

Project Report

Submitted by

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Introduction

Description

In this modern edge technology, the chat system has become one of the most important tools for everyone to share knowledge and materials via network. Chat System is a form of communication that utilizes computer programs that allow conversations between users in real time. Typically the users will connect to a chat server using a chat client in a chat room. Once the users are in the same chat room, they can converse with one another by typing messages into a window where all of the other users in the chat room can see the message.

Users have a default profile. They can edit their own profile and are able create posts. They are able to react to other's posts. This makes it easy for people to share their thoughts, knowledge and thinking.

Purpose

This environment is developed in order to enhance the communication among students and others via a network which will be easy for the discussion related to their studies and other important things. People can easily share their thoughts with each other and also with the whole world.

Motivation and Scope

The environment is created to increase communication between students and others through networks so that it becomes easier for them to study and discuss important topics. They can also post important contents and view their own profile.

Challenges

- Providing real time conversation.
- Interactive conversation.
- Providing a smart environment for profile and post.
- Sending and displaying the message on both ends at the same time.
- Providing a smart and real chatting environment.
- Managing the security system.

Model View Controller (MVC) diagram

Diagram

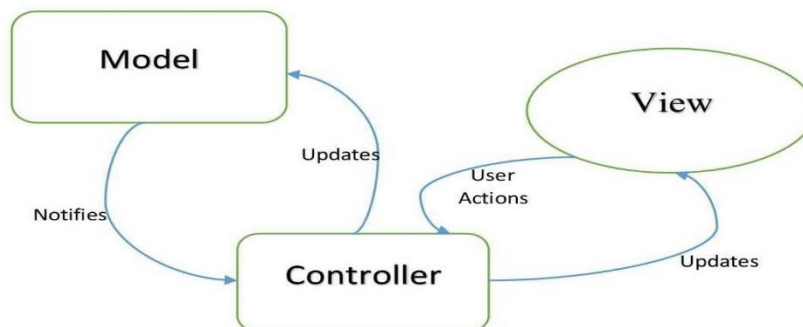


Figure: Model View Controller (MVC) Diagram.

Requirements

Non-Functional Requirements

- Ensuring a great user experience is important. Users shall not find any difficulty while using the application.
- The application shall be time efficient so that the user should send and receive messages as soon as possible.
- Ensuring security is must. It shall provide proper security to users.
- It should provide user friendly environments.
- It should ensure login and registration facility.

Functional Requirements

- It should have a home page.

Scenario: In the home page there will be some contents. Users can choose an option for chat module or post module or profile module.

- Interactive web chat application.

Scenario: When a user sends a message then the user's messages should be on the left side and the receiver's messages should be on the right and vice versa.

- Interactive profile module.

Scenario: Users may have a default profile. They can update their profile any time they need.

- Interactive post module.

Scenario: Users can view all the posts which have been posted. On the other hand, users can upload posts. They can also update or delete their own post. Users can react such as 'like', 'love', 'haha' on the post as well.

- Image uploading.

Scenario: Users can upload profile pictures.

- Attractive look.

Scenario: The application should be attractive so that users can feel pleased while using the application. Like the background, content, text and alignment should have a professional look.

Technologies

- Language: Python.
- Framework: Django.
- Template: HTML, CSS and JavaScript.
- Database: MongoDB.

Operational Environment

For accessing the system users need a modern browser of a PC, Tab, or Mobile phone with any operating system.

