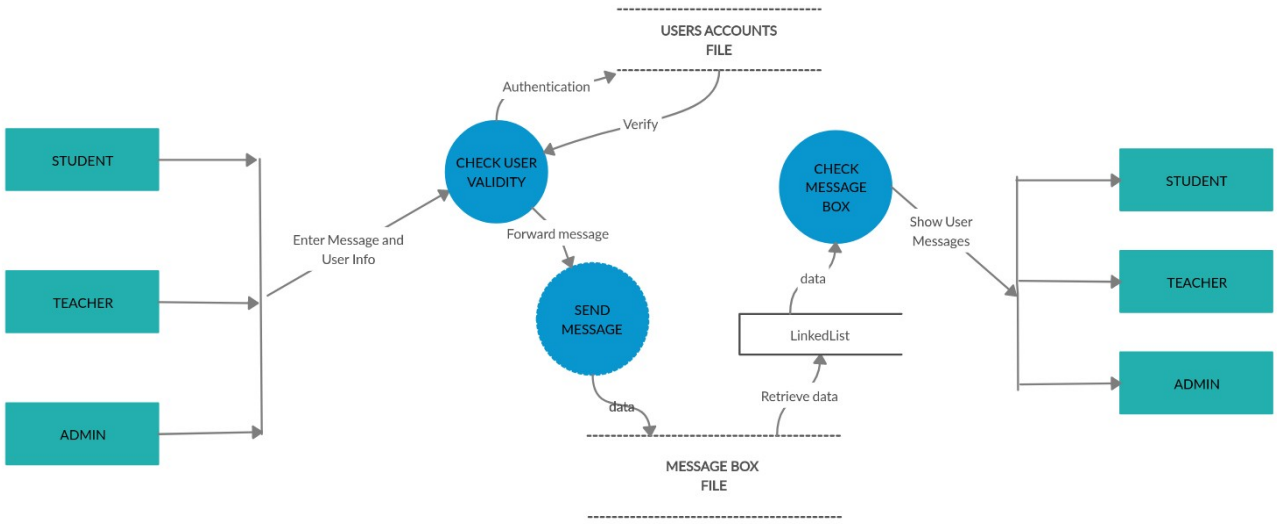
We will keep food list and cafe prices as an image because of they often change, and each time entering data may not be accurate.

6.CAMPUS MAP



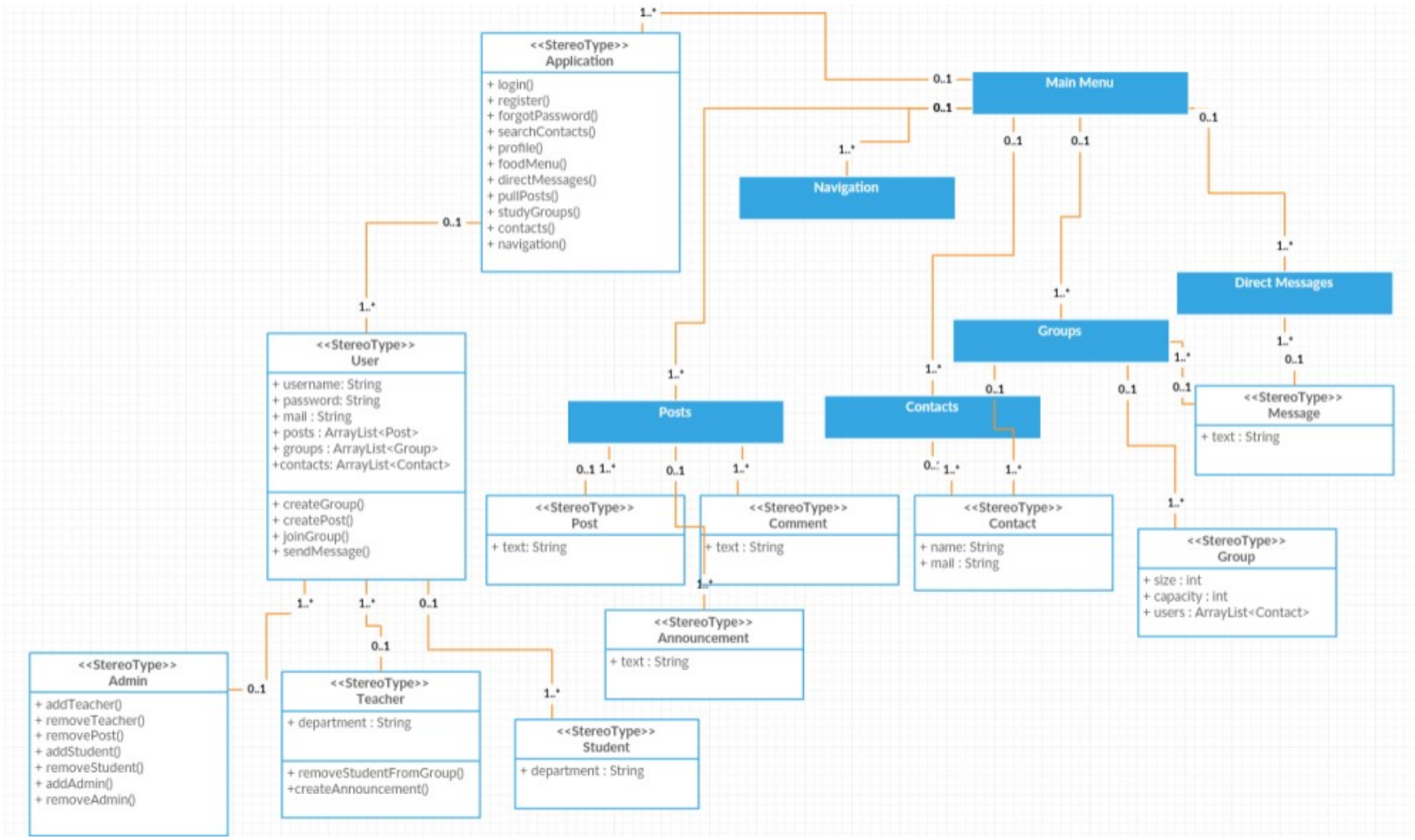
We will keep the campus map in a graph and map will stored default so we dont need to store it in database we manipulate the changes in map by updates. We will want the buildings name and we create right path between buildings and place it in to a queue to print the way to show user in an order.

