

THE UNIVERSITY OF TEXAS AT ARLINGTON

SPRING 2023

CSE 5324 – 001 SFWR ENG I ANLY, DSGN, TESTING

“MAVS CONNECT”

Team 5: Messengers

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05/01/2023

ITERATION 3

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Project Description

App Title: Mavs Connect

1 **Description:** Building connections and adjusting to a new environment can be difficult. Such
2 as finding a new home and settling into a new neighbourhood, creating new routines, and
3 making new social ties are all examples of transitions. The "MAVS CONNECT" App can solve
4 and answer all these questions.

5 Text messaging is one of the most popular and efficient ways to communicate with people
6 in the world. Most individuals prefer texting these days for communication. Online
7 communication allows users to communicate with other people in a fast and convenient
8 way.

9 With all this, as the application name suggests, it's an app that allows UTA students to
10 communicate with other UTA students. Through online contact, it will enable you to get in
11 touch and learn more about one another. New incoming students can take help from seniors
12 and learn more about the university. Moreover, it will simplify for students to find
13 accommodation that suits their needs and comfort. As they can post in the group chat,
14 anyone who is interested can get in touch with that student.

15

16 Major Functions:

17 1. **Sign Up:** Students must register using their mavs email only. The user can have student
18 email id and password-based authentication.

19

20 2. **Login/Logout (User Authentication):** The students will have to login into account, and
21 they will be getting the logout option as well.

22

23 3. **Send & Receive Message:** Users can interact with other students and have conversations
24 with them by sending and receiving messages to and from them. This interaction can be
25 individual as well as group chat.

26

27 4. **Home Screen (Dashboard):** This will be the main activity screen of the users that is the
28 home screen which allows users to view all the other users who have registered with the
29 application. It will show the user list which they have chat and see the newly joined users.
30 There will be two pre-defined groups where users can chat with other students to know
31 more about the university. The two groups that users would automatically be enrolled in
32 would be "University Info" and "Housing". This would make easily accessible for students
33 to find the correct information's.

34

35 5. **Delete Message:** The user can delete the message that was sent in the conversation. The
36 messages would be deleted from both end of the side.

37

38 6. **Setting Menu:** The user will be able to change their name, profile picture and status.

39

40 7. **Attachments:** The users can send the attachments in the personal as well as group chat.

41

42 8. **Search:** The users can search other students in the home screen.

43

44 **Resources required:**

45 We will be using the following resources of the phone for features:

46 1. We will be using the Service of Email and Password for User Authentication from
47 Firebase Authentication i.e., OAuth.

48 2. We will be using Firebase Real-Time Database for storing the Authentication of the
49 User, Chat, Group Chat.

50 3. Also, the Firebase Storage is being used to store the Profile Picture of the users.

Team Member wise Description:

Nikhil Ramesh Yadav:

I have done my undergrad in Computer science domain where I got exposed to programming languages like Java, HTML, CSS, Python, SQL. I have 2 years of experience with Android App development in my undergraduate, where I have built an Expense Tracker and Chat Application using other technologies such as Google Firebase. I am proficient with Java, Android Studio, XML, and Android Emulator. I will be able to contribute to the team by assisting with testing, user interface design, and programming.

Anushka Singh Chauhan:

My Bachelor's degree was in Information Technology where I learned about many programming languages such as HTML, CSS, Python, Android, Java, SQL. I have worked on projects like Online Job Portal, Network Monitoring System in my undergrad. Online job portal is a website where job seekers search and apply for a job, while employers can post the jobs. We used Java, HTML, CSS and MySQL. Network Monitoring System was a desktop-based application which was built using java and MySQL, a Client-Server Architecture based application. I have professional work experience of 3 years in the IT field and worked as associate consultant.

Shashwat Shekhar:

I have 5 years of application development experience as a software developer. I've worked with warehouse management open systems (WMOS), point-of-sale (POS), and Demand Management web-based applications. I am knowledgeable about Java, Spring Boot, SQL, and databases. I have project planning, software design, development, and testing experience. As a result, I can contribute to the design, development, and testing of the application.

Meet Patel:

In my Computer Science Bachelor's, I honed my technical skills with a focus on web dev using Angular, Reacts, and Django. I gained practical experience through projects and a 6-

month internship leading a team in developing a code testing platform using SonarQube, JMeter, Selenium, Spring, Reacts and languages such as Java, JavaScript, Nodejs, and SQL. I am proficient in Java, C, Python, SQL, and Spring Boot. With my passion for the field, I am confident in contributing to the planning, execution, coding, testing, and successful completion of any project.

Mayank Vekariya:

I studied computer science for my undergraduate degree, where I was exposed to Python, Java, C, and PHP. I also participated in initiatives like Blockchain, where I learned how to create applications from the ground up. I also have one year of professional experience in the IT sector. I worked with a senior software developer during my time there and used Python and Java to obtain real-world experience. I also have expertise creating documentation, creating weekly reports, and presenting to clients. I shall be able to benefit my team for the semester assignment with the support of these abilities.

Requirements

Req ID	Requirement Statement	Line Reference	Weightage
R1	The system shall provide signup functionality to user.	17,18	1
R2	The system shall provide authenticated login using email and password.	20	1
R3	The system shall provide logout functionality.	21	1
R4	The system shall allow user to send message to other users.	23, 24, 25	2
R5	The system shall allow user to receive message from users.	23, 24, 25	2
R6	The system shall provide a home screen to users where they can see the other users chat and registered users as well. Also, the two predefined groups (Housing, Academic) shall be visible to user.	27,28,29, 30,31,32, 33	1
R7	The system shall provide user with delete option to delete the message.	35,36	4
R8	The system shall provide with setting menu to user where they can change the name, about and profile picture.	38	3
R9	The system shall provide user to send image as attachment in chat.	40	4
R10	The system shall provide the users to search other users.	42	4

Use-Case List

Use Case #	Use Case Name
UC 1	Sign Up
UC 2	Login
UC 3	Log Out
UC 4	Send Message
UC 5	Receive Message
UC 6	Delete Message
UC 7	Send Group Chat
UC 8	Open the Settings Menu
UC 8.1	Update Name
UC 8.2	Update About
UC 8.3	Update Profile Picture
UC 9	Send Attachments
UC 10	Use a Search Filter
UC 11	Launch the Home Screen

*TUCBW: the use case begins with
TUCEW: the use case ends with*

High Level Use-Case

• **UC 1: Sign Up**

- TUCBW the user by clicking on the sign-up button.
- TUCEW the user gets registered successfully.

• **UC 2: Login**

- TUCBW the user entering his login id and password.
- TUCEW the user gets signed in and prompted to home screen.

• **UC 3: Log Out**

- TUCBW the user clicks on 'Logout' button.
- TUCEW the user exits from the application and redirected to login page.

- **UC 4: Send Message**

- TUCBW the user selecting the user to send the message.
- TUCEW the user sent message when click on send button.

- **UC 5: Receive Message**

- TUCBW the user receiving the message from the sender's user.
- TUCEW the user sees the message from the user.

- **UC 6: Delete Message**

- TUCBW the user getting alert box to delete the message.
- TUCEW the users message getting delete from both ends.

- **UC 7: Send Group Chat**

- TUCBW the selecting the group to send the message.
- TUCEW the user sent the message in that group.

- **UC 8: Open the Settings Menu**

- TUCBW the user selecting the setting menu.
- TUCEW the user successfully updating their name, about and the profile picture.

- **UC 8.1: Update Name**

- TUCBW the user clicks on three dot to select the setting option from the application.
- TUCEW the user successfully updating the name.

- **UC 8.2: Update About**

- TUCBW the user clicks on three dot to select the setting option from the application.
- TUCEW the user successfully updating the about.

- **UC 8.3: Update Profile Picture**

- TUCBW the user clicks on three dot to select the setting option from the application.
- TUCEW the user successfully updating the new profile picture.

- **UC 9: Send Attachments**

- TUCBW the user selecting the user to send the attachment.
- TUCEW the user sent the attachment in message.

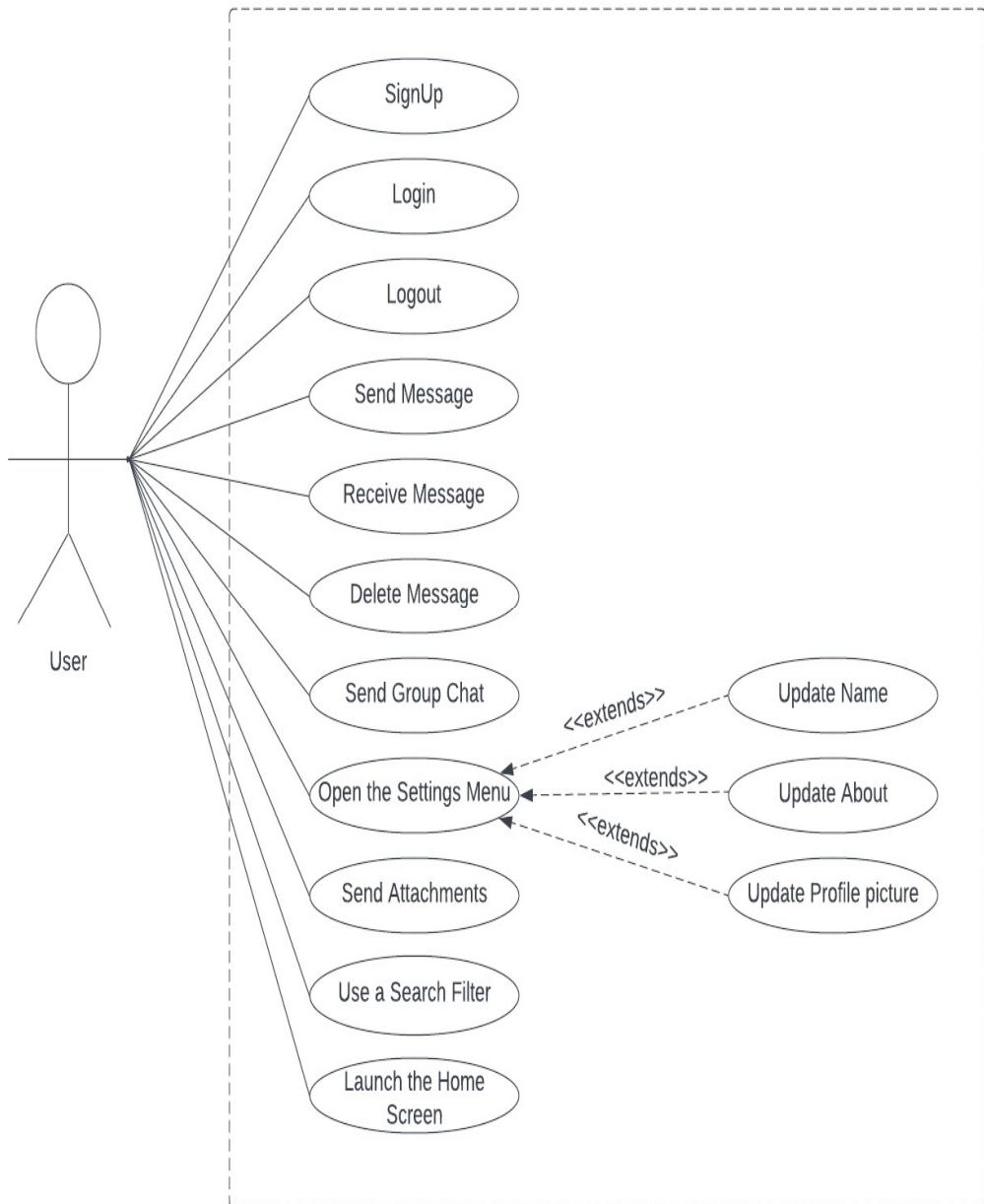
- **UC 10: Use a Search Filter**

- TUCBW the user searching other students.
- TUCEW the user finds the student in search option.

- **UC 11: Launch the Home Screen**

- TUCBW the user accessing the home screen and seeing a list of personal and group chats.
- TUCEW the user gets redirected to the selected chat screen.

Use Case Diagram



Requirements to Use Case Traceability Matrix

	Priority Weight	UC 1	UC 2	UC 3	UC 4	UC 5	UC 6	UC 7	UC 8	UC 8.1	UC 8.2	UC 8.3	UC 9	UC 10	UC 11
R1	1	X													
R2	1		X												
R3	1			X											
R4	2				X				X						
R5	2					X			X						
R6	1														X
R7	4						X								
R8	3								X	X	X	X			
R9	4												X		
R10	4													X	
	Score	1	1	1	2	2	4	4	3	3	3	3	4	4	1

Note: Priority 1 is highest priority, work this first.