Appendix A: Analysis Model

User Case Diagram

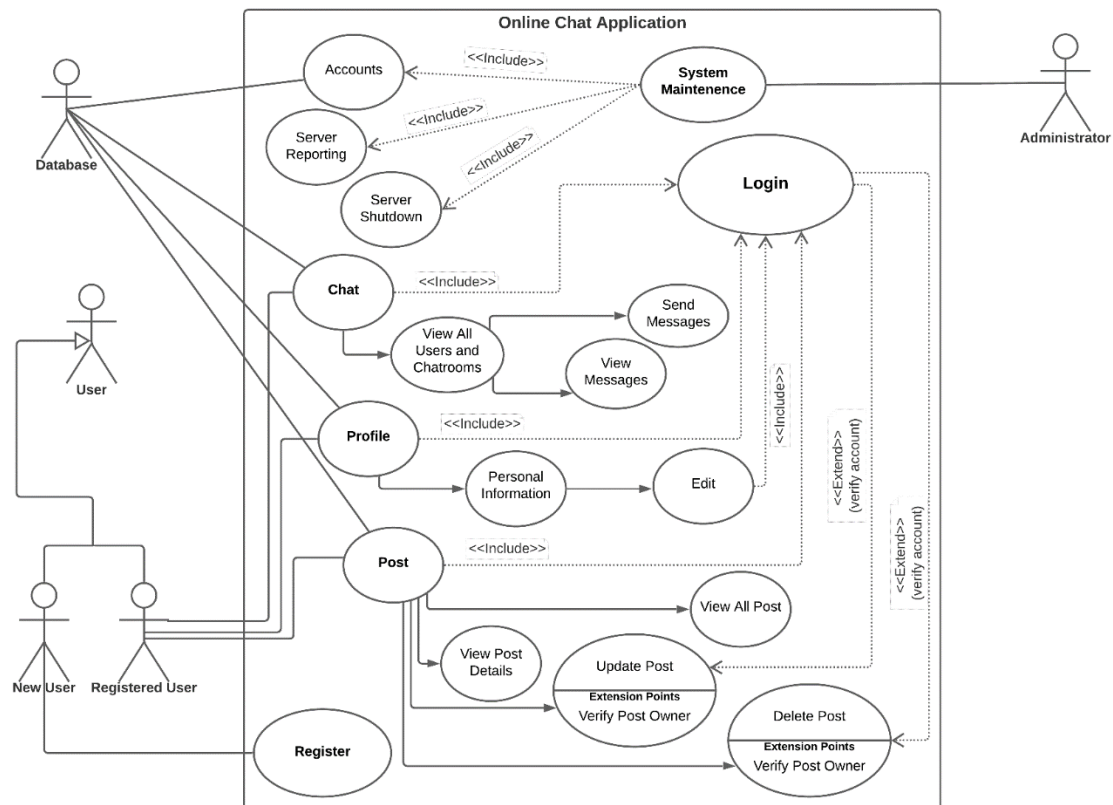


Figure: Use case diagram

Class Diagram

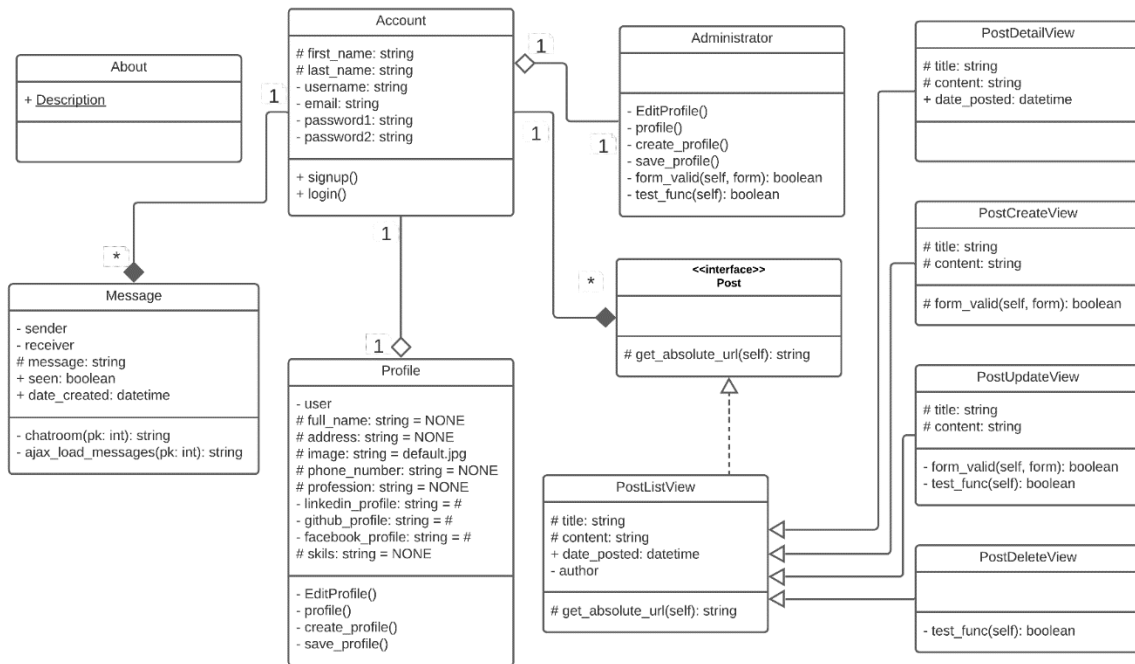


Figure: Class diagram

Sequence Diagram

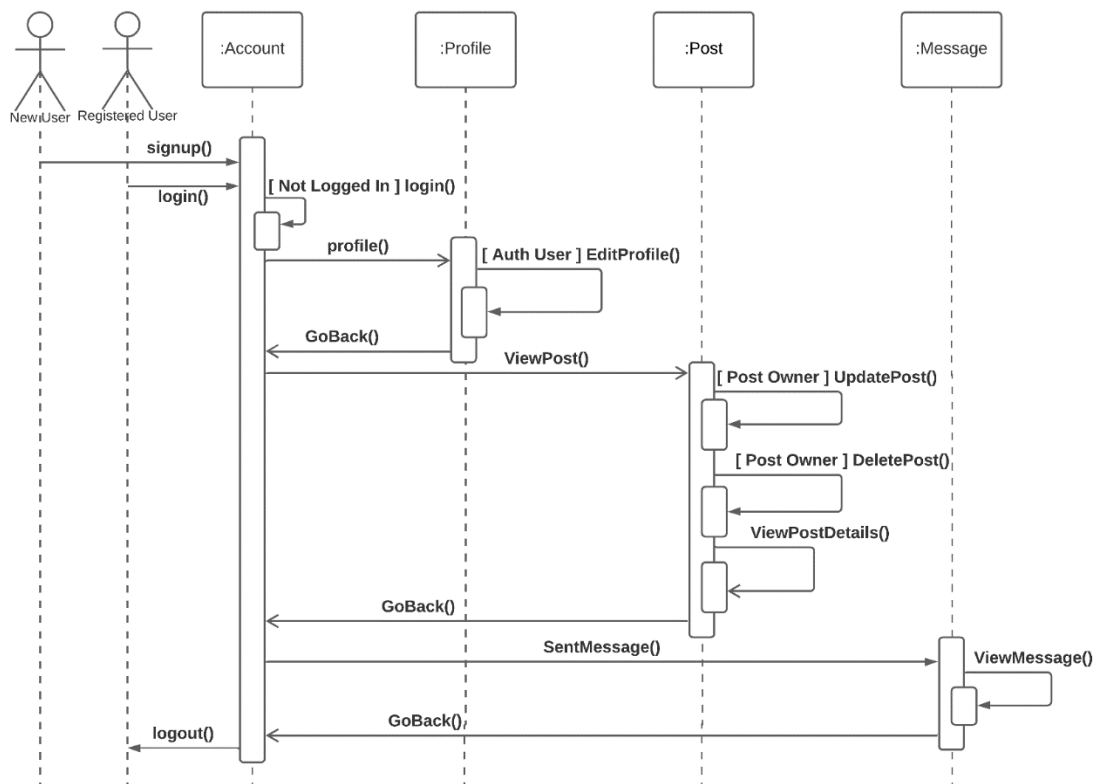


Figure: Sequence diagram

Activity Diagram

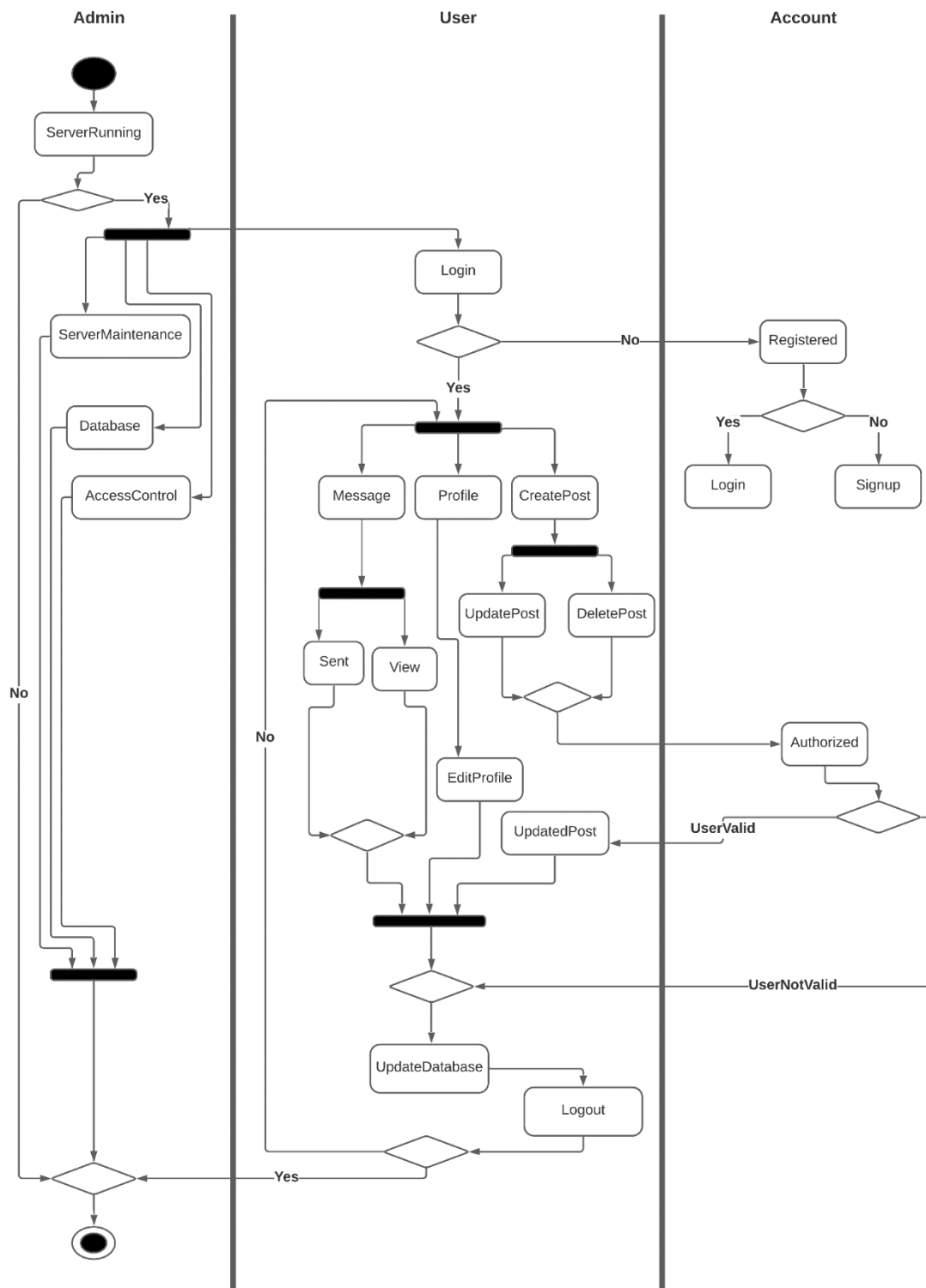


Figure: Activity diagram

ER Diagram

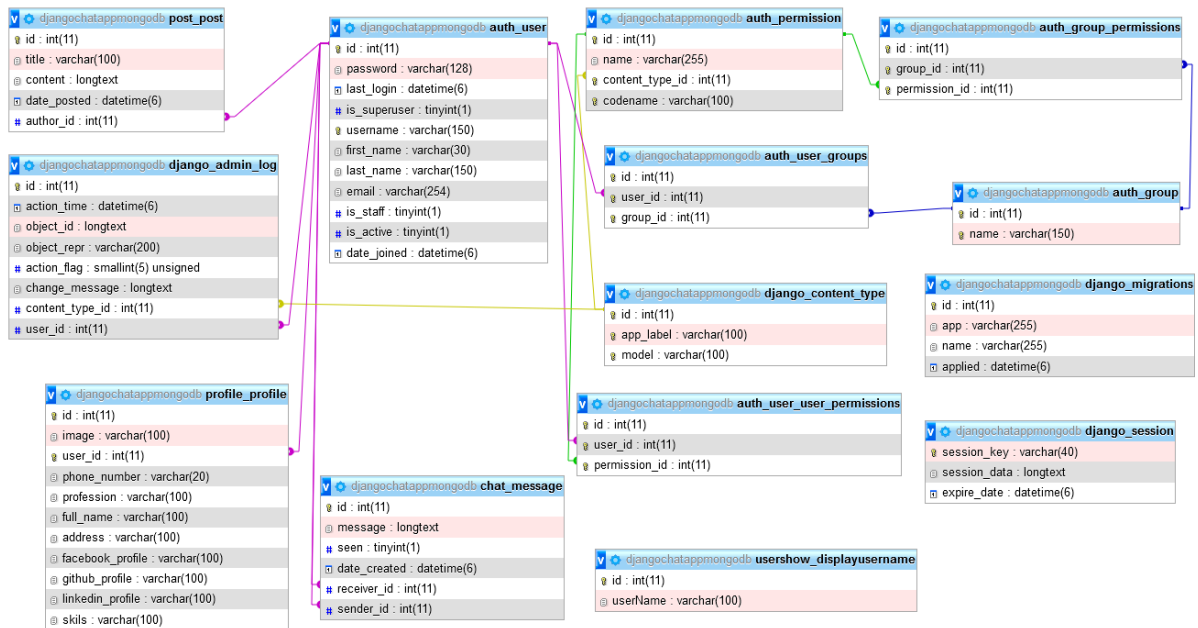


Figure: ER diagram

Appendix B: External Interface

User Interfaces

1. Users have to login in their account to use the application. Users can be logged in by using username and password.

Figure: Login Form