7.MESSAGE ACTIONS

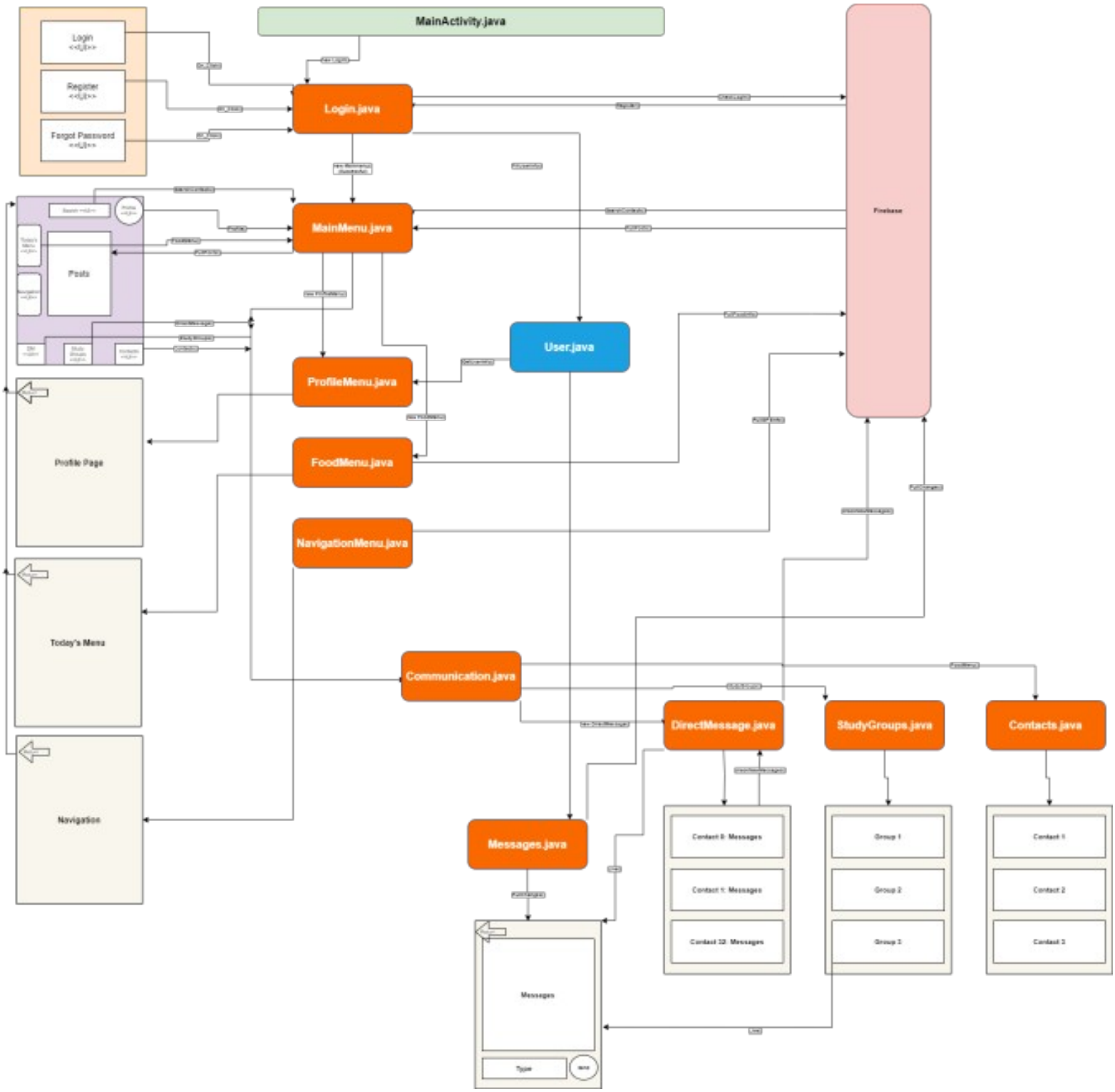


When user wants to send a message we will use database methods but when user wants to see the messages of her/him we will place them in to a linked list.