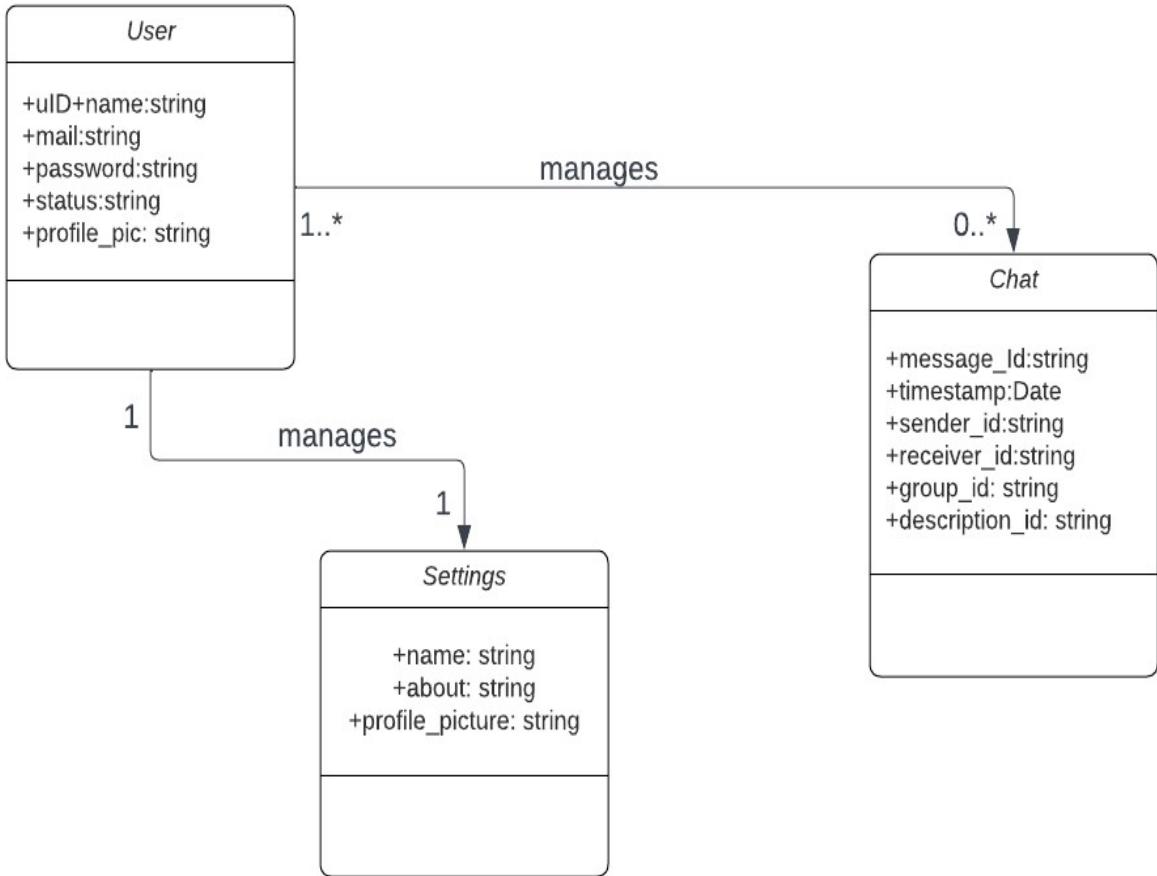
Use Case Increment Matrix

Use Case	Priority	Effort (Person-Weeks)	Depends On	Assigned To	Iteration 1 (03/10/23)	Iteration 2 (04/07/2023)	Iteration 3 (05/01/2023)
UC 1	1	2	None	NY	2		
UC 2	1	2	UC 1	SS	2		
UC 3	1	1	UC 2	AC	1		
UC 4	2	4	UC 2, UC 11	SS, AC, NY, MP, MV		4	
UC 5	2	2	UC 4	MV		2	
UC 6	4	1	UC 4, UC 5	MP			1
UC 7	4	4	UC 11	SS, AC, NY, MP, MV			4
UC 8	3	1	UC 11	SS		1	
UC 8.1	3	2	UC 8	MV, MP		2	
UC 8.2	3	2	UC 8	AC		2	
UC 8.3	3	2	UC 8	NY, SS			2
UC 9	4	2	UC 4, UC 11	NY, SS			2
UC 10	4	2	UC 11	AC, MP, MV			2
UC 11	1	3	UC 2	SS, AC, NY, MP, MV	3		
Total Effort		30			8	11	11

1-Person Weeks = 5 hrs.

Team Members: Nikhil Ramesh Yadav (NY), Shashwat Shekhar (SS), Anushka Singh Chauhan (AC), Meet Dilipkumar Patel (MP), Mayank Vekariya(MV).

Domain Model

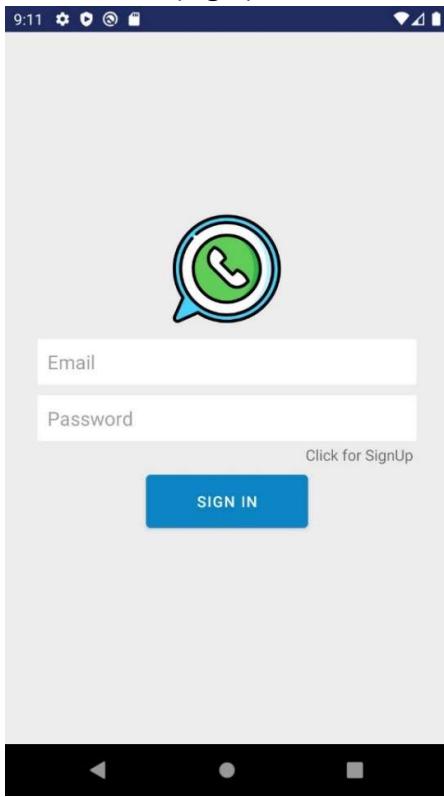


Expanded Use Cases

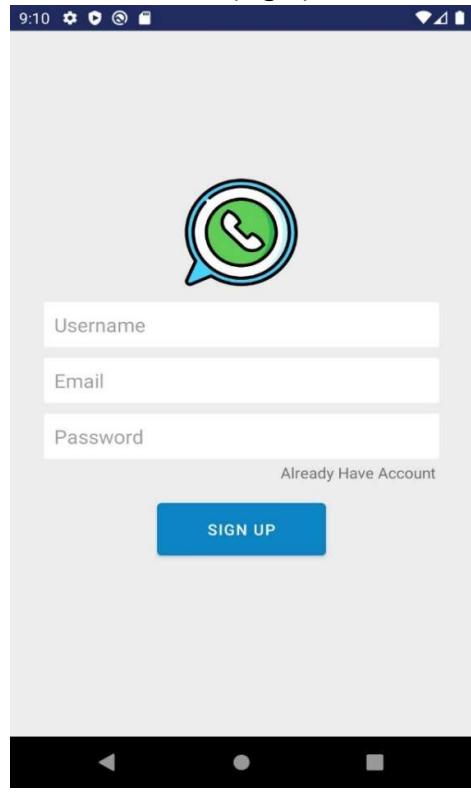
EUC 1: Sign Up

Precondition: This use case assumes that user does not have an account yet.	
Actor: User	System: Mavs Connect
1. TUCBW the user by clicking the signup link and by entering details to create an account. 3. The user clicks on the "SIGN UP" button. 5. TUCEW the user gets registered successfully.	0. System displays the login screen. (Refer Fig.1) 2. System displays Sign UP Page UI and allows the user to add details like Username, Email, Password. (Refer Fig.2) *4. The System displays "User Registered Successfully" message.
Postcondition: The user can now log into his/her account successfully.	

(Fig.1)



(Fig.2)



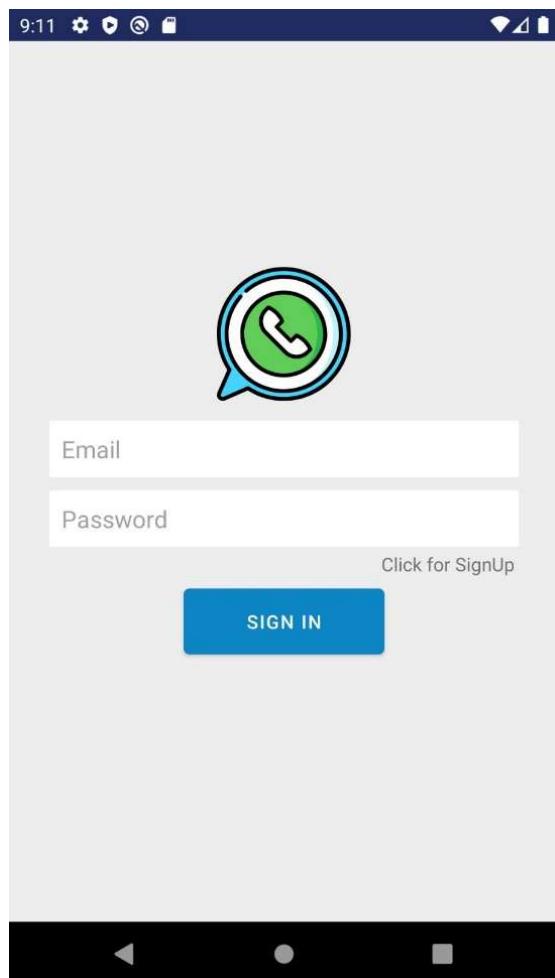
EUC 2: Login

Precondition: This use case assumes that user already has an account.

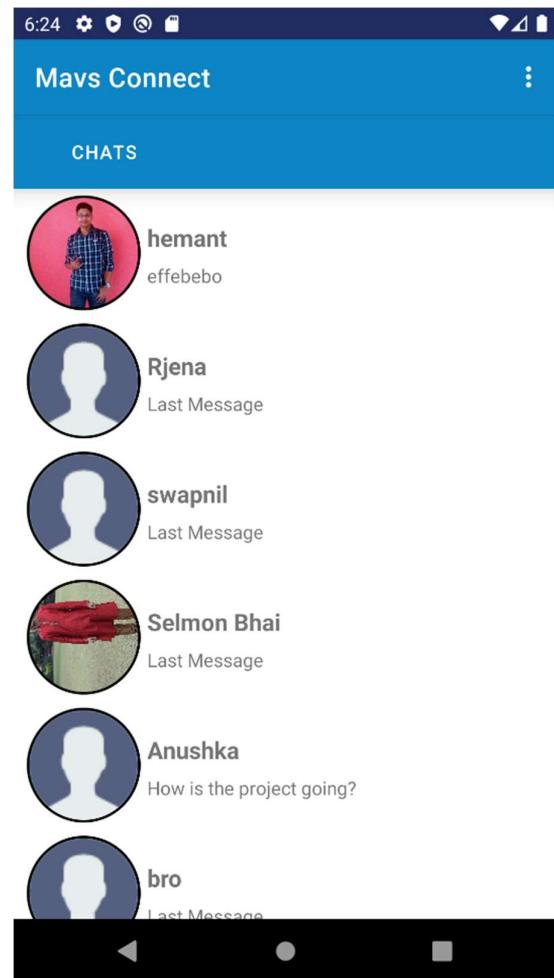
Actor: User	System: Mavs Connect
1. TUCBW the user enters his login Id and password and clicks on “LOGIN” button. 3. TUCEW the user gets logged in and Home Screen is displayed.	0. System displays the Login Screen. (Refer Fig.3) *2. System displays Home Screen Page UI. The System displays “Loggin into your account” message if authentication is correct. (Refer Fig.4)

Postcondition: The user can now see the chats with the users and other functions.

(Fig.3)



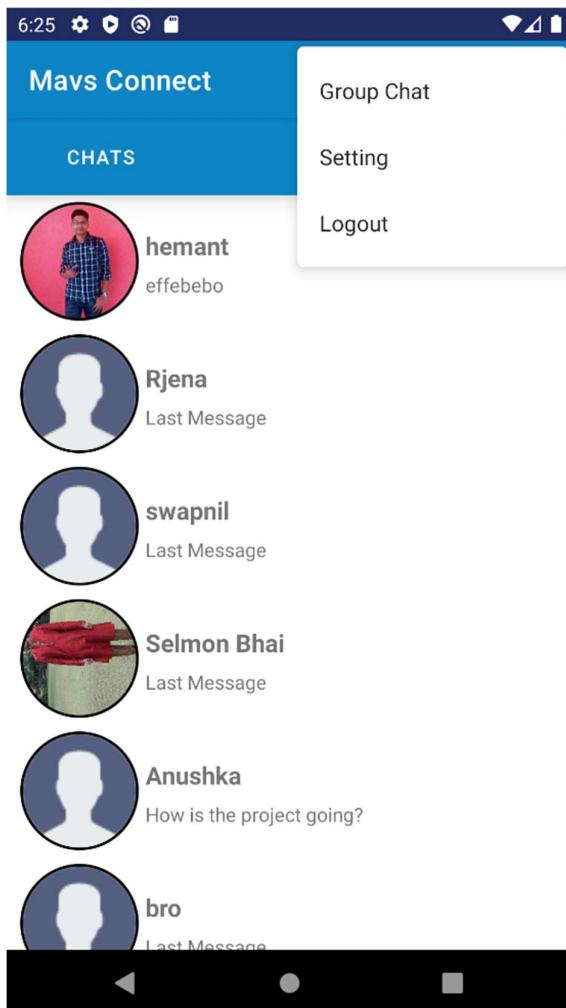
(Fig.4)



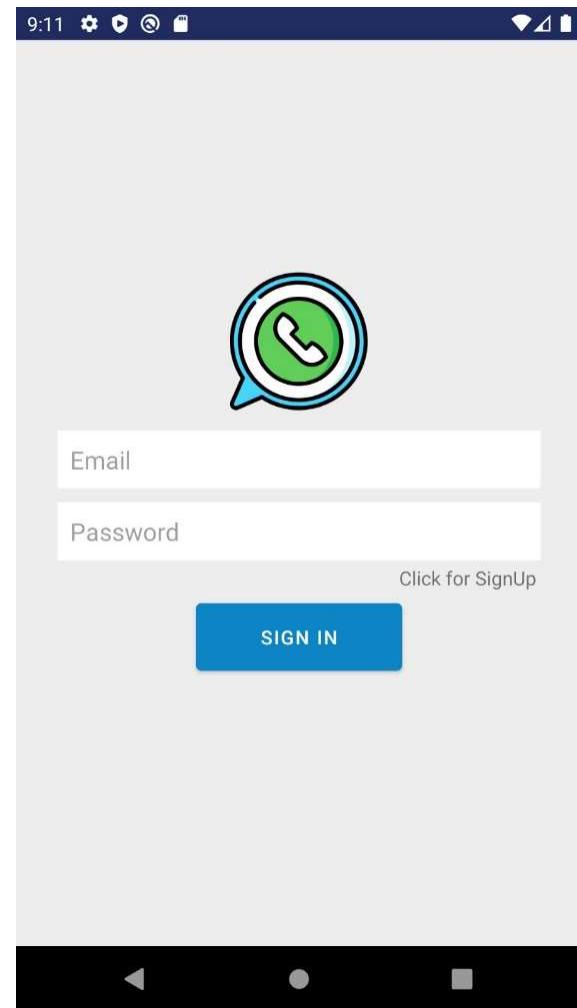
EUC 3: Logout

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
1. TUCBW the user clicks on three dot to select the logout option from the application. 3. TUCEW user exits from the application and login page is displayed.	0. System displays the Home Screen. (Refer Fig.5) *2. The system displays the login screen. (Refer Fig.6)
Postcondition: The user is logged out successfully.	

(Fig.5)



(Fig.6)



EUC 4: Send Message

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
1. TUCBW the user selecting the user to send the message. 3. The user type the messages and clicks on the send button to send the message. 5. TUCEW the user sent message when click on send button and message is sent.	0. System displays the Home Screen. (Refer Fig.7) *2. The system displays the conversation of the selected user. (Refer Fig.8) 4. The system displays the latest message along with the conversation. (Refer Fig.8)
Postcondition: The message is successfully delivered to the intended receiver user.	