2. New users can register an account for their own by providing first name, last name, username, email and passwords.

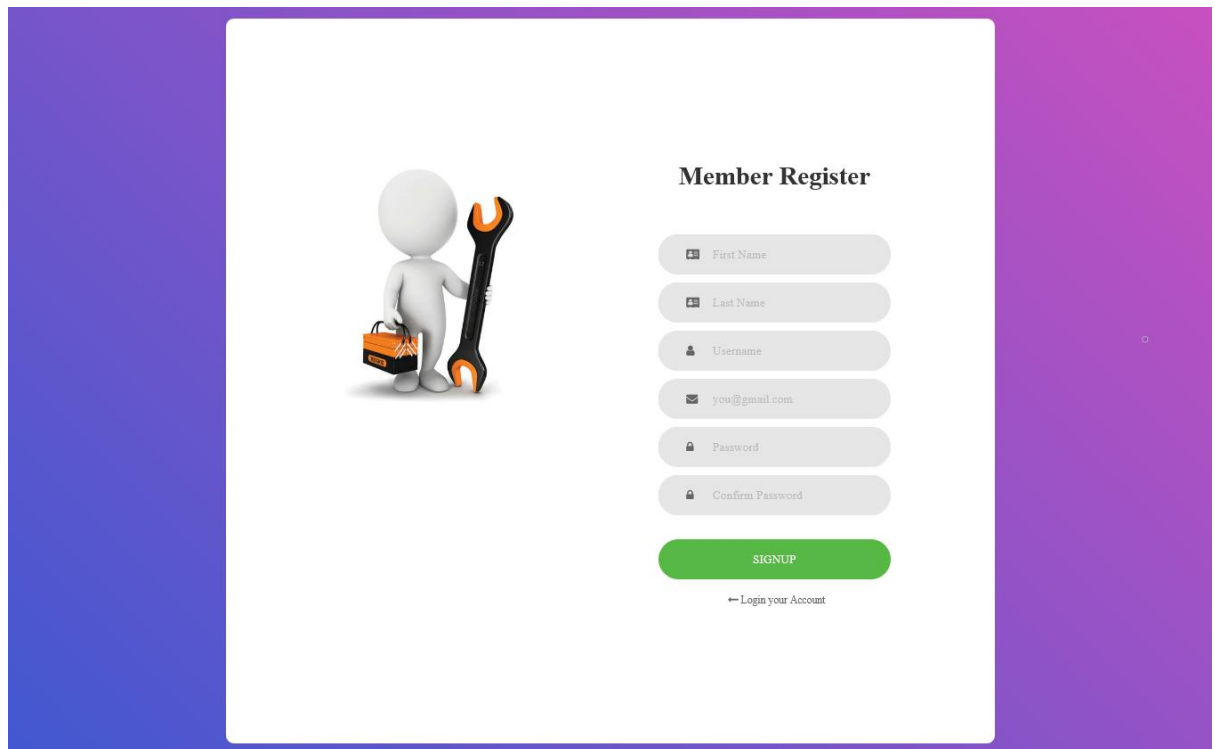
A registration form titled "Member Register" is displayed on a white background with a purple gradient border. On the left, there is a 3D white figure holding a large wrench and a toolbox. The form contains six input fields: "First Name", "Last Name", "Username", "Email" (with the placeholder "you@gmail.com"), "Password", and "Confirm Password". Each field has a small icon to its left. Below the fields is a green "SIGNUP" button. At the bottom, there is a link that says "← Login your Account".