Class Diagram

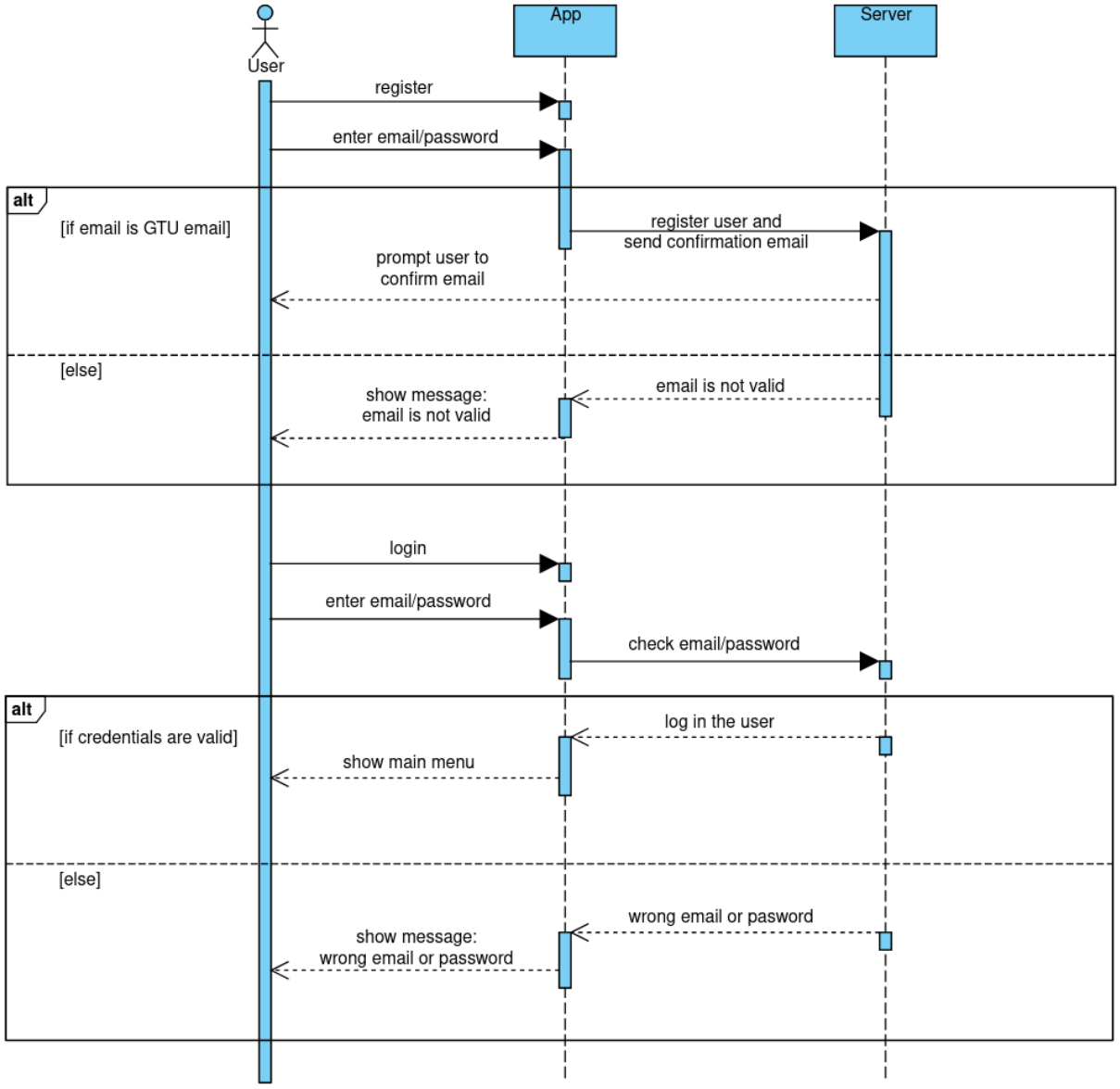


Relation Between DataBase and Classes

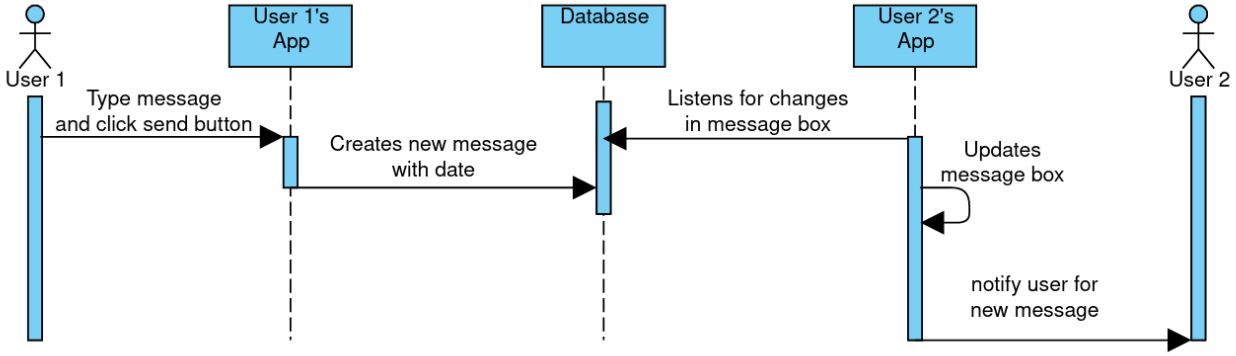


Sequence Diagrams

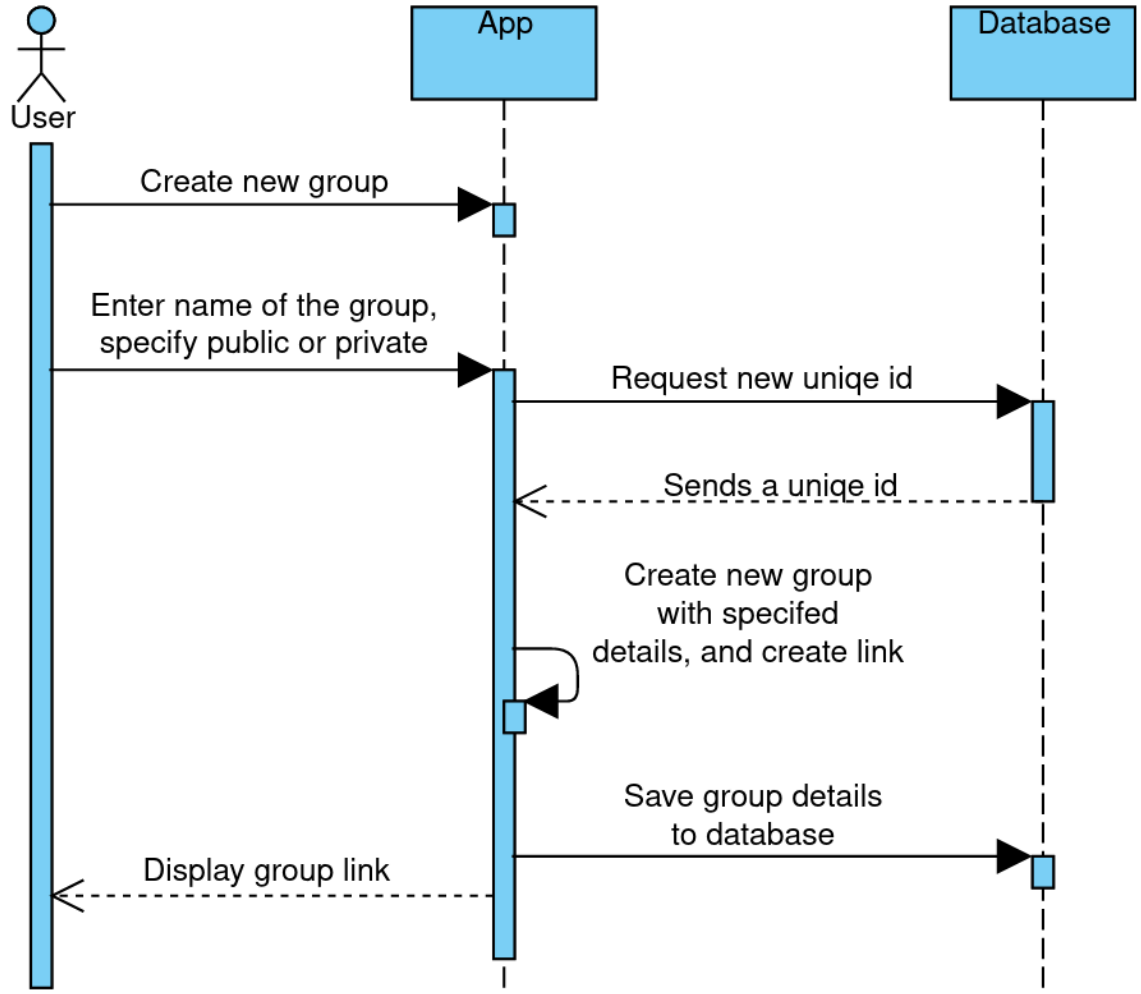
1.Login Action



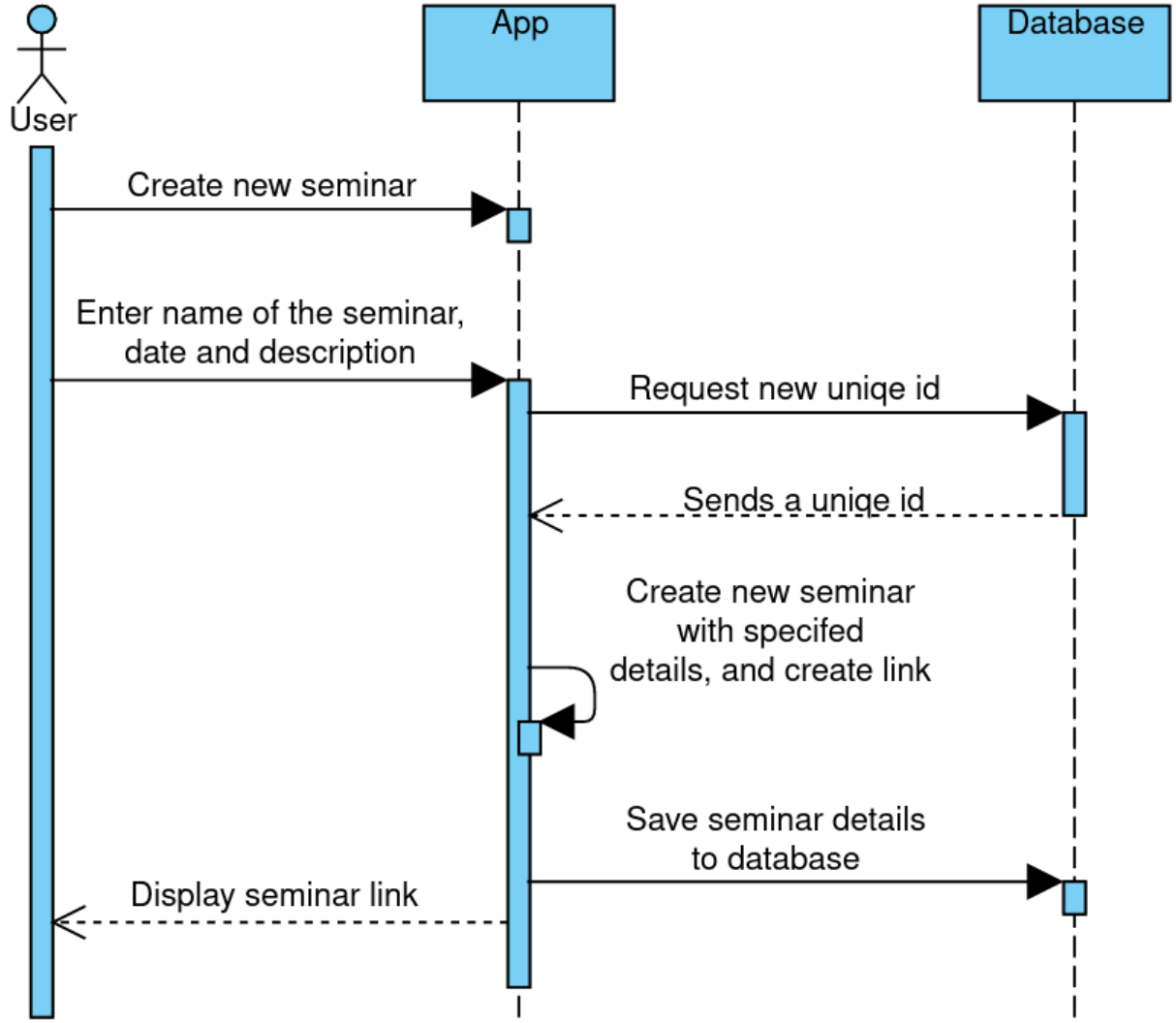
2.Message Action



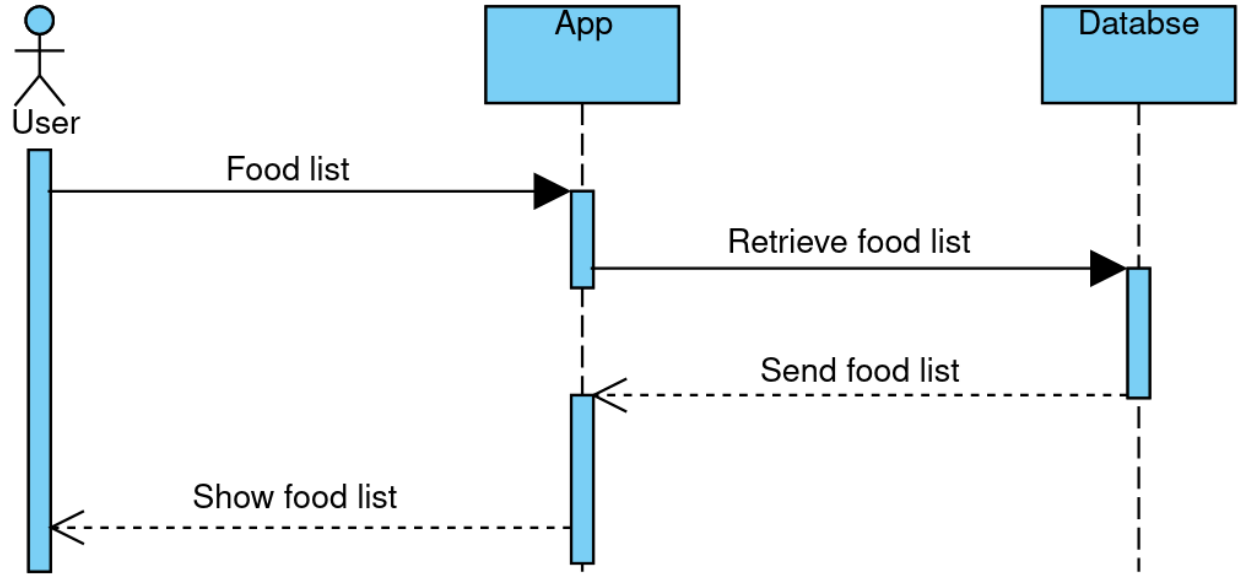
3.Group Action



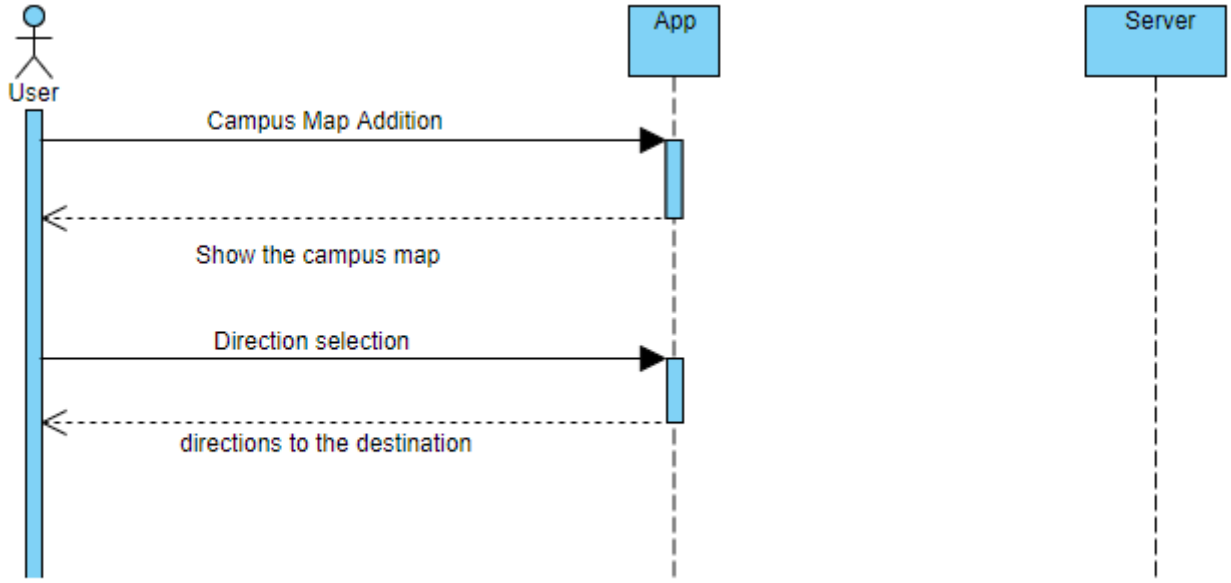
4.Seminar Action



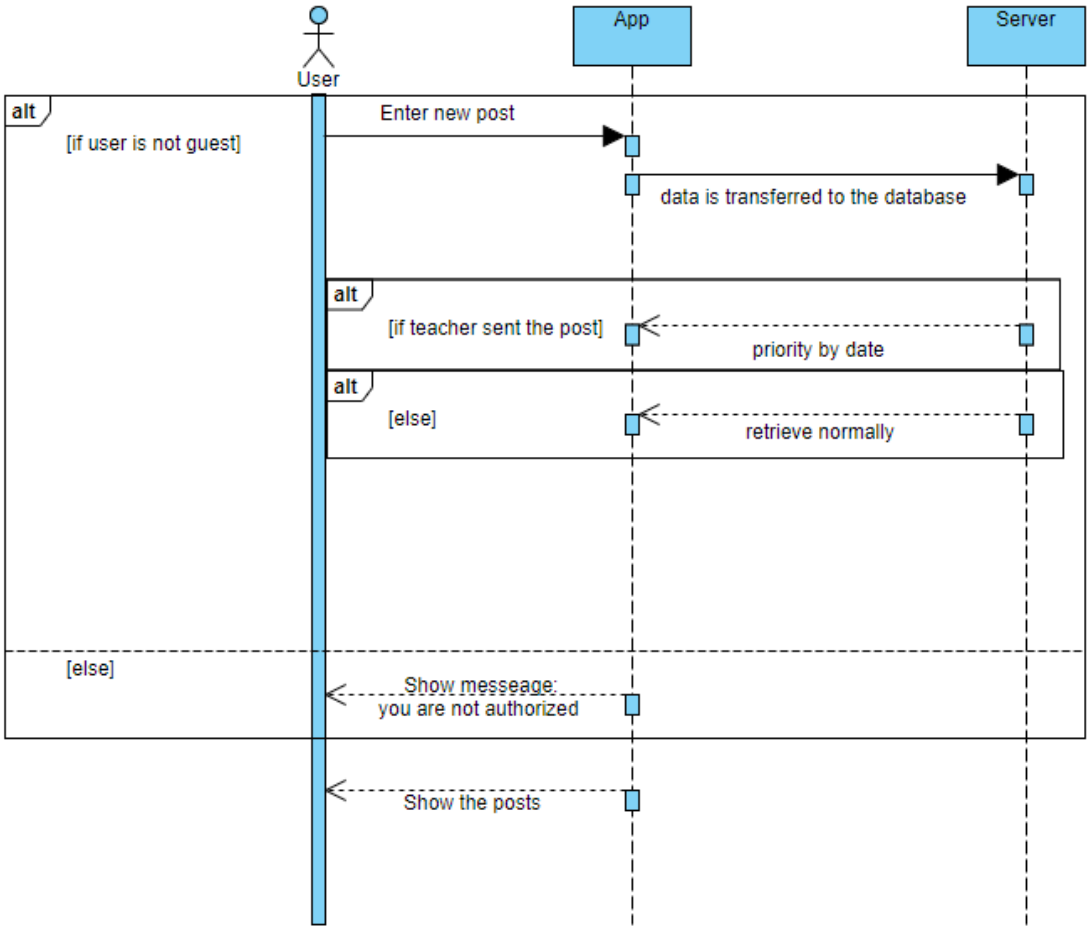
5.Food List Action



6.Map Action



7.Post Feed Action



Implementation Details

1) signInWithEmailAndPassword(email,password):

If entered mail address and password match, it allow the sign in. If two data wonât match, it throws an exception.

2) createUserWithEmailAndPassword(email,password):