Fig.7

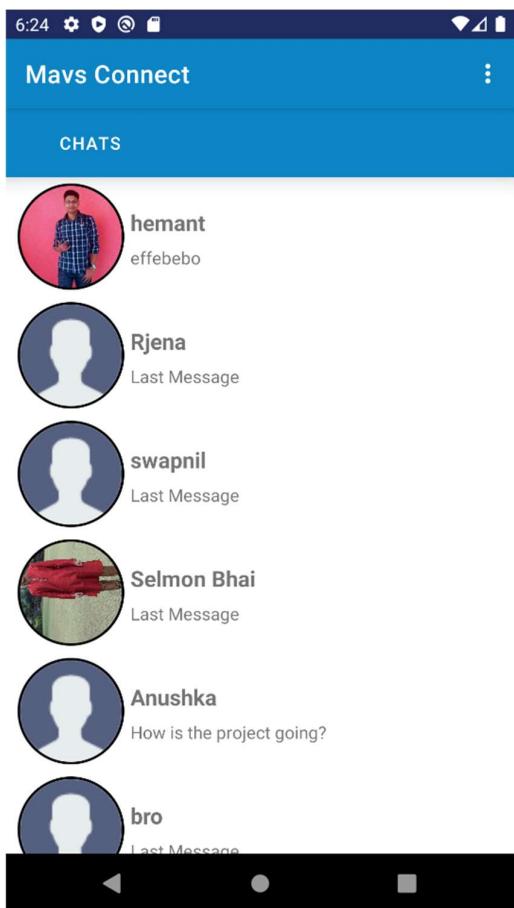
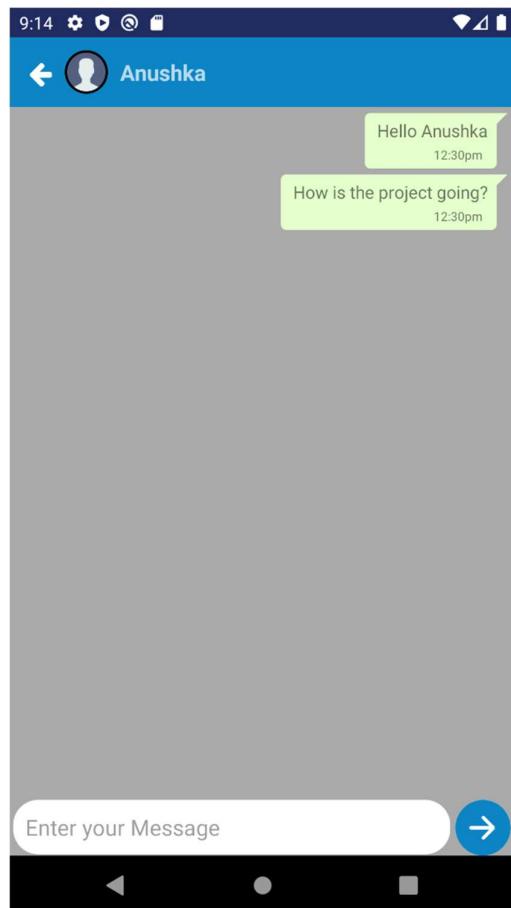


Fig.8



EUC 5: Receive Message

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
1. TUCBW the receiving the message from the sender user. 3. TUCEW the user seeing the message from the users.	0. System displays the Home Screen. (Refer Fig.9) *2. The system displays the latest message along with the conversation of the selected user. (Refer Fig.10)
Postcondition: The user is able to view the received message in the chat history.	

Fig.9

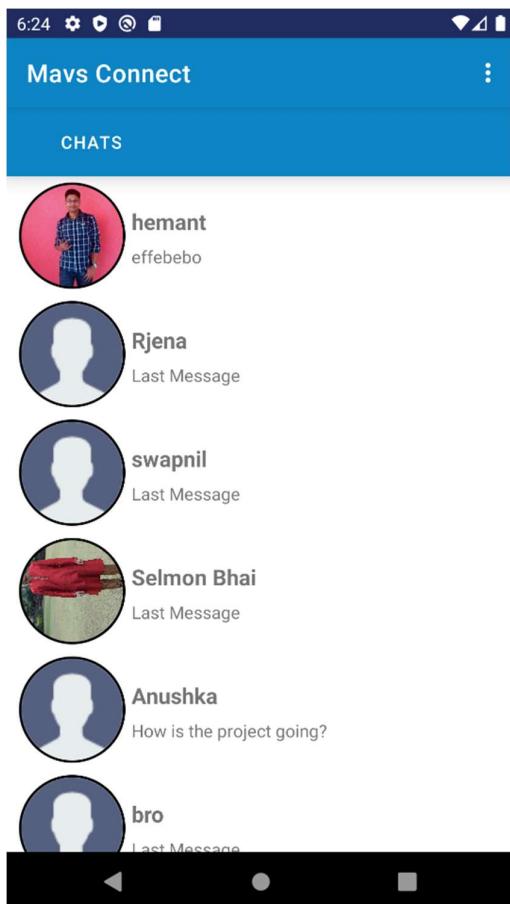
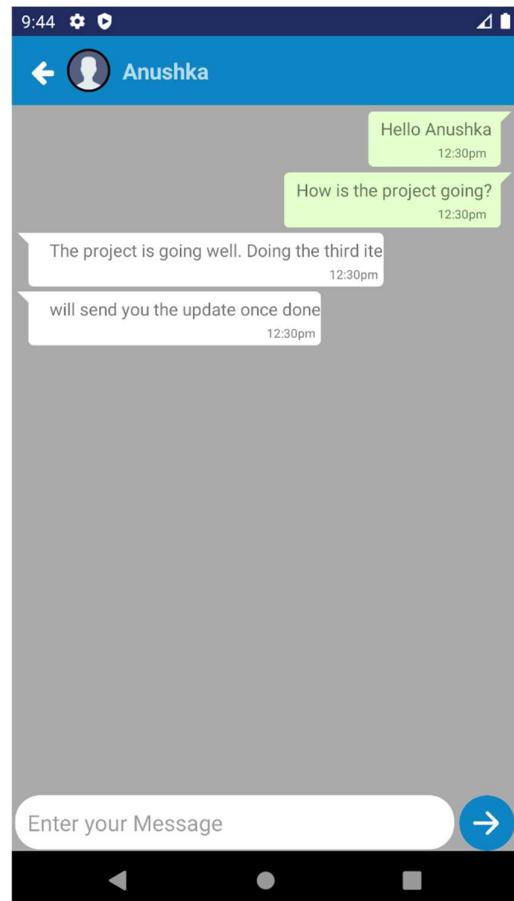


Fig.10



EUC 6: Delete Message

Precondition: This use case assumes that user has logged into the system and is viewing the Home Screen.	
Actor: User	System: Mavs Connect
<p>1. TUCBW the user selecting the reception chat and holding the message where it gets alert box to delete the message.</p> <p>3. TUCEW the user message getting deleted from both ends.</p>	<p>0. System displays the Home Screen. (Refer Fig.11)</p> <p>*2. The system deletes the selected messages from the chat history. (Refer Fig.12)</p>
Postcondition: The selected message is removed from the user's chat history.	

Fig.11

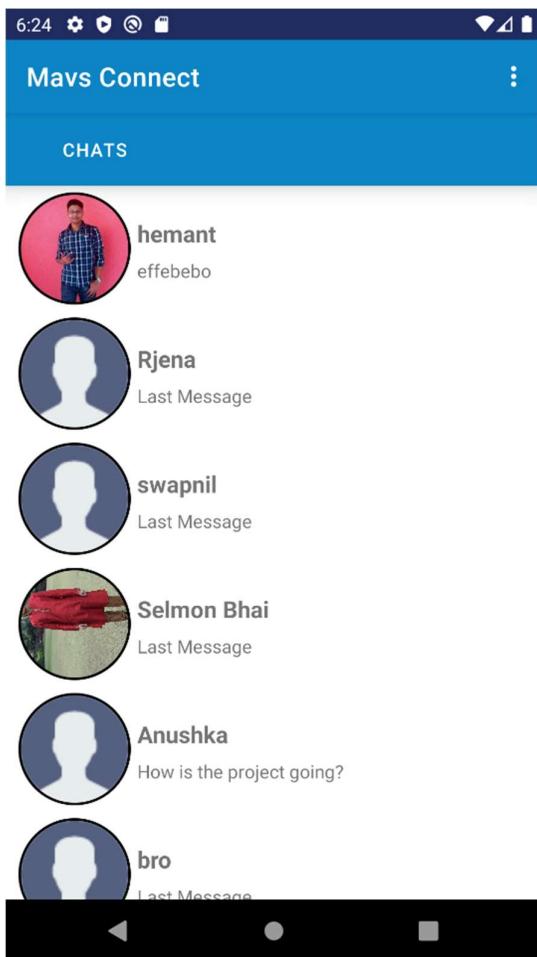
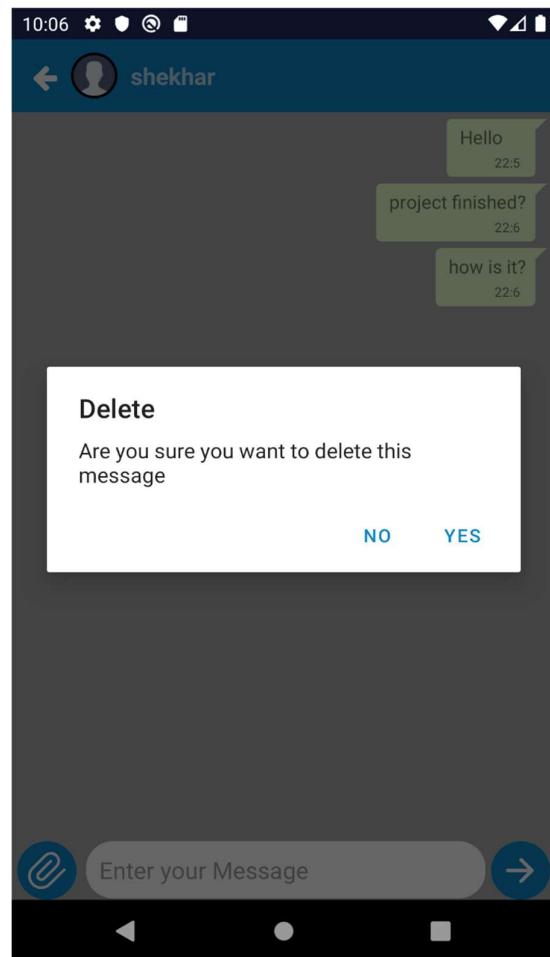


Fig.12



EUC 7: Send Group Chat

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.

Actor: User	System: Mavs Connect
1. TUCBW the selecting the group to send the message. 3. TUCEW the user seeing the message from the users.	0. System displays the Home Screen. (Refer Fig.13) *2. The system displays the latest message along with the conversation of the selected group. (Refer Fig.14)
Postcondition: All group members can send and receive messages in the group chat.	

Fig.13

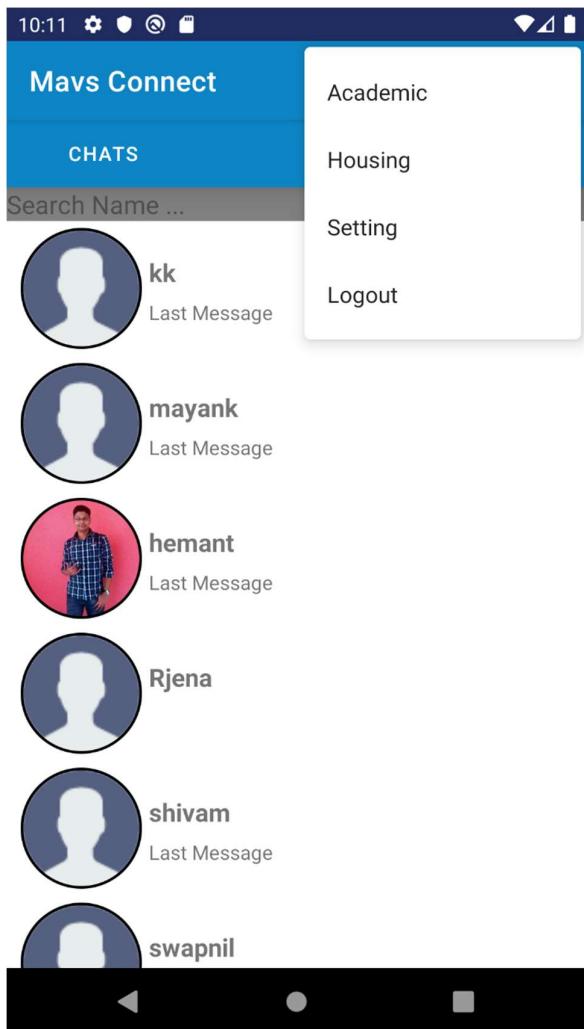
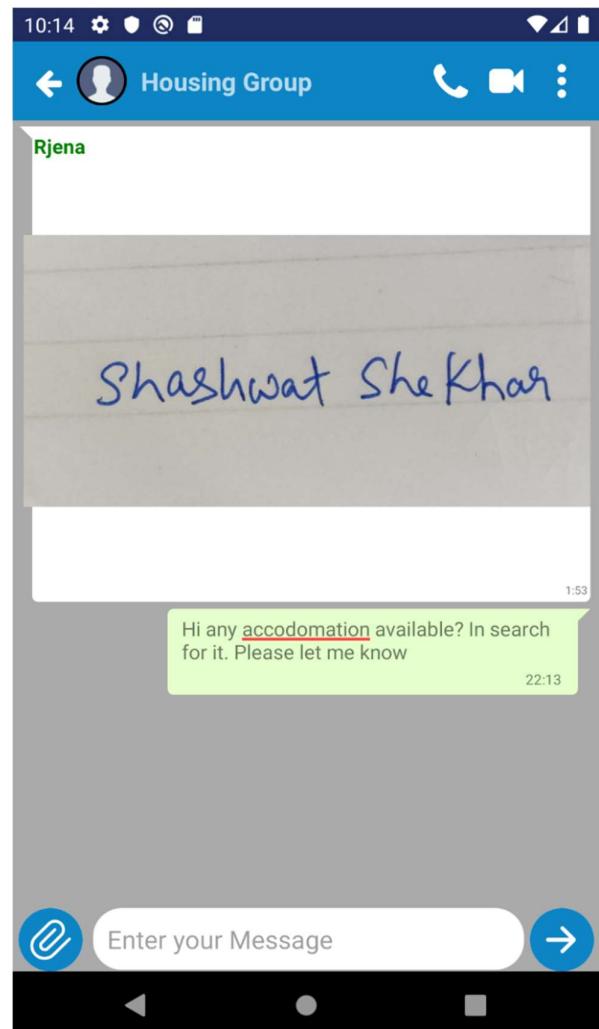


Fig.14



EUC 8: Open the Setting Menu

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
1. TUCBW the user selecting the setting menu. 3. TUCEW the user successfully updating their name, about a profile picture.	0. System displays the Home Screen. (Refer Fig.15) *2. The system displays username, status, profile-picture of the user. (Refer Fig.16)
Postcondition: The user is able to view the settings menu.	