Figure: Registration Form

3. There is a welcome message on the home page. Also some dynamic and attractive design for user friendly environments.

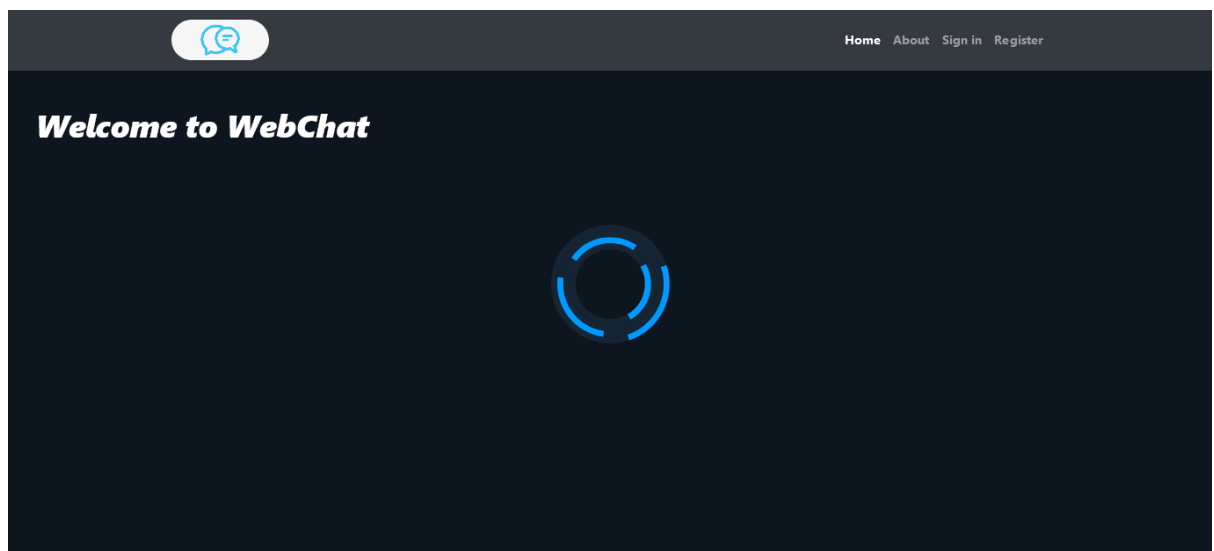


Figure: Home Page

4. From the dashboard, users can make their choice what they want to do.

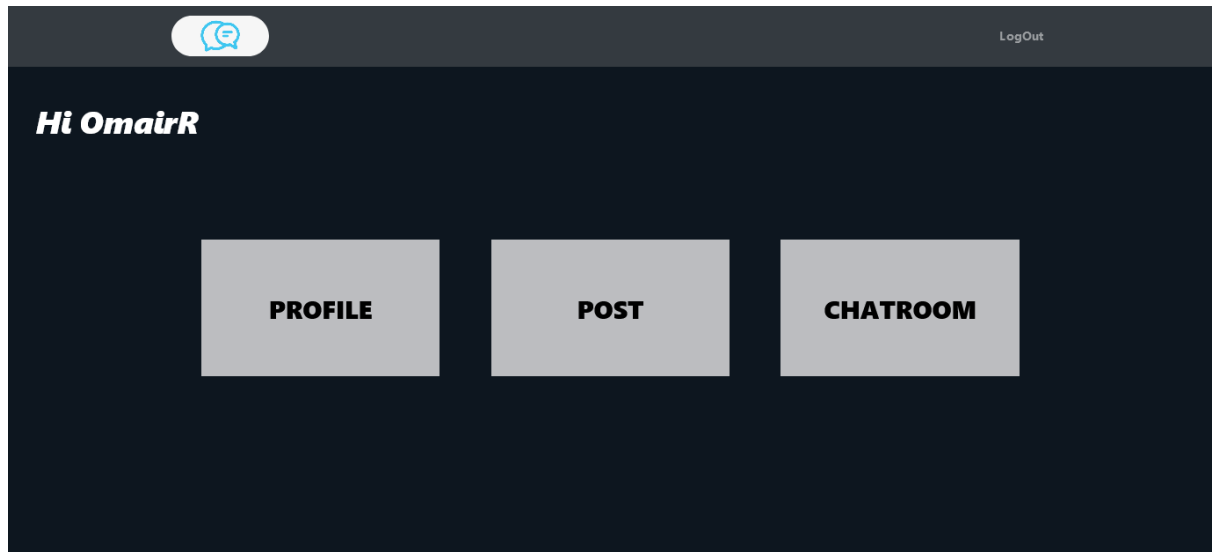


Figure: Dashboard Page

5. Users can see all registered accounts. They can select any one to communicate from the list.

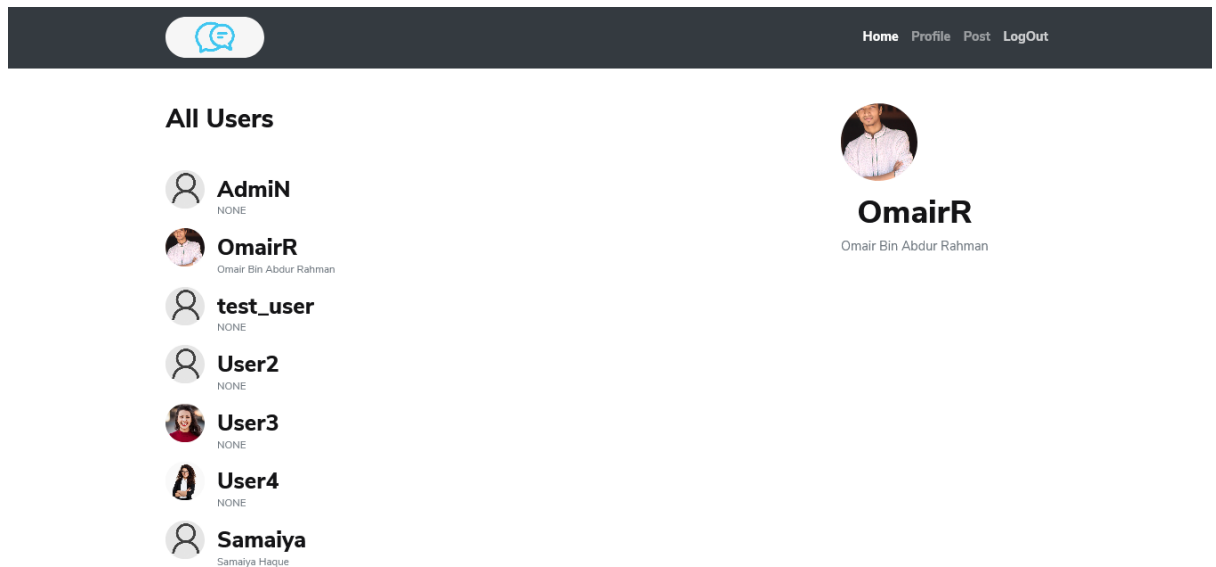


Figure: All User List

6. All users have a default profile. Users can view their profile information any time.

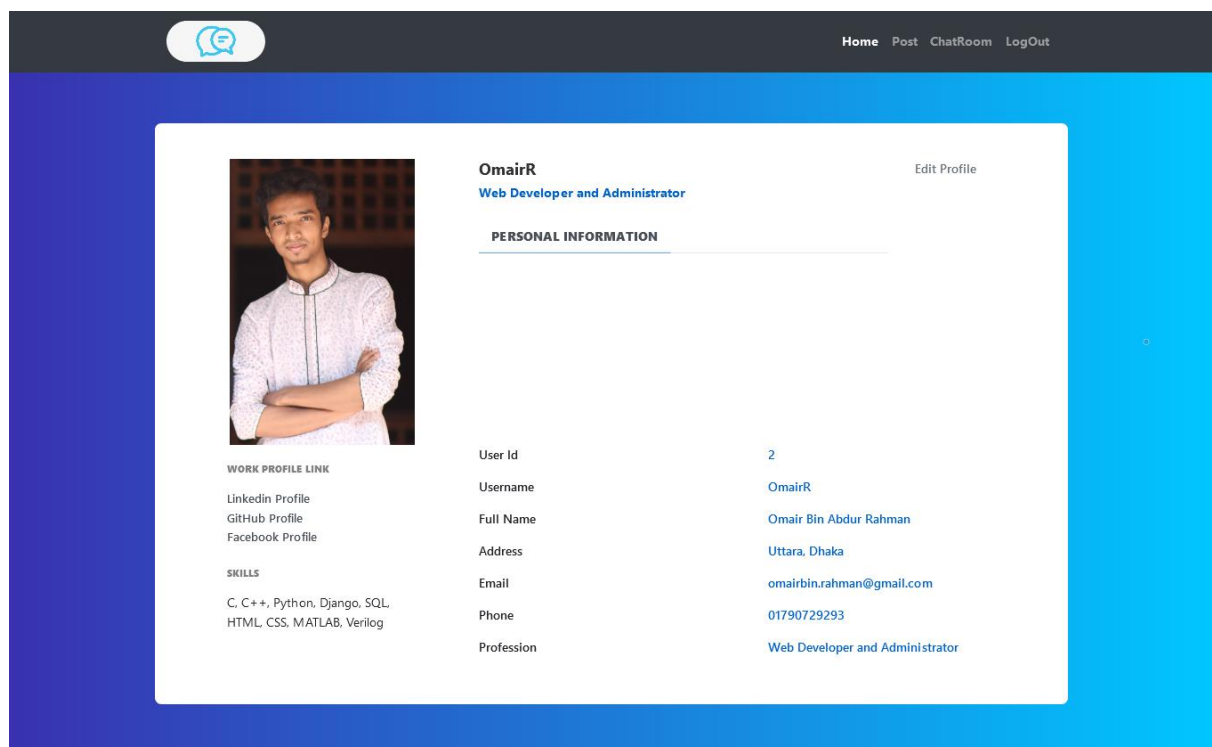


Figure: Profile Information

7. Default user profile. If a user creates an account to the system, this default profile will be created automatically.

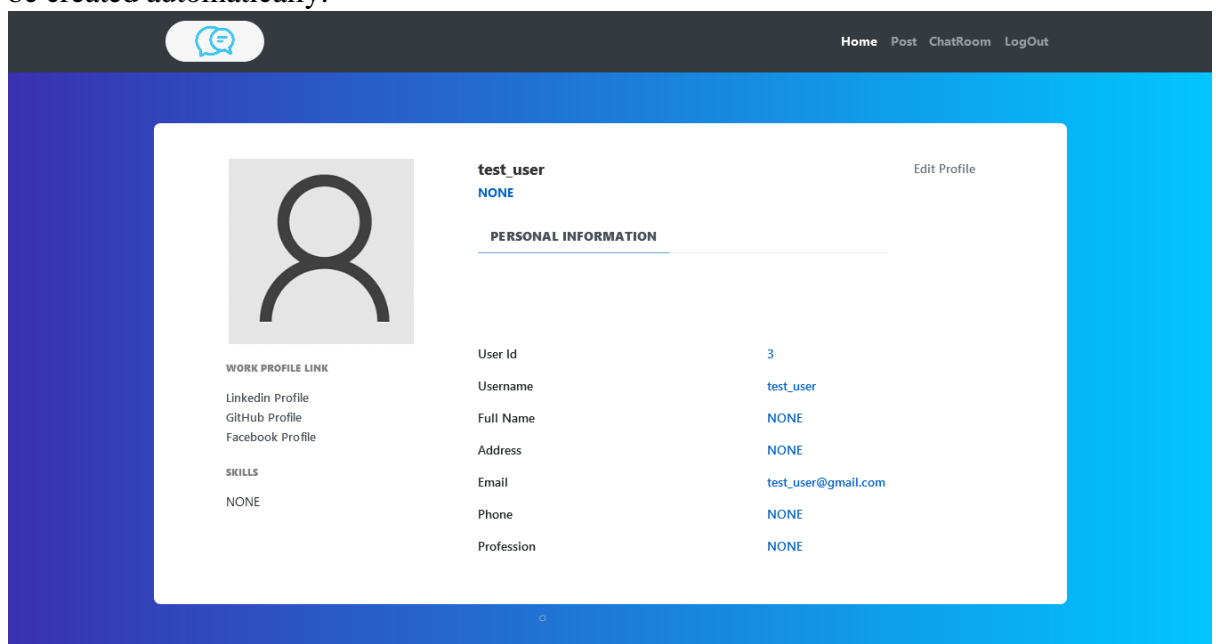




Figure: Default Profile


8. Users can view all the posts which are being posted.

 [Home](#) [Profile](#) [ChatRoom](#) [LogOut](#)


Create Post

**User3**
May 18, 2021

Emergency "O+" blood needed...
If any one available who can donate "O+" blood please contact. Contact number: 01710000001. Thank you!!!

**OmairR**
May 18, 2021

Why Agile software development is needed?
In software development, Agile practices involve discovering requirements and developing solutions through the collaborative effort of self-organizing and cross-functional teams and their customer/end user.

**Samaiya**
May 18, 2021

Django Framework
Django is a Python-based free and open-source web framework that follows the model-template-views architectural pattern. It is maintained by the Django Software Foundation, an American independent organization established as a 501 non-profit. Initial release date: July 15, 2005 Programming languages used: Python License: BSD licenses Developer: Django Software Foundation, Simon Willison