Create a new account by passing the new user's email address and password. If entered invalid mail address, it throws an exception.

3) addSnapshotListener():

Each time the contents change, another call updates the document snapshot. We will use that method when we will control the post.

4) getData():

It provides retrieve data from the database. We will use that method every time we need retrieve data.

5) getCurrentUser():

It returns the current user. We will use that method when the user sign in the application.

6) getReference():

It returns the reference of specified area of database. When we want to access or change the data, we need the dataâs reference. With that method, we access the reference of data.

7) getInstance():

Returns an instance of this class.

8) push():

It provides upload the data to the firebase database. generates a unique key every time a new child is added to the specified Firebase reference.

9) child():

It provides create a sub directory on Firebase Database. For example, we will use in our post data directory.

11) getDownloadUrl():

It returns the dowload urls of images on Firebase Database. For example,we will use in food list.

Note: Those all methods from FireBase.

Test Case Table

Test ID	Test Scenario	Test Steps	Test Data	Expected Result	Pass/Fail/ Not Executed
T01	Register with valid data	1 - Open the App 2 - Click Register 3 - Enter Email 4 - Enter Password 5 - Click Register	Email=name.surname 20xx"@gtu.edu.tr Password=password	User should be able to register to the application.	Not Executed
T02	Register with invalid data	1 - Open the App 2 - Click Register 3 - Enter Email 4 - Enter Password 5 - Click Register	Email=name.surname 20xx"@gtu.edu.tr Password=password	User should not be able to register to the application.	Not Executed
T03	Login with valid data	1 - Open the App 2 - Click Login 3 - Enter Email 4 - Enter Password 5 - Click Login	Email = name.surname20xx" @gtu.edu.tr Password = password	User should be able to login into the application.	Not Executed
T04	Login with invalid data	1 - Open the App 2 - Click Login 3 - Enter Email 4 - Enter Password 5 - Click Login	Email = name.surname20xx" @gtu.edu.tr Password = password	User should not be able to login into the application.	Not Executed
T05	Forgot password with valid data	1 - Open the App 2 - Click Forgot Password 3 - Enter Email 4 - Click Request Password Reset	Email = name.surname20xx" @gtu.edu.tr	Massage: "Password reset request has been sent" will be displayed. Password resent request will be sent to the email.	Not Executed
T06	Forgot password with invalid data	1 - Open the App 2 - Click Forgot Password 3 - Enter Email 4 - Click Request Password Reset	Email = name.surname20xx" @gtu.edu.tr	Massage: "Couldn't find an account with that email" will be displayed.	Not Executed
T07	Send Post	1 - Login into the account 2 - Click Send Post 3 - Enter the Title 4 - Enter the Tags	Title = Book Festival Tags = #Festival Post Body = Book Festival will be held at Kelebek Café	Final state of the post will be displayed to the user. Post will be sent to	Not Executed