Fig.15

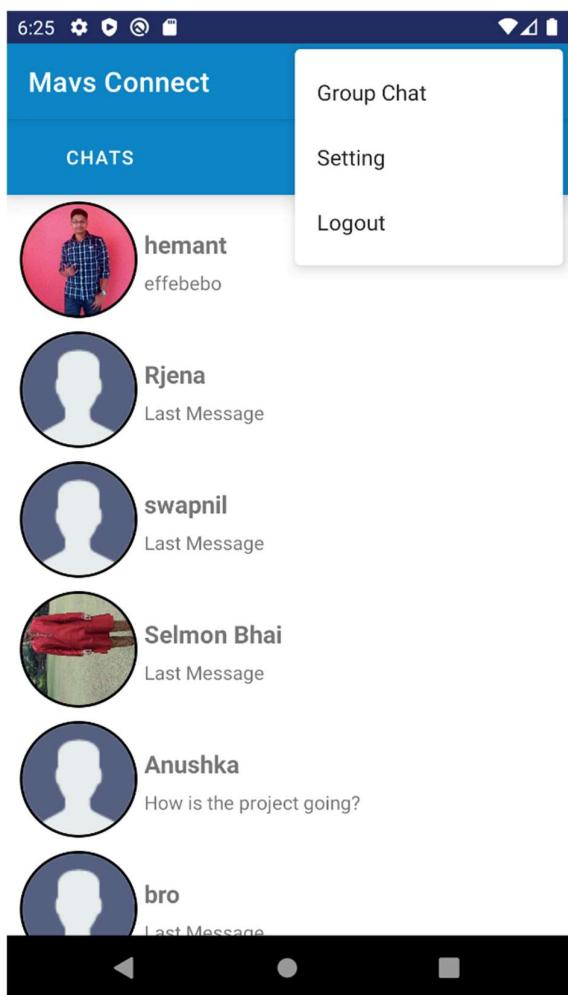
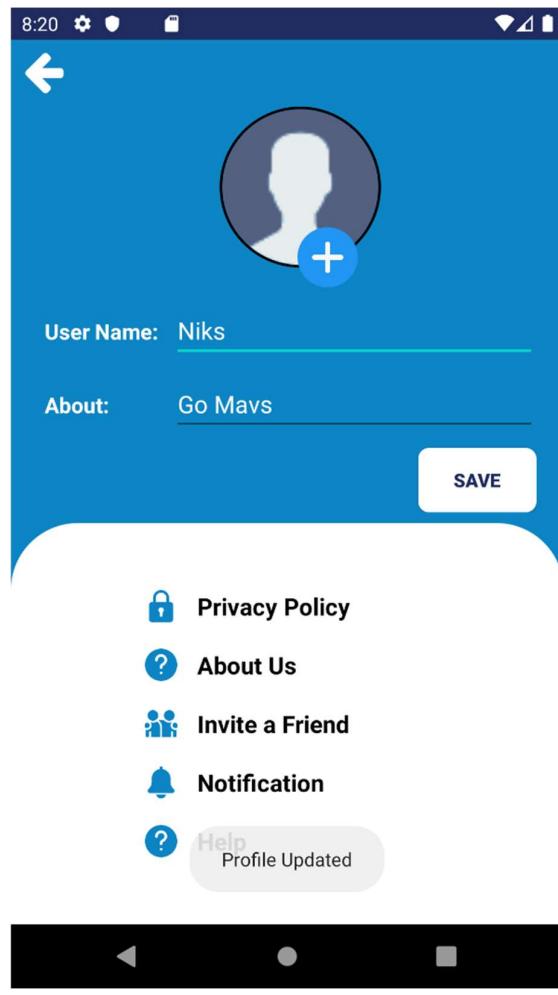


Fig.16



EUC 8.1: Update Name

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
<p>1. TUCBW the user clicks on three dot to select the setting option from the application.</p> <p>3. The user changing their username in the user-name field.</p> <p>5. TUCEW the user successfully updating the name.</p>	<p>0. System displays the Home Screen. (Refer Fig.17)</p> <p>2. System displays the Setting Menu. (Refer Fig.18)</p> <p>*4. The system displays the updated name.</p>
Postcondition: The update done on the specific field must be reflected on the screen.	

Fig.17

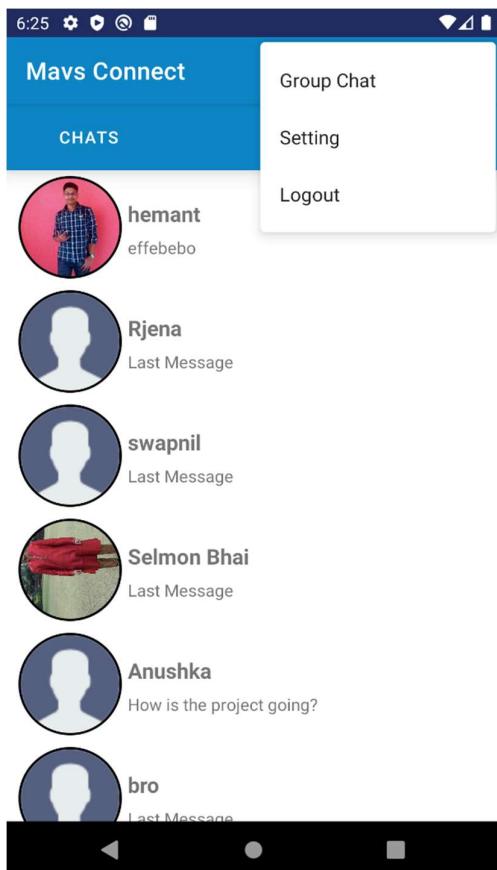
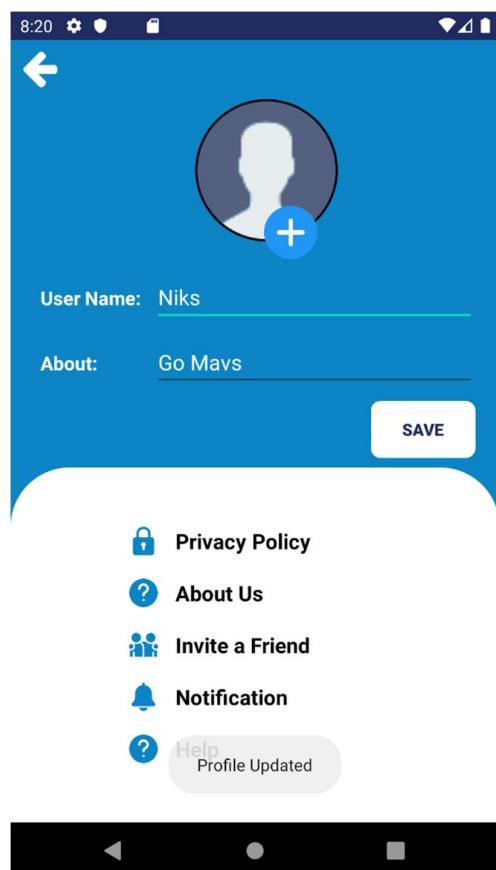


Fig.18



EUC 8.2: Update About

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
<p>1. TUCBW the user clicks on three dot to select the setting option from the application.</p> <p>3. The user updating the user about status in the given field.</p> <p>5. TUCEW the user successfully updating the about.</p>	<p>0. System displays the Home Screen. (Refer Fig.19)</p> <p>2. System displays the Setting Menu. (Refer Fig.20)</p> <p>*4. The system displays the updated about. (Refer Fig.20)</p>
Postcondition: The update done on the specific field must be reflected on the screen.	

Fig.19

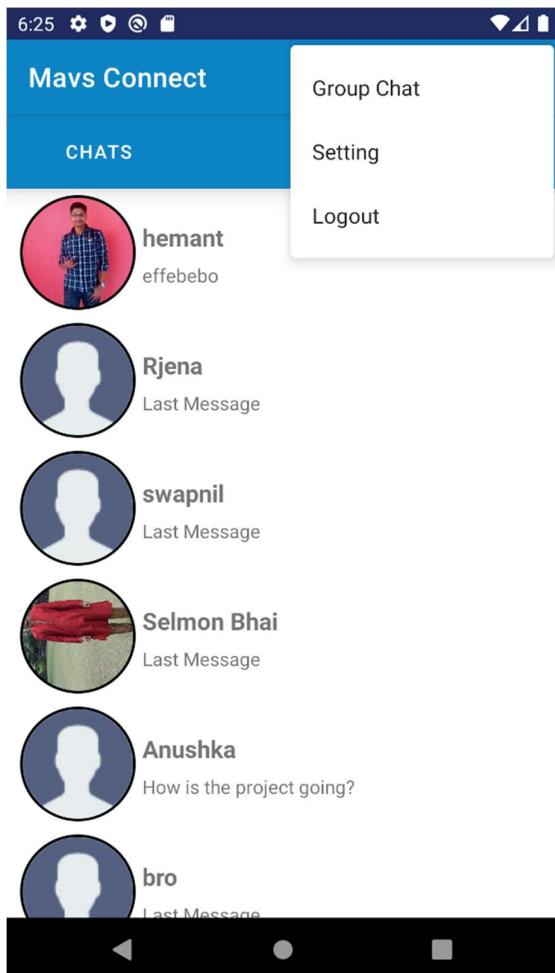
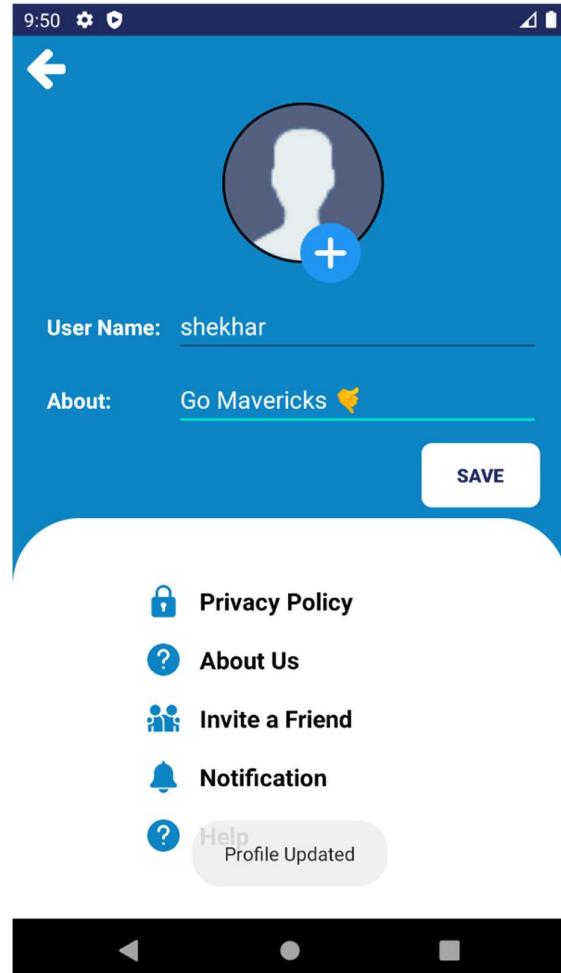


Fig.20



EUC 8.3: Update Profile Picture

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
<p>1. TUCBW the user clicks on three dot to select the setting option from the application.</p> <p>3. The user updating the user profile picture in the given field.</p> <p>5. TUCEW the user successfully updating the profile picture.</p>	<p>0. System displays the Home Screen. (Refer Fig.21)</p> <p>2. System displays the Setting Menu. (Refer Fig.22)</p> <p>*4. The system displays the updated profile picture. (Refer Fig.22)</p>
Postcondition: The update done on the specific field must be reflected on the screen.	