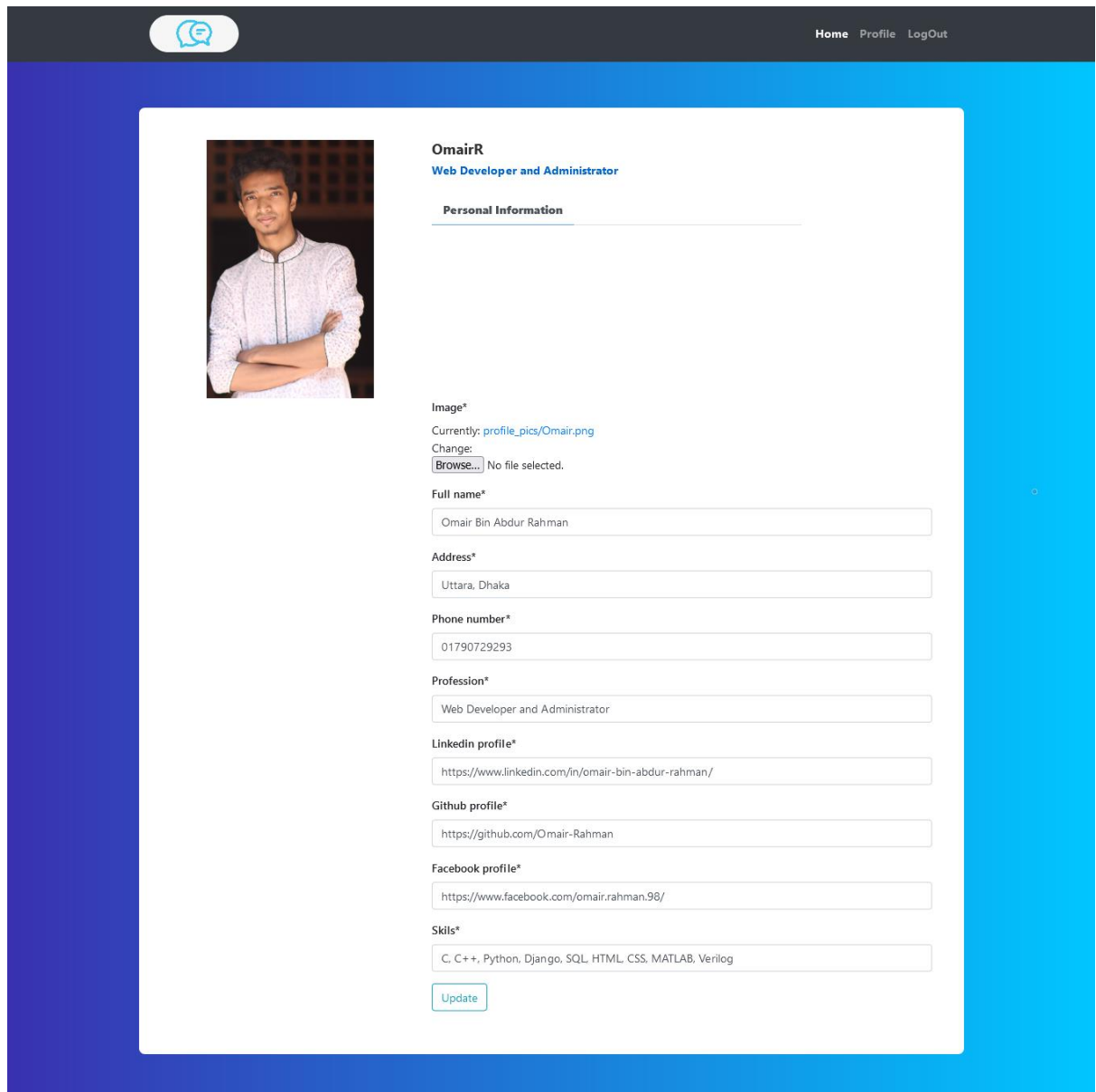
**OmairR**
Omair Bin Abdur Rahman
[View Profile](#)

Figure: All Posts

9. Users can edit their profile information and update them any time. They can change their profile picture as well.



The screenshot displays a web application interface for updating a user profile. At the top, there is a dark navigation bar with a chat icon on the left and links for 'Home', 'Profile', and 'LogOut' on the right. The main content area has a blue gradient background. A white card contains the profile update form. On the left of the card is a profile picture of a man with arms crossed. To the right, the user's name 'OmairR' is shown, followed by their title 'Web Developer and Administrator'. Below this is a section titled 'Personal Information' with a horizontal line. The form includes several input fields: 'Image*' (with a 'Change:' label and a 'Browse...' button), 'Full name*' (containing 'Omair Bin Abdur Rahman'), 'Address*' (containing 'Uttara, Dhaka'), 'Phone number*' (containing '01790729293'), 'Profession*' (containing 'Web Developer and Administrator'), 'Linkedin profile*' (containing a LinkedIn URL), 'Github profile*' (containing a GitHub URL), 'Facebook profile*' (containing a Facebook URL), and 'Skills*' (containing a list of skills: 'C, C++, Python, Django, SQL, HTML, CSS, MATLAB, Verilog'). An 'Update' button is located at the bottom of the form.

OmairR
Web Developer and Administrator

Personal Information

Image*
Currently: profile_pics/Omair.png
Change:
 No file selected.