		5 - Enter the Post Body 6 - Click Send		the post feed.	
T09	Send Post Without Title	1 - Login into the account 2 - Click Send Post 3 - Enter the Tags 4 - Enter the Post Body 5 - Click Send	Tags = #Festival Post Body = Book Festival will be held at Kelebek Café	Massage: "Can't send posts without title" will be displayed.	Not Executed
T10	Send Post Without Post Body	1 - Login into the account 2 - Click Send Post 3 - Enter the Title 4 - Enter the Tags 5 - Click Send	Title = Book Festival Tags = #Festival	Massage: "Can't send posts without body" will be displayed.	Not Executed
T11	Send Post Without Tags	1 - Login into the account 2 - Click Send Post 3 - Enter the Title 4 - Enter the Post Body 5 - Click Send	Title = Book Festival Post Body = Book Festival will be held at Kelebek Café	Massage: "Can't send posts without tags" will be displayed.	Not Executed
T12	Reading Post Feed	1 - Login into the account 2 - Scroll through Post Feed Window 3 - Click Next Page		Post feed window should be able to scroll up/down with user input. Next post feed window will be shown after button click.	Not Executed
T13	Change Post Feed Tags	1 - Login into the account 2 - At the top of the Post Feed Window click Change Tags 3 - Choose a pre-defined tag from the list or enter Tag	Tags = #Festival	Posts with selected/entered tag/tags will be displayed on Post Feed Window.	Not Executed
T14	Search Person	1 - Login into the account 2 - Click Search People 3 - Enter the Person	Person Name = Mertcan Elçi	All the people raleted to the Person Name will be displayed.	Not Executed

		Name			
T15	Search Group	1 - Login into the account 2 - Click Search Group 3 - Enter the Group Name	Group Name = CSE222	All the groups raleted to the Group Name will be displayed.	Not Executed
T16	Check Contact List	1 - Login into the account 2 - Click Contacts		List of contacts will be displayed.	Not Executed
T17	Read Private Massage	1 - Login into the account 2 - Click Contacts 3 - Choose a person from the contacts list		Conversation between user and contact will be displayed.	Not Executed
T18	Send Private Massage	1 - Login into the account 2 - Click Contacts 3 - Choose a person from the contacts list 4 - Enter Massage to massage bar	Massage = Hello World!	Massage will be sent to the contact.	Not Executed
T19	Check Today's Menu	1 - Login into the account 2 - Click Today's Menu		Menu of the current day will be displayed.	Not Executed
T20	Join Group	1 - Login into the account 2 - Find the target group 3 - Click Join Group		User will join the group or join request will be sent to the group owner depending on the group type.	Not Executed
T21	Leave Group	1 - Login into the account 2 - Find the target group 3 - Enter group page 4 - Click Leave Group		User will leave the group.	Not Executed
T22	Send Group Post	1 - Login into the account 2 - Find the target group 3 - Enter group page	Title = Homework #1 Grades Tags = #Grade Post Body = Grades for the HW1	Final state of the post will be displayed to the user. Post will be sent to	Not Executed

		4 - Click Send Post 5 - Enter the Title 6 - Enter the Tags 7 - Enter the Post Body 8 - Click Send	announced.	the group post feed.	
T23	Send Group Post Without Title	1 - Login into the account 2 - Find the target group 3 - Enter group page 4 - Click Send Post 5 - Enter the Tags 6 - Enter the Post Body 7 - Click Send	Tags = #Grade Post Body = Grades for the HW1 announced.	Massage: "Can't send posts without title" will be displayed.	Not Executed
T24	Send Group Post Without Tag	1 - Login into the account 2 - Find the target group 3 - Enter group page 4 - Click Send Post 5 - Enter the Title 6 - Enter the Post Body 7 - Click Send	Title = Homework #1 Grades Post Body = Grades for the HW1 announced.	Massage: "Can't send posts without tags" will be displayed.	Not Executed
T25	Send Group Post Without Post Body	1 - Login into the account 2 - Find the target group 3 - Enter group page 4 - Click Send Post 5 - Enter the Title 6 - Enter the Tags 7 - Click Send	Title = Homework #1 Grades Tags = #Grade	Massage: "Can't send posts without body" will be displayed.	Not Executed
T26	Create Seminar	1 - Login as teacher 2 - Click Seminars 3 - Click Create Seminar		Seminar will be created.	Not Executed
T27	Join Seminar	1 - Login into the account 2 - Click Seminars 3 - Click target Seminar		User will join the seminar.	Not Executed

		4 - Click Join Seminar			
T28	Check Map	1 - Login into the account 2 - Click Navigation		Map of the campus will be displayed.	
T29	Check Distance and Directions Between Points	1 - Login into the account 2 - Click Navigation 3 - Select two points form the map		Distance between selected points and directions to the second point from the first point will be displayed.	Not Executed