Fig.21

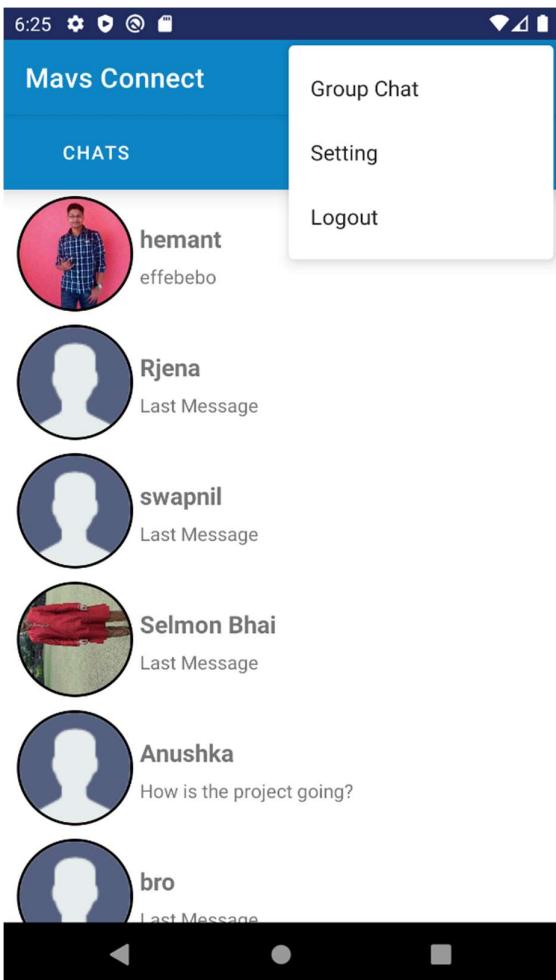
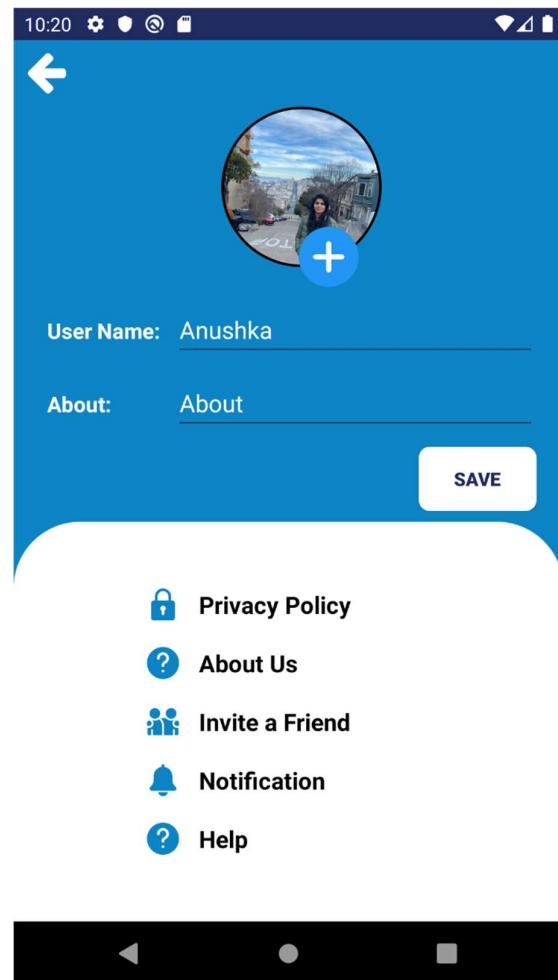


Fig.22



EUC 9: Send Attachment

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
1. TUCBW the user selecting the user to send the attachment. 3. User selects the attach button from the messaging application to send image. 5. TUCEW the user sends the attachment in message.	0. System displays the Home Screen. (Refer Fig.23) *2. System displays the chat of the user. (Refer Fig.24) *4. The system displays uploads to the firebase and displays the attachment to the chat screen. (Refer Fig.24)
Postcondition: The attachment is successfully sent to the desired recipient or group.	

Fig.23

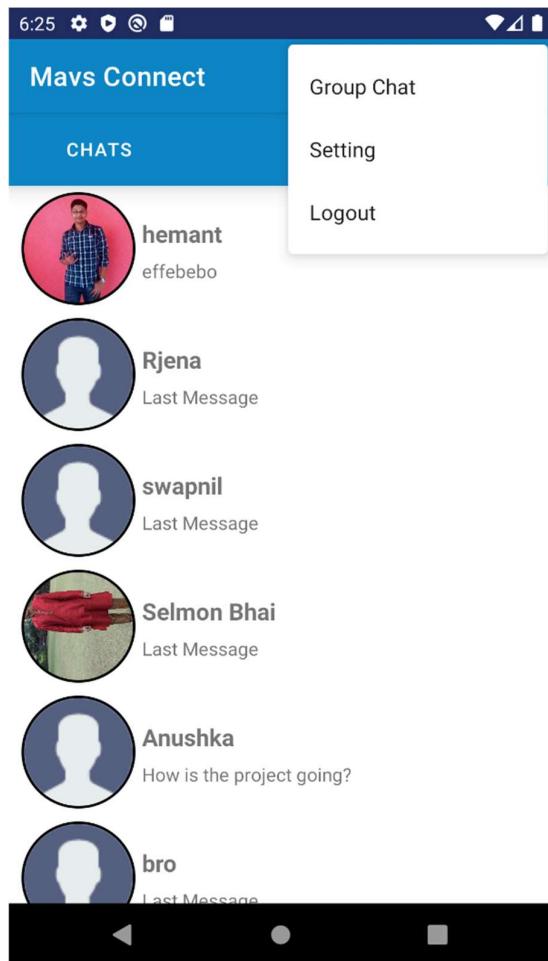


Fig.24



EUC 10: Use a Search Filters

Precondition: This use case assumes that user has logged into the system and is viewing the Home screen.	
Actor: User	System: Mavs Connect
1. TUCBW the user searching other students. 3. TUCEW the user finds the student in search option.	0. System displays the Home Screen. (Refer Fig.25) *2. System displays the enter name in search menu. (Refer Fig.26)
Postcondition: The user is able to locate the desired students by using search filters.	

Fig.25

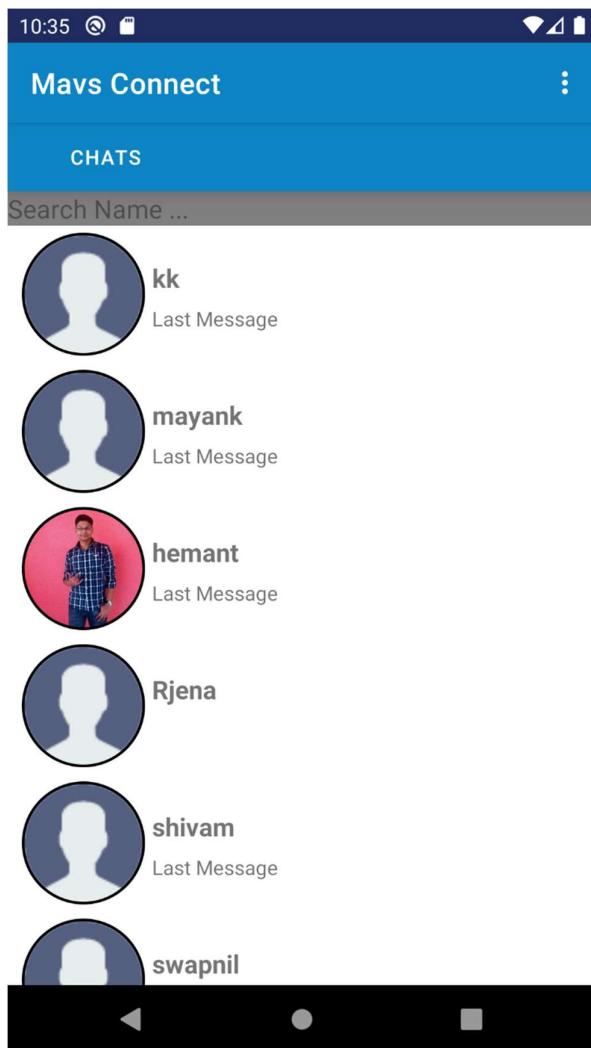
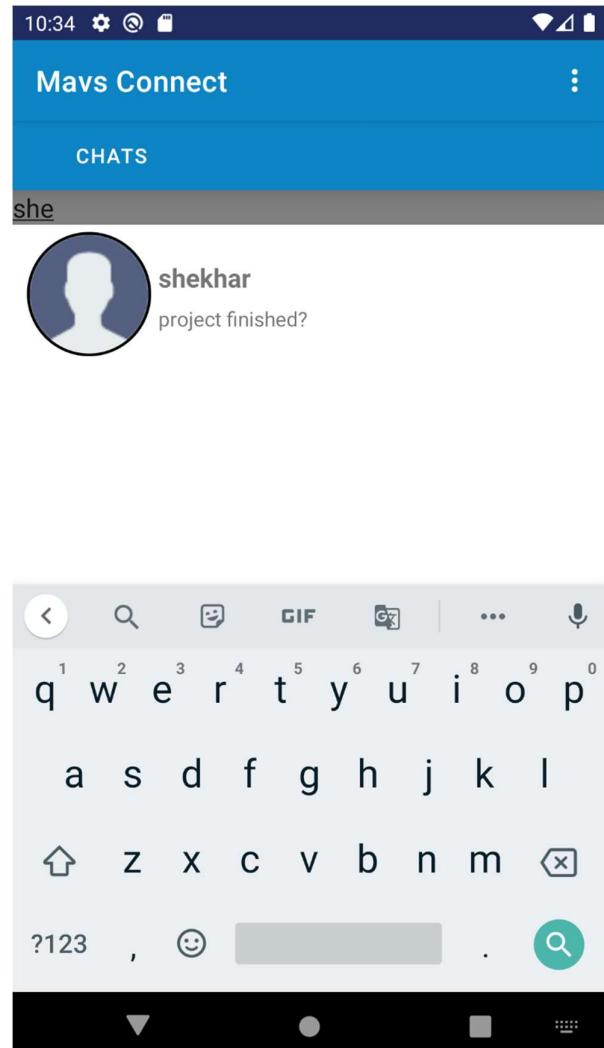


Fig.26



EUC 11: Launch the Home Screen

Precondition: This use case assumes that user has successfully logged into our application	
Actor: User	System: Mavs Connect
<p>1. TUCBW the user launching the home screen. 1.a) The user can click on individual/group chat to message. 1.b) The user can also click on settings menu.</p> <p>3. TUCEW the user sees the users chats and registered users.</p>	<p>0. System displays the Home Screen. (Refer Fig.27)</p> <p>*2.a) System gets the data from the databases and gets redirected to chat screen where the individual/group chats are displayed. (Refer Fig.28) *2.b) System gets the data from the database of user account information such as username, profile picture, about. (Refer Fig.28)</p>
Postcondition: The user can navigate to different parts of the application from the home screen.	

Fig.27

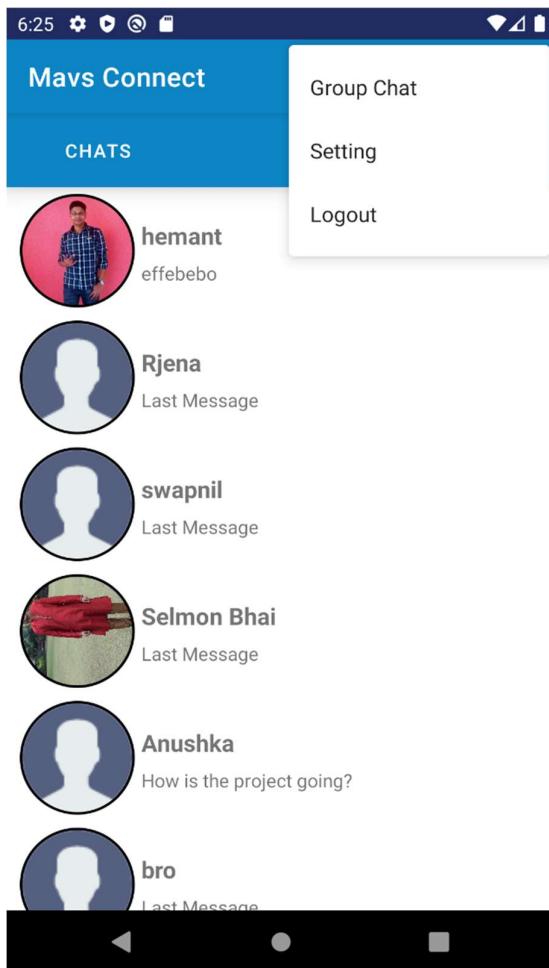
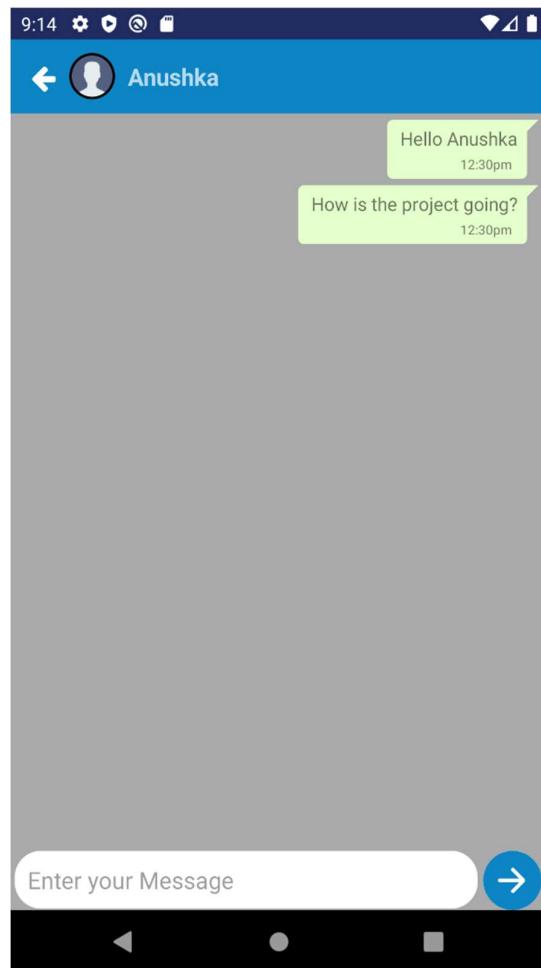
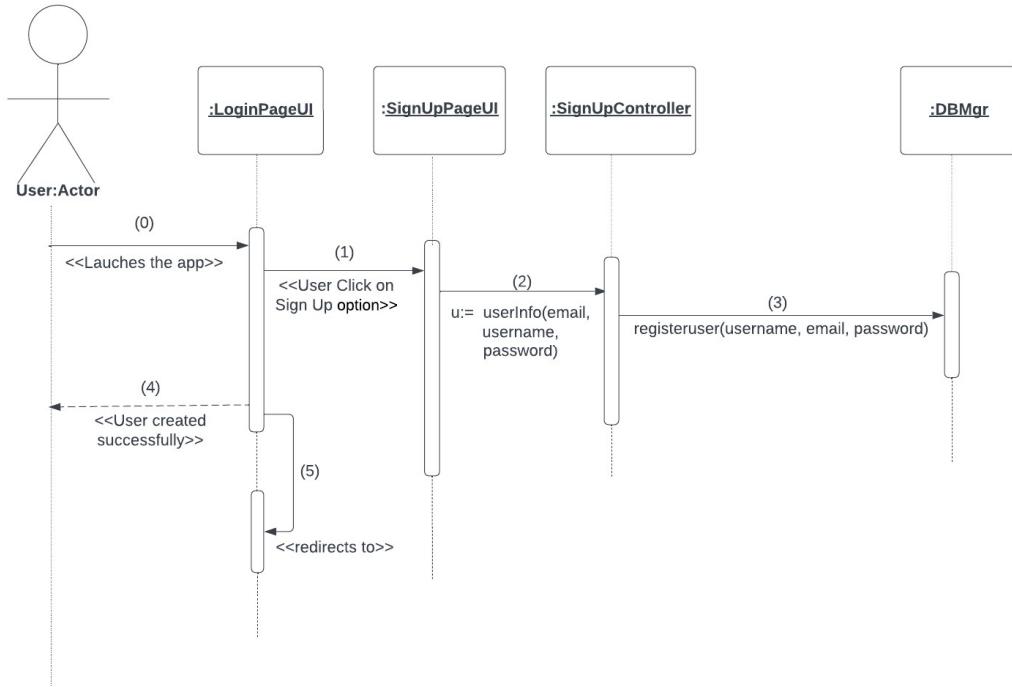