Full name*

Address*

Phone number*

Profession*

Linkedin profile*

Github profile*

Facebook profile*

Skills*

Figure: Profile Update Form

10. Users can view all the posts which are being posted.

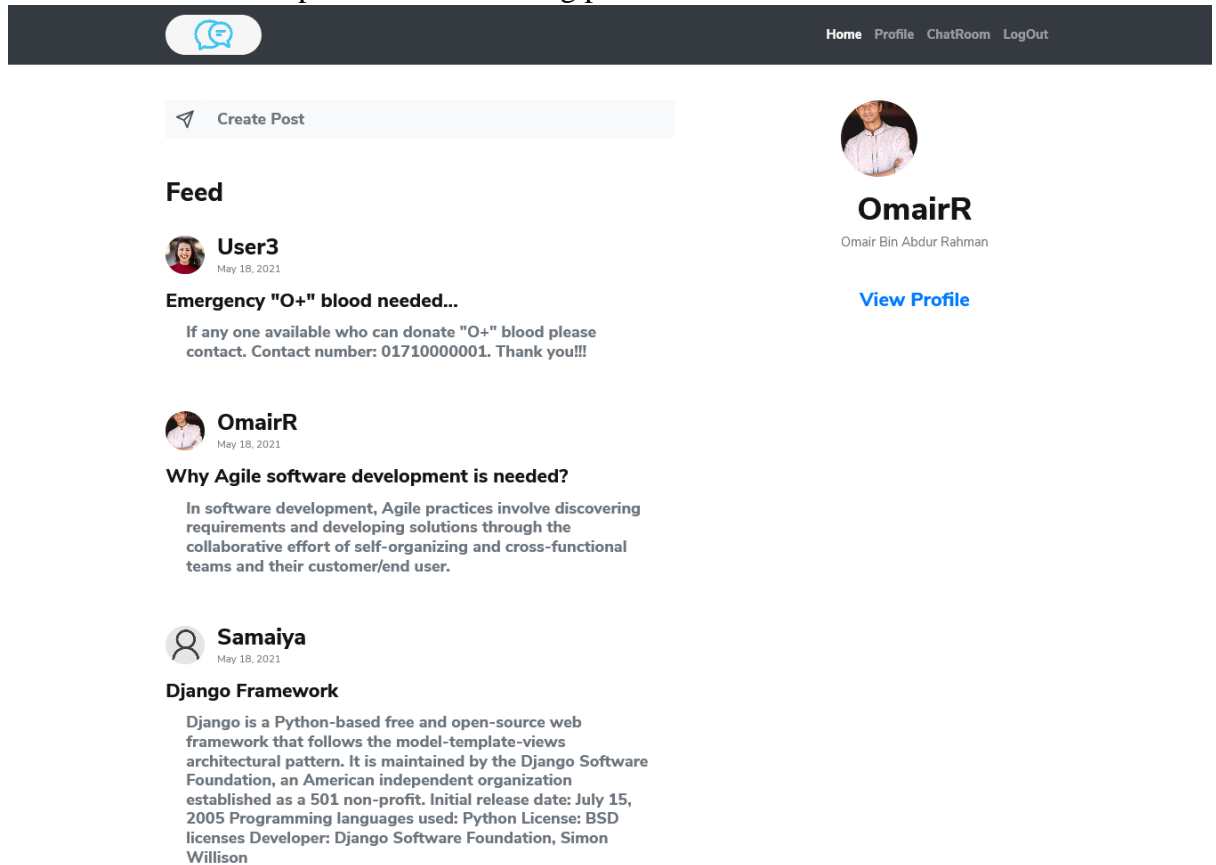


Figure: All Posts

11. Users can view individual post details.

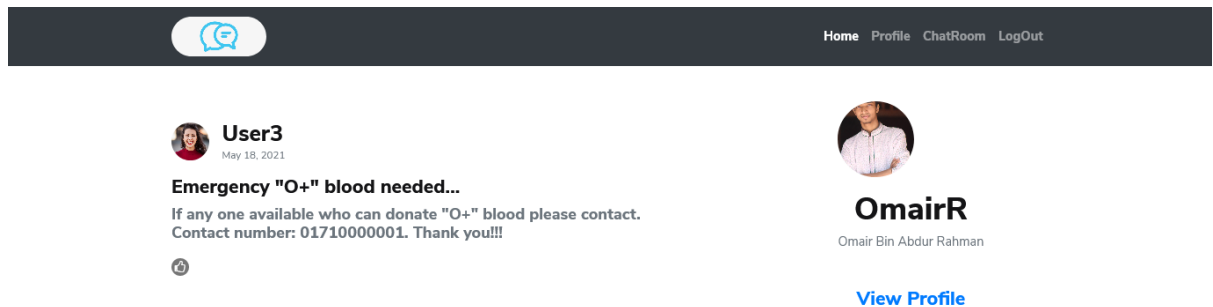


Figure: Other's Post Details

12. If users view their own post they will find update and delete options. Otherwise they can only view the post details.

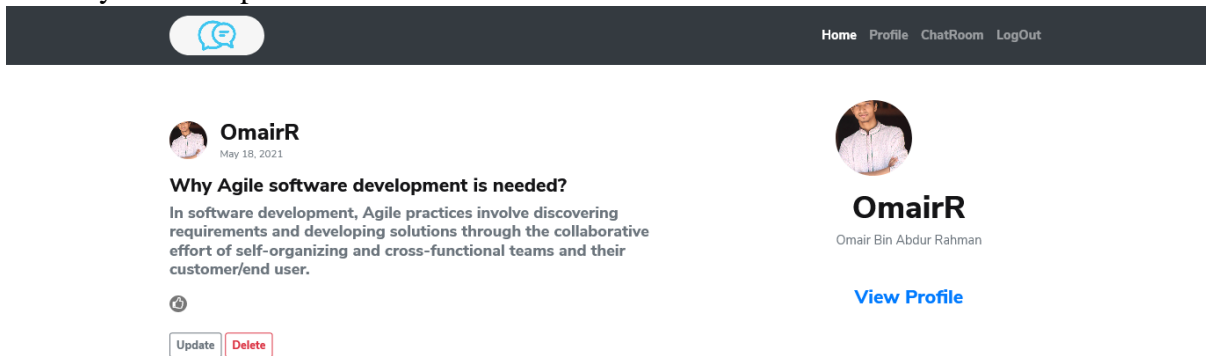


Figure: Own Post Details

13. Users can react such as 'like', 'love', 'haha' on a post.

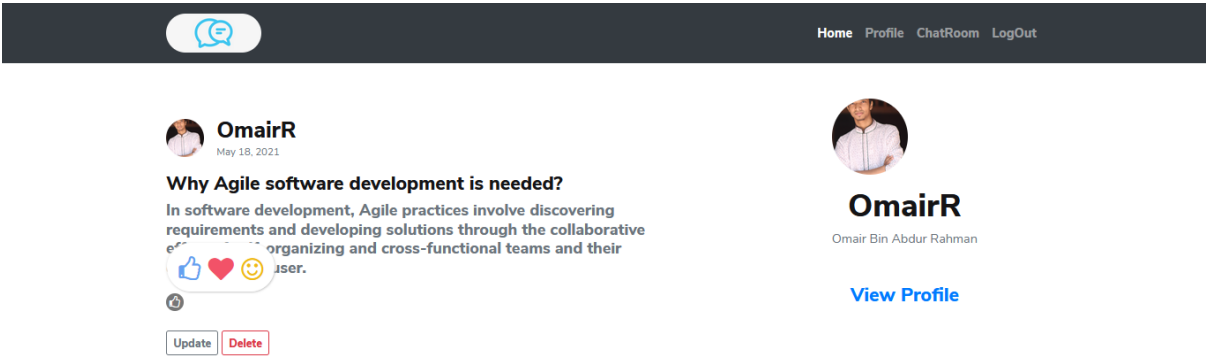
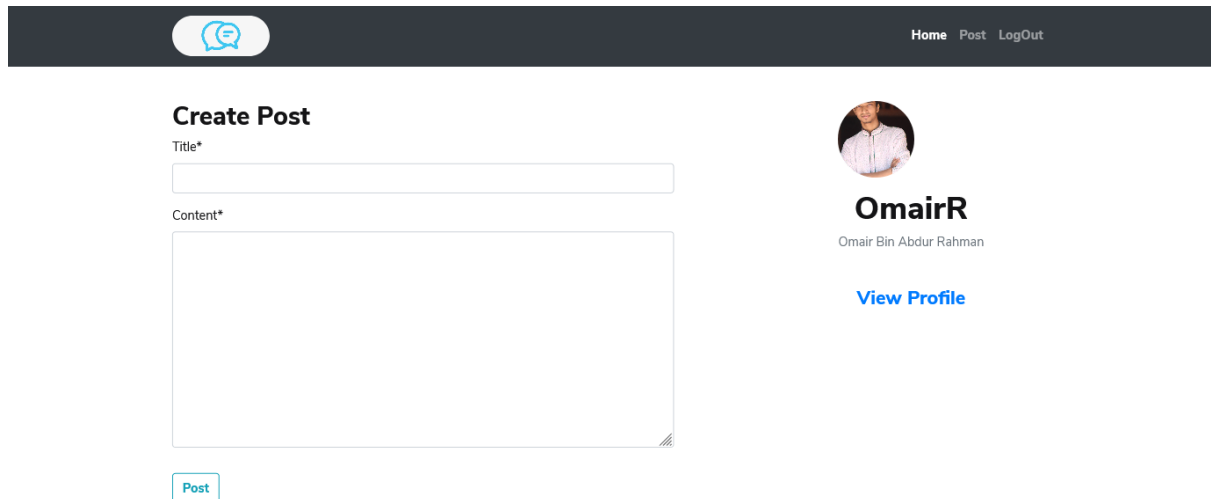


Figure: Post React

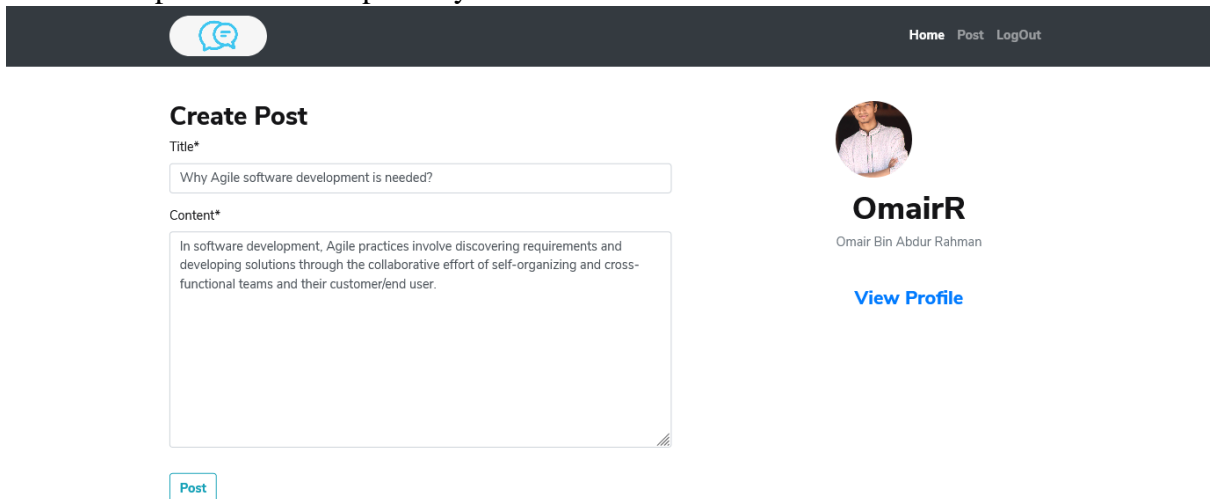
14. Users can create posts any time.



The screenshot shows a web application interface for creating a post. At the top, there is a dark navigation bar with a speech bubble icon on the left and links for 'Home', 'Post', and 'LogOut' on the right. The main content area is divided into two sections. On the left, under the heading 'Create Post', there is a form with two fields: 'Title*' and 'Content*'. The 'Title*' field is a single-line text input, and the 'Content*' field is a larger multi-line text area. Below these fields is a 'Post' button. On the right, there is a user profile section for 'OmairR' (Omair Bin Abdur Rahman), featuring a circular profile picture and a 'View Profile' link.

Figure: Post Create Form

15. Users can update their own post any time.



This screenshot shows the same 'Create Post' form as in the previous figure, but with pre-filled content. The 'Title*' field contains the text 'Why Agile software development is needed?'. The 'Content*' field contains a paragraph: 'In software development, Agile practices involve discovering requirements and developing solutions through the collaborative effort of self-organizing and cross-functional teams and their customer/end user.' The 'Post' button remains at the bottom of the form. The navigation bar and user profile section on the right are identical to the previous figure.