Fig.28

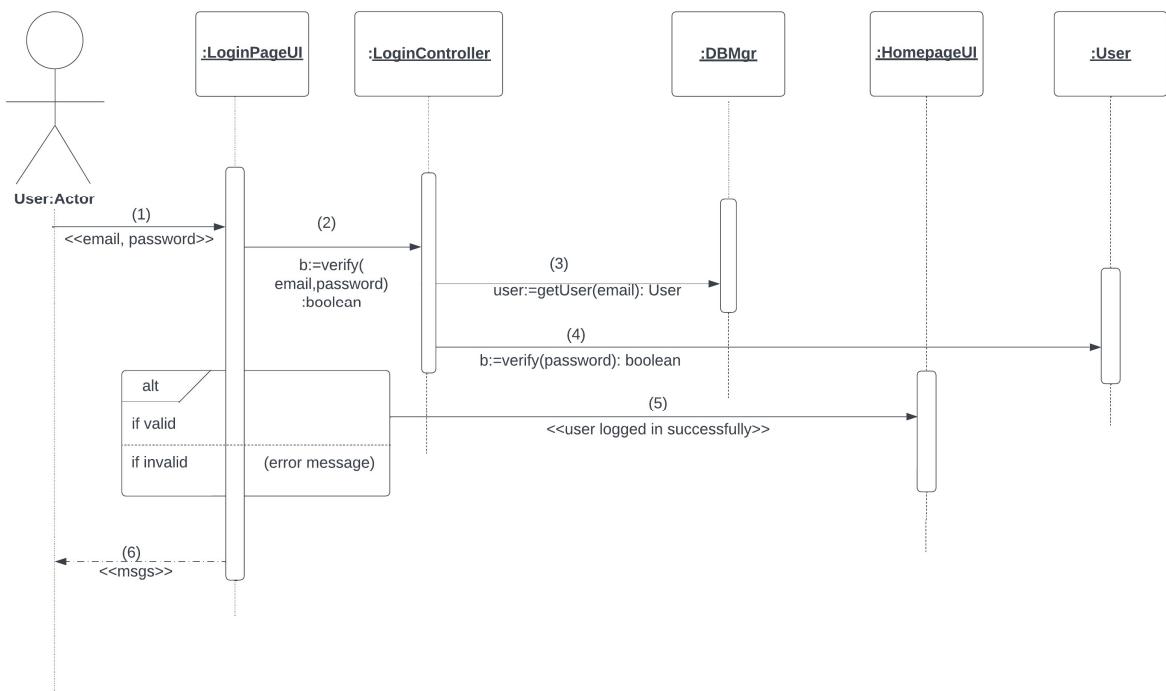


Sequence Diagram

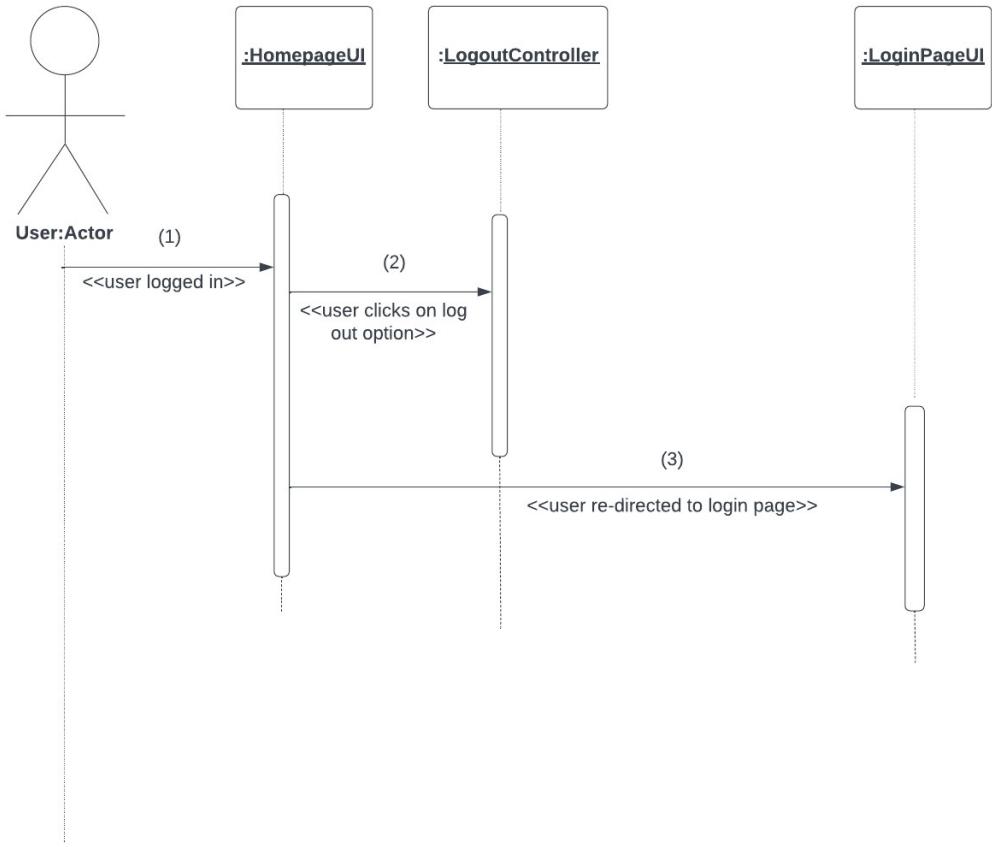
Sign Up Page:



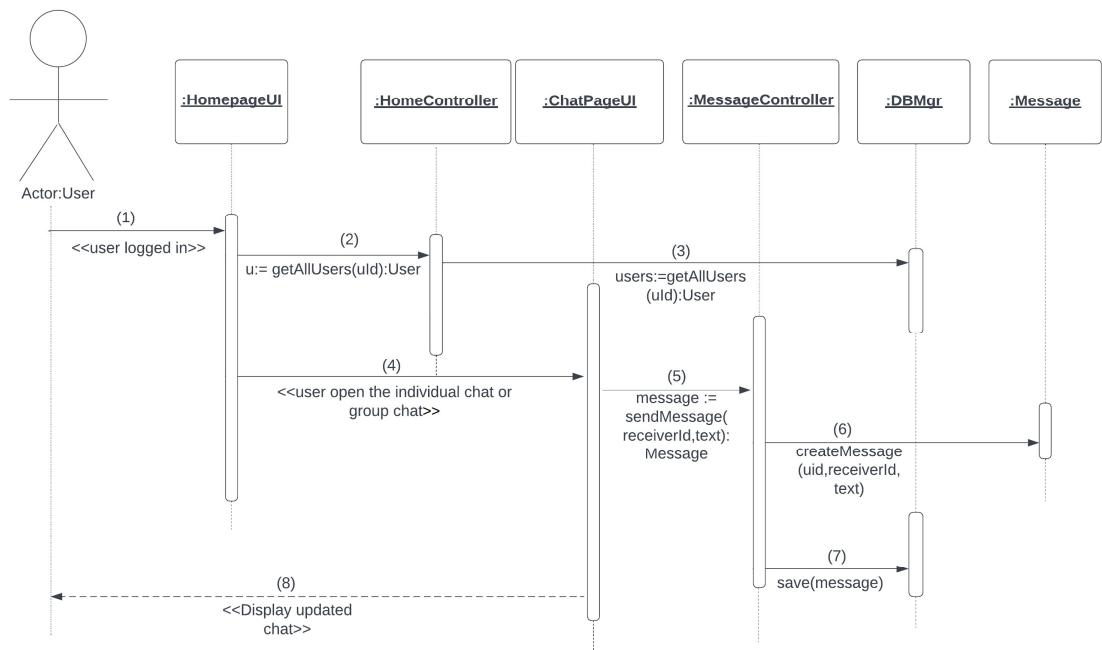
Login Page:



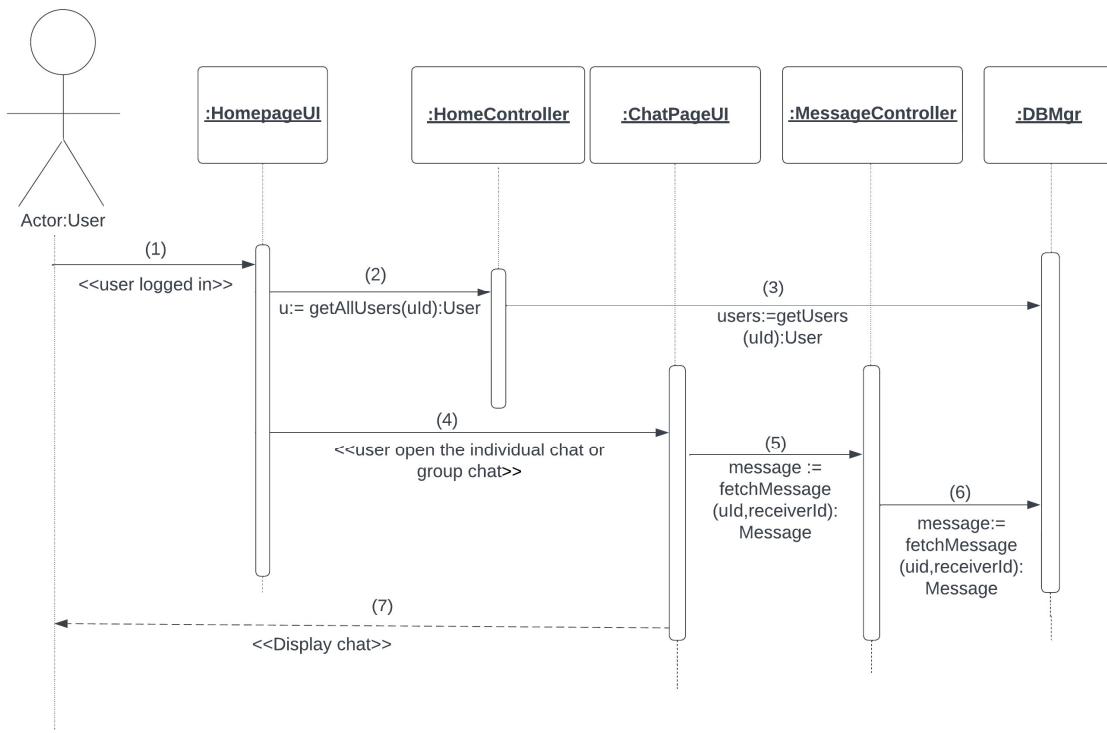
Log-out Page:



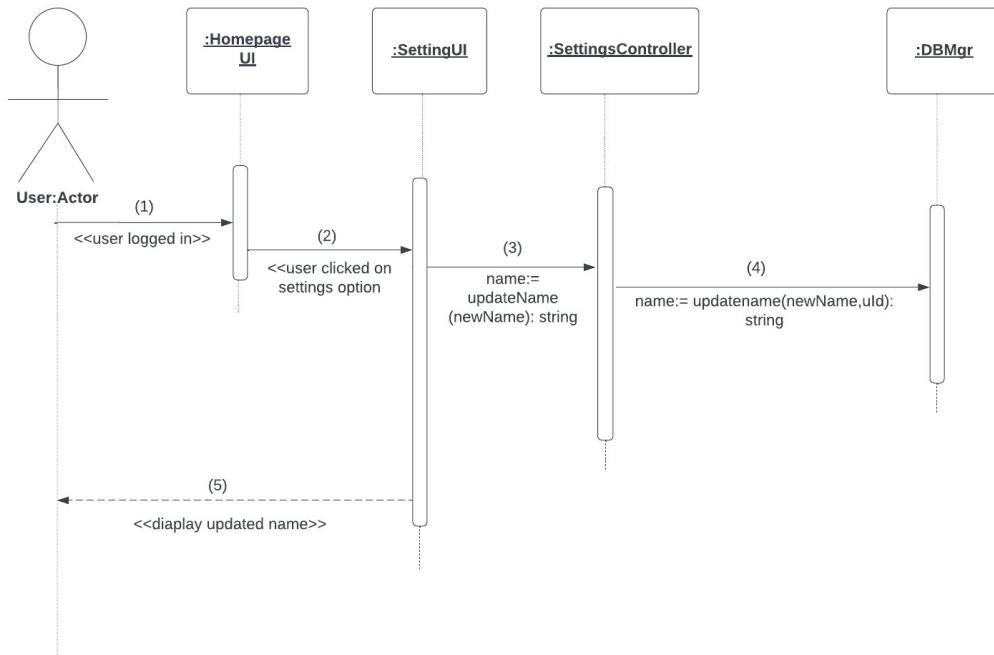
Send Message:



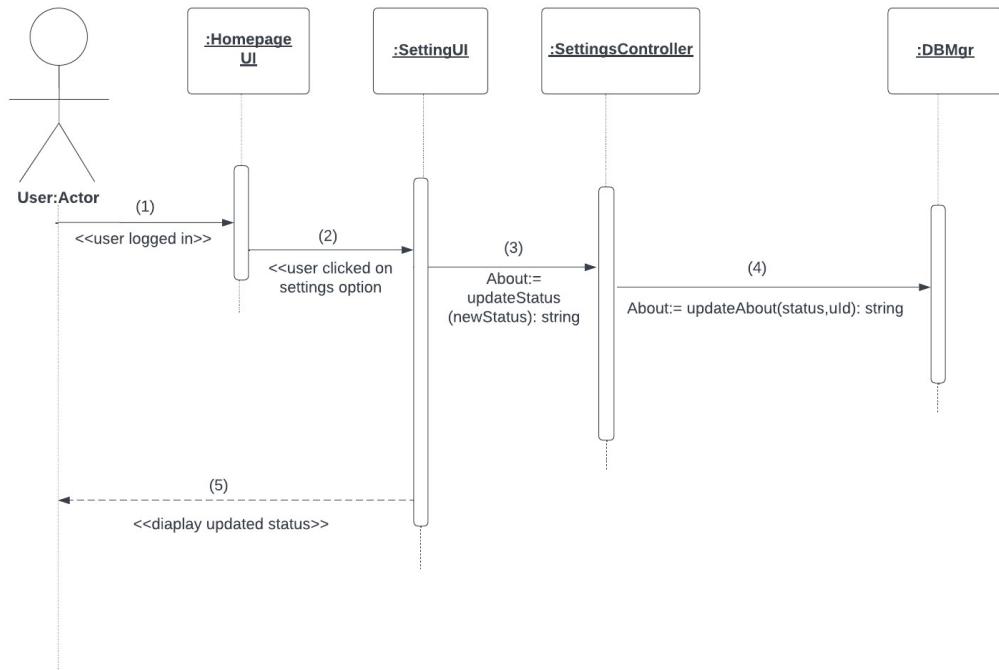
Receive Message:



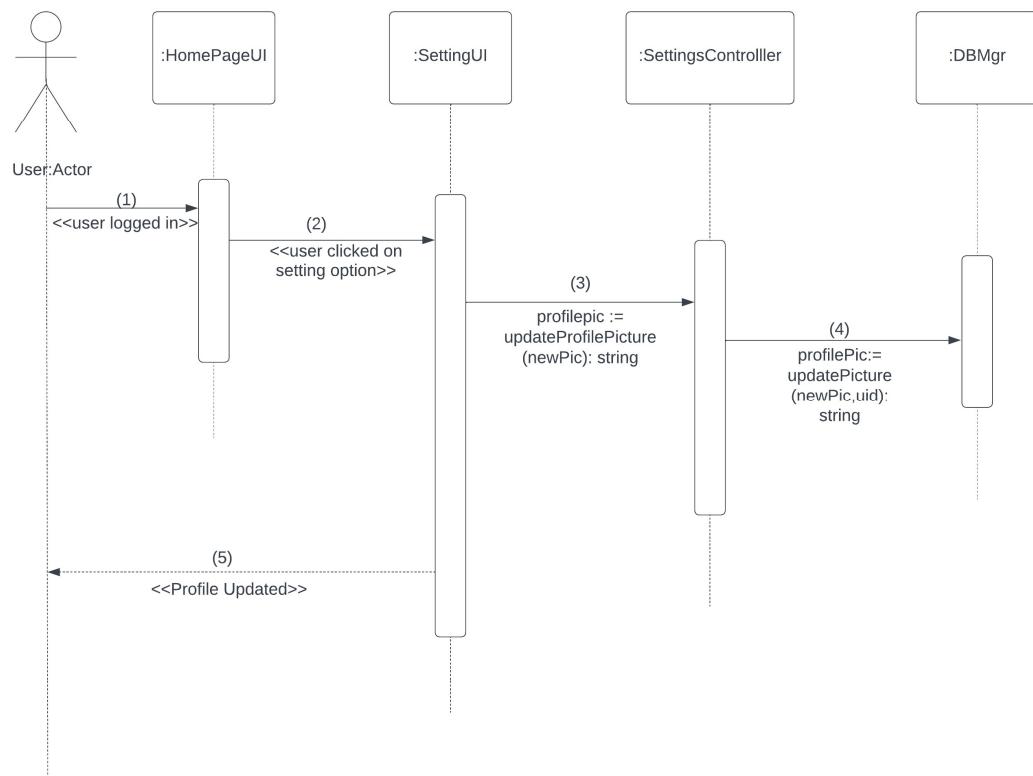
Update Name:



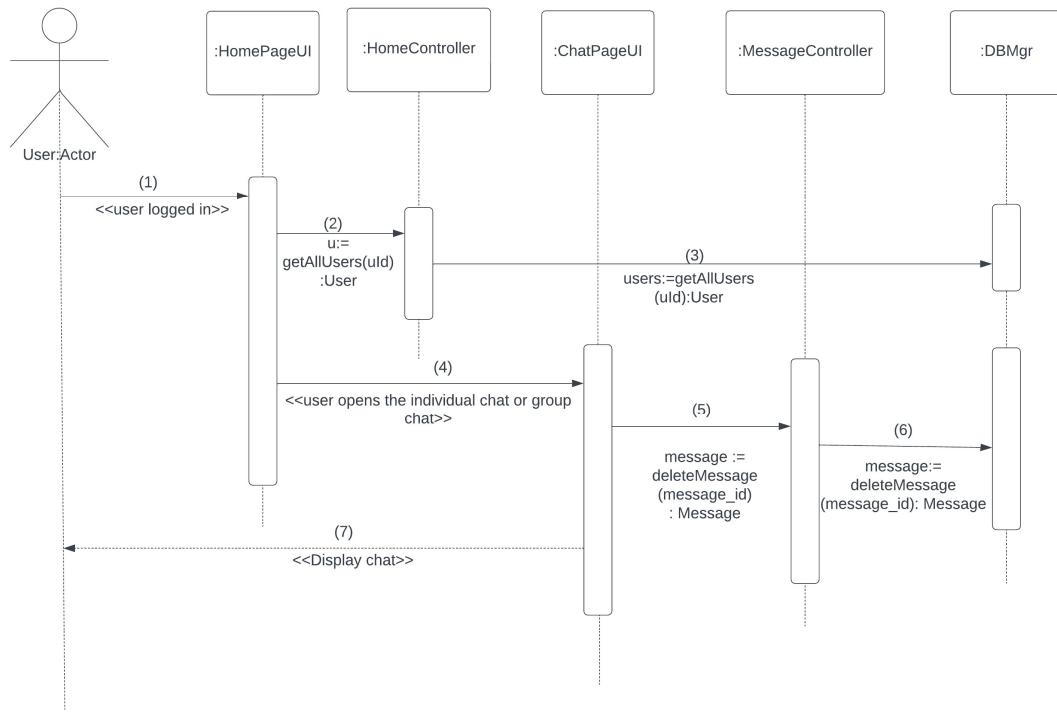
Update About:



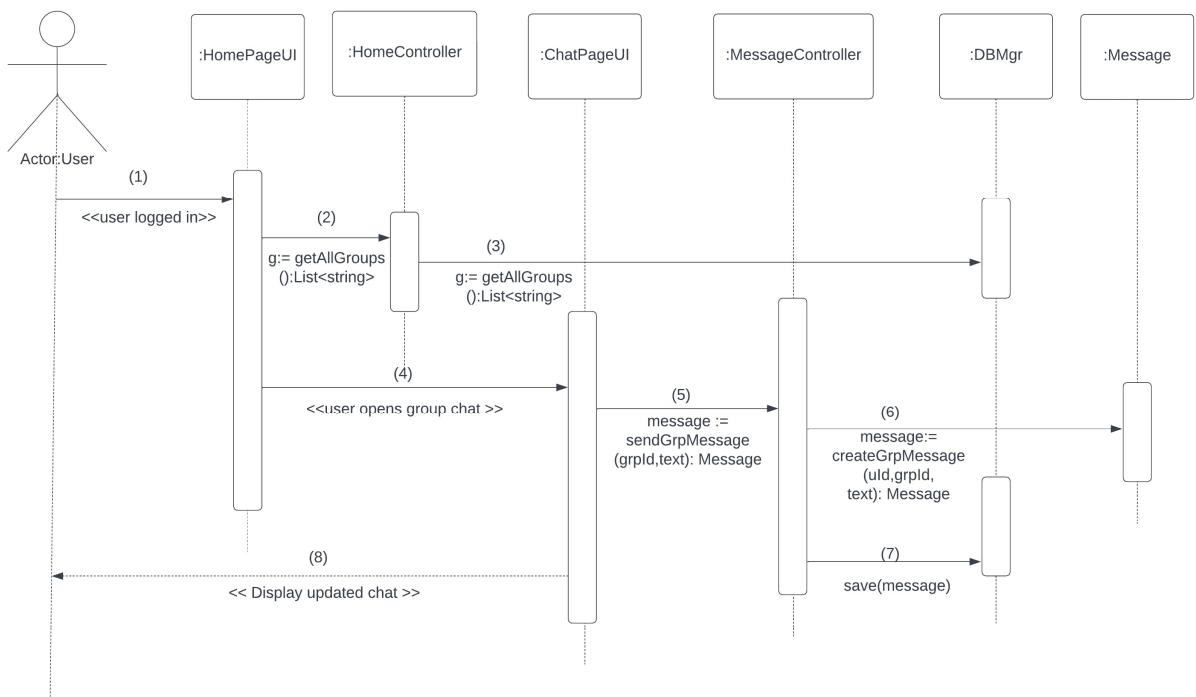
Launch the Home Screen:



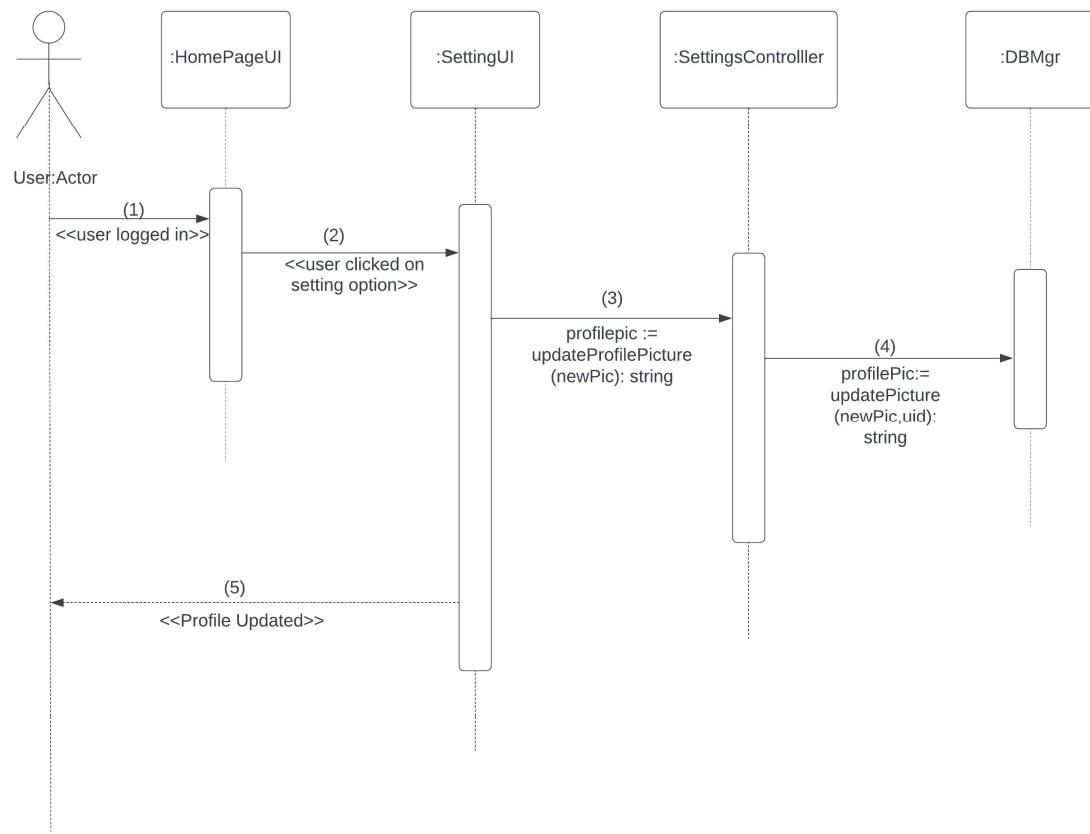
Delete Message:



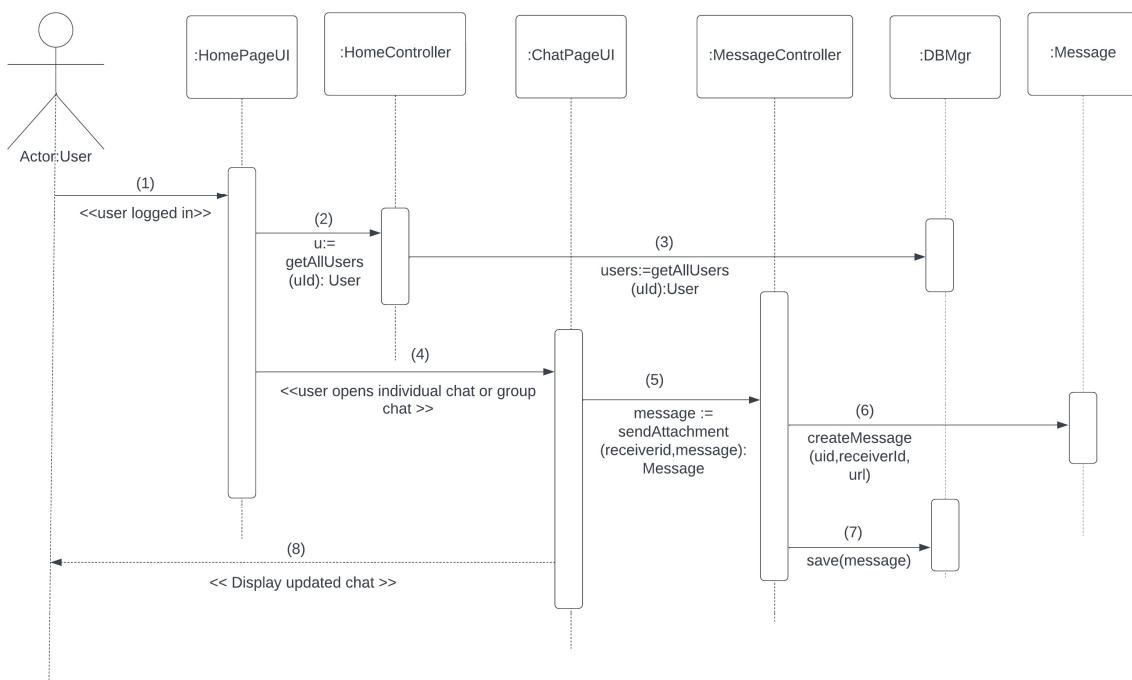
Send Group Chat:



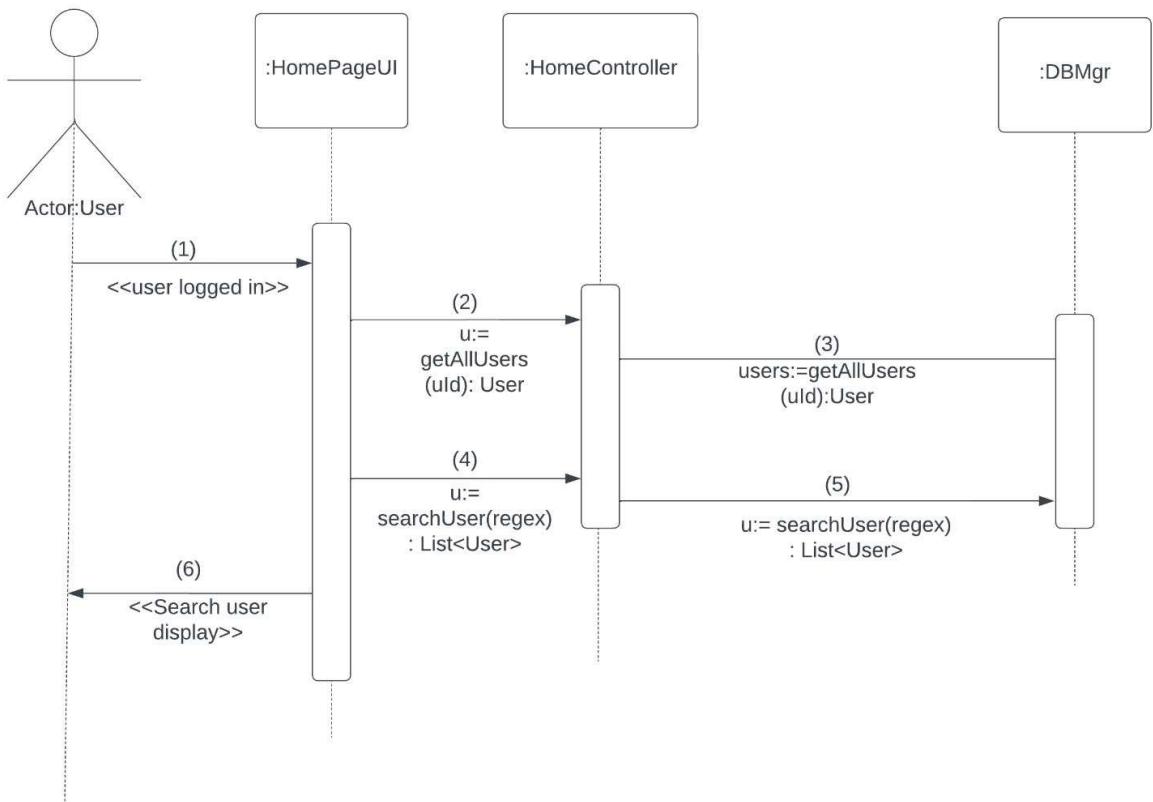
Update Profile Picture:



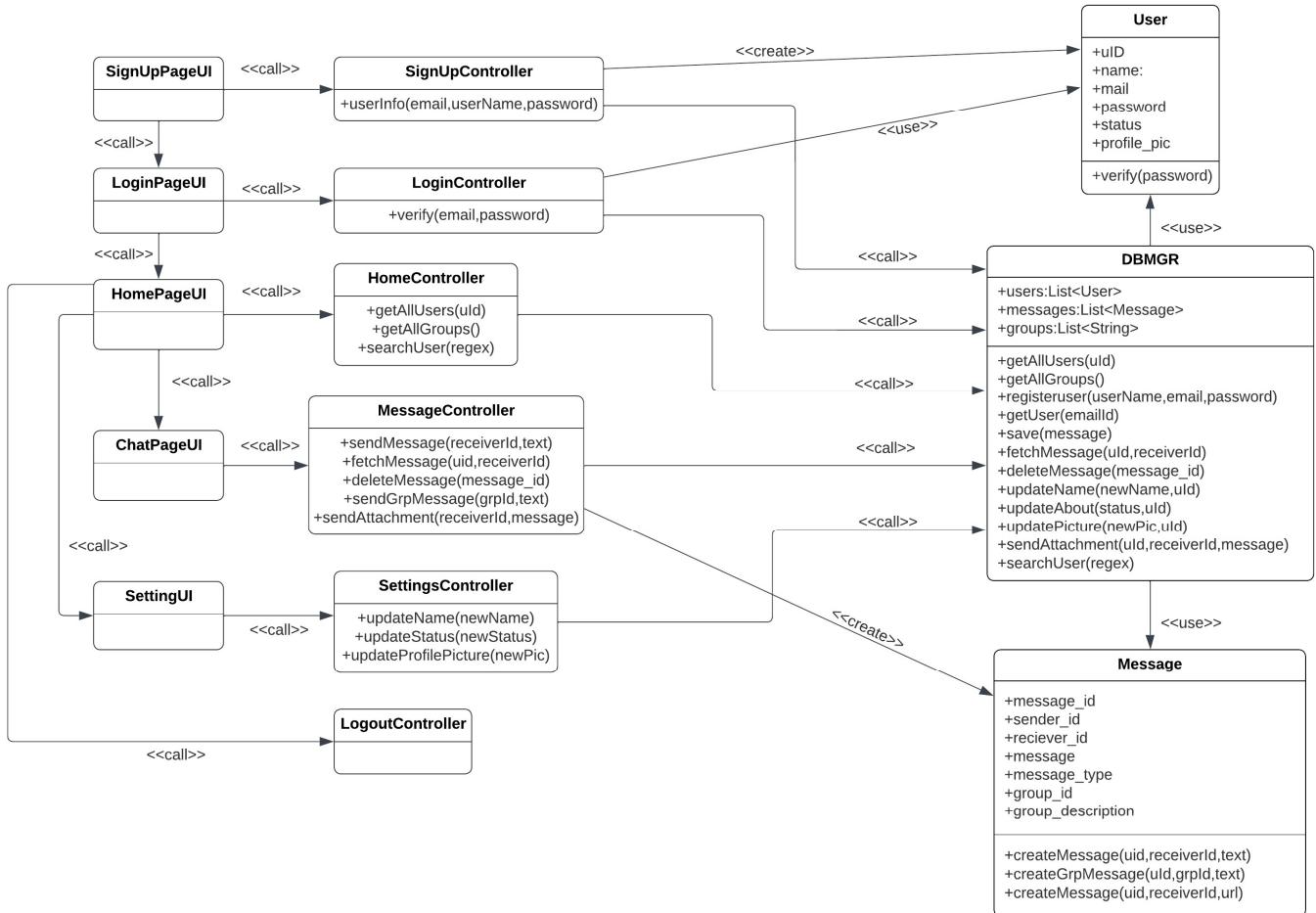
Send Attachment:



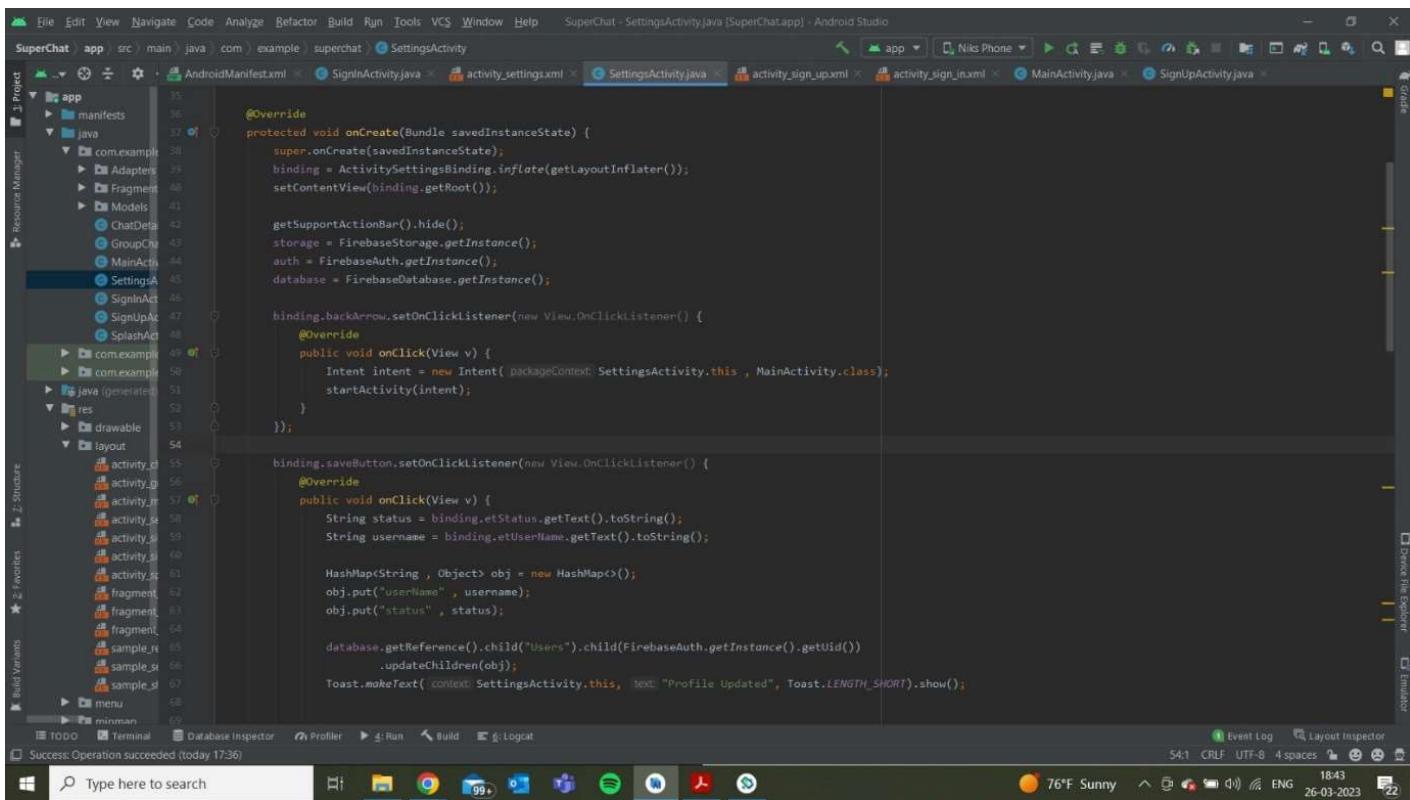
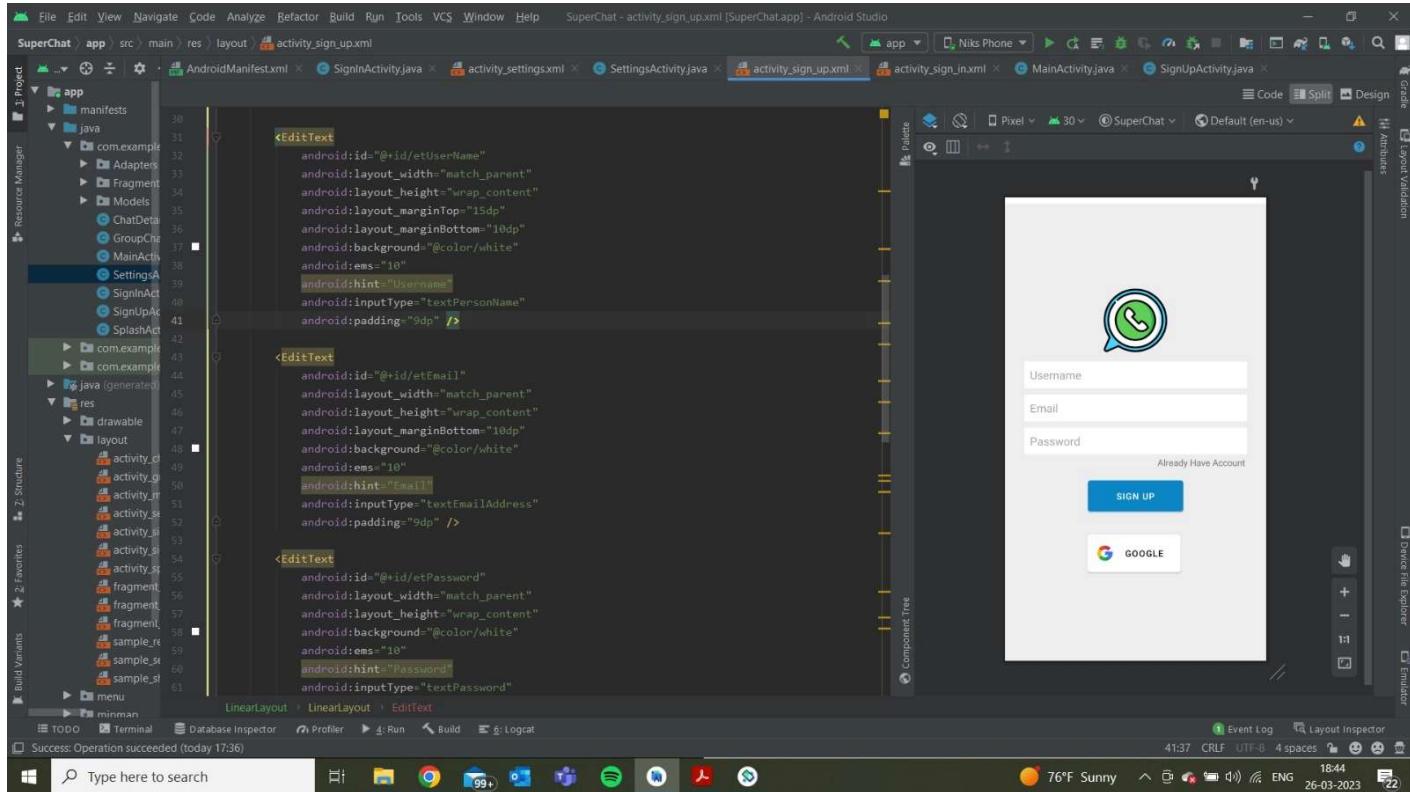
Use a Search Filters:



Design Class Diagram



Code Snapshots:



Summary

The Mavs Connect app can help new UTA students adjust to their new environment by providing a platform to communicate with other students and learn more about the university. The pre-defined groups in the app, such as "University Info" and "Housing," can help students find and share relevant information with each other more easily and efficiently. The ability to send attachments and search for other students in the chats can help students collaborate and work on group projects more effectively. Overall, the Mavs Connect app can help UTA students build connections and community with one another, which can enhance their academic and social experiences at the university.

YouTube Link:

<https://www.youtube.com/watch?v=Mi63dVQOL3Y>