Figure: Post Update Form

16. Users can delete their own post any time.

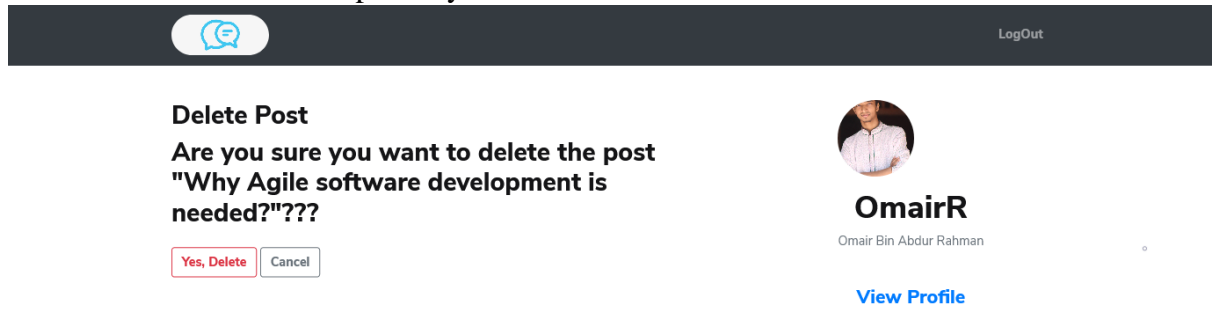


Figure: Post Delete

17. Users can send messages and view the messages at the same time. It is a real time chat system.

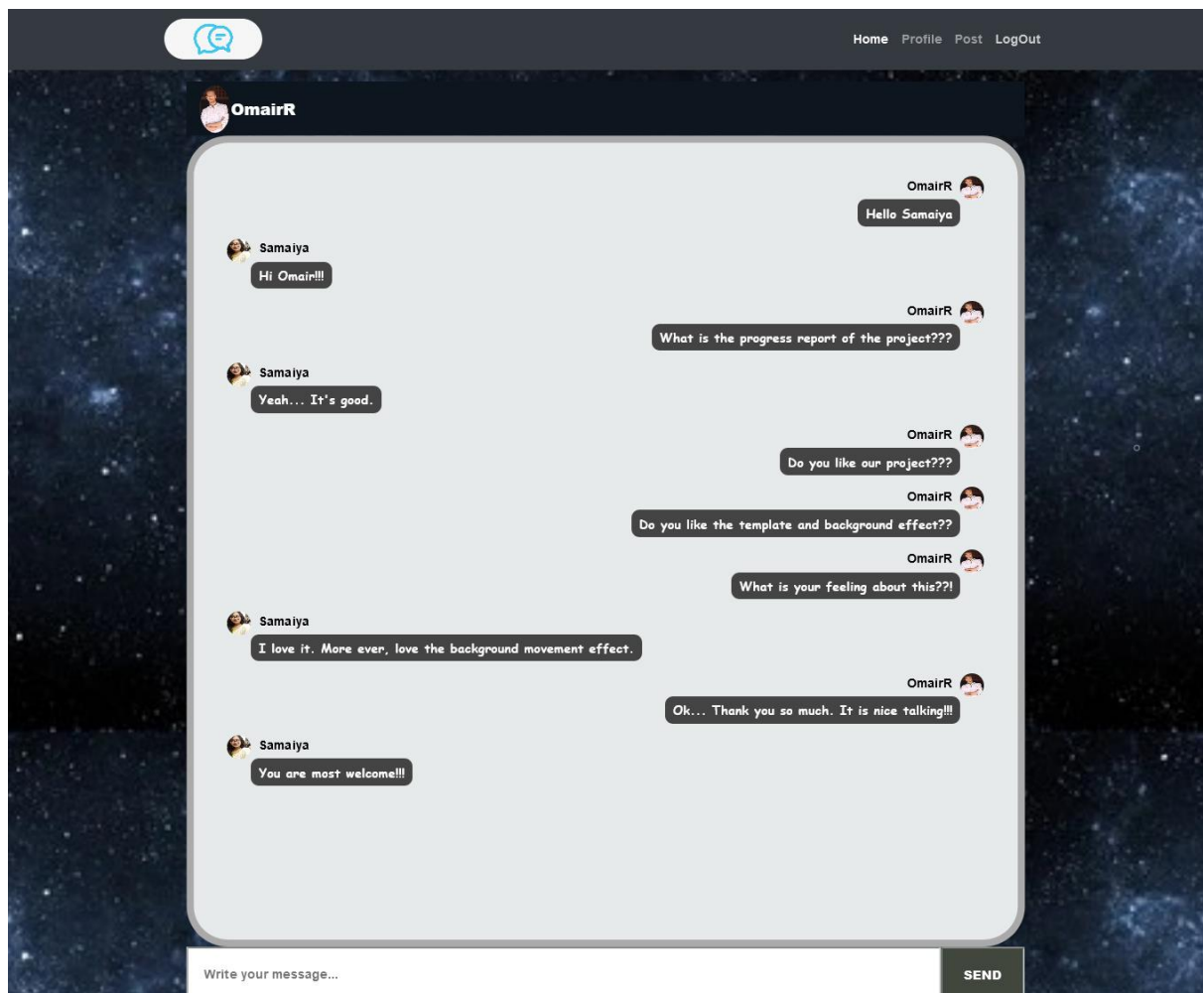
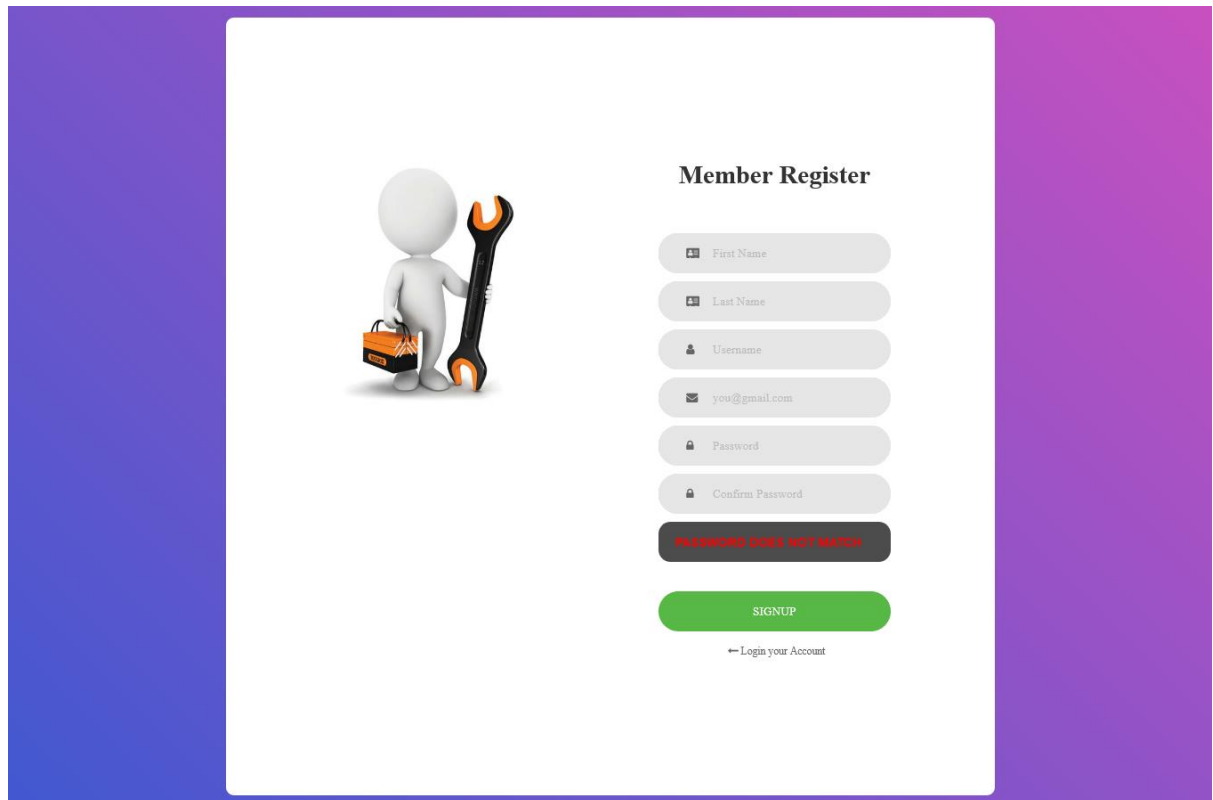


Figure: Message Form

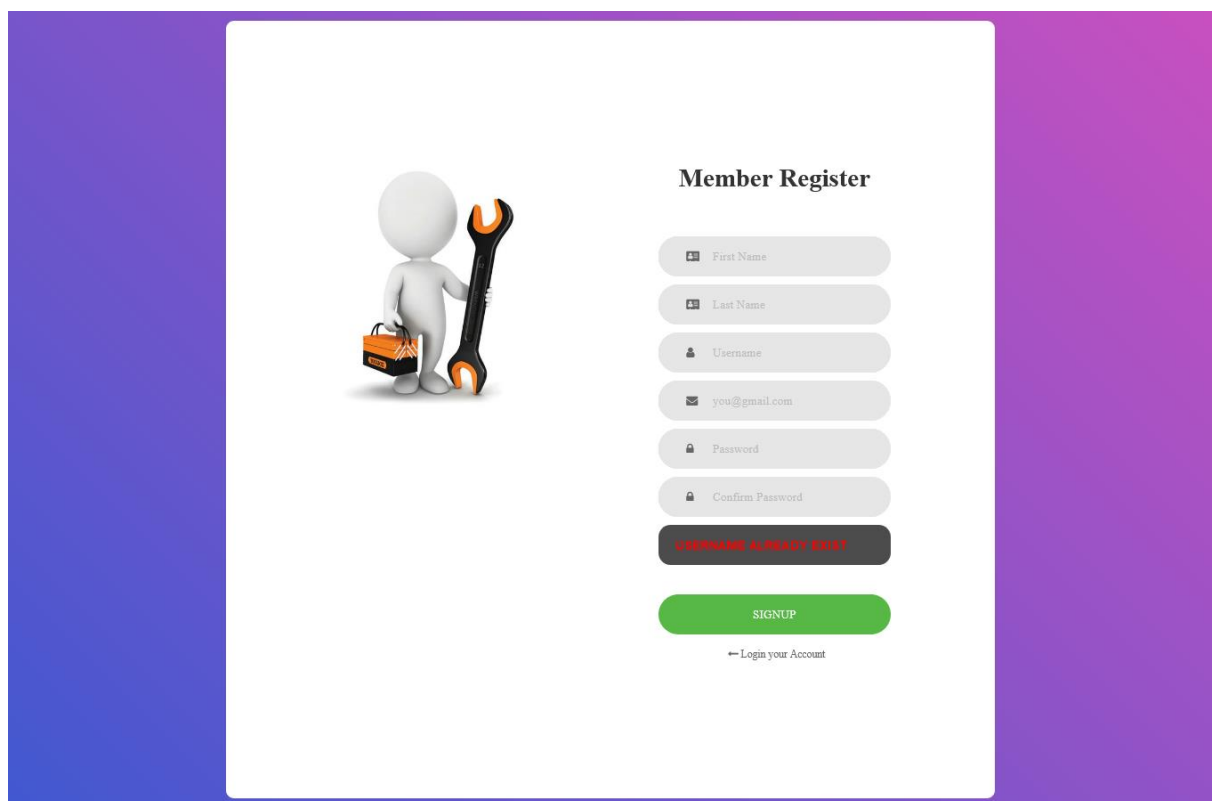
18. If the password does not match during registration, it will show an error message.



The image shows a 'Member Register' form with a 3D character holding a wrench and toolbox on the left. The form fields are: First Name, Last Name, Username, Email (you@gmail.com), Password, and Confirm Password. A red error message 'PASSWORD DOES NOT MATCH' is displayed below the password fields. A green 'SIGNUP' button and a link to 'Login your Account' are at the bottom.

Figure: Password Not Match

19. If a given username already exists while registration, it will show an error message.



The image shows the same 'Member Register' form as above. In this case, a red error message 'USERNAME ALREADY EXIST' is displayed below the username field. The 'SIGNUP' button and 'Login your Account' link remain at the bottom.

Figure: Username Already Exist

20. If a given email already exists while registration, it will show an error message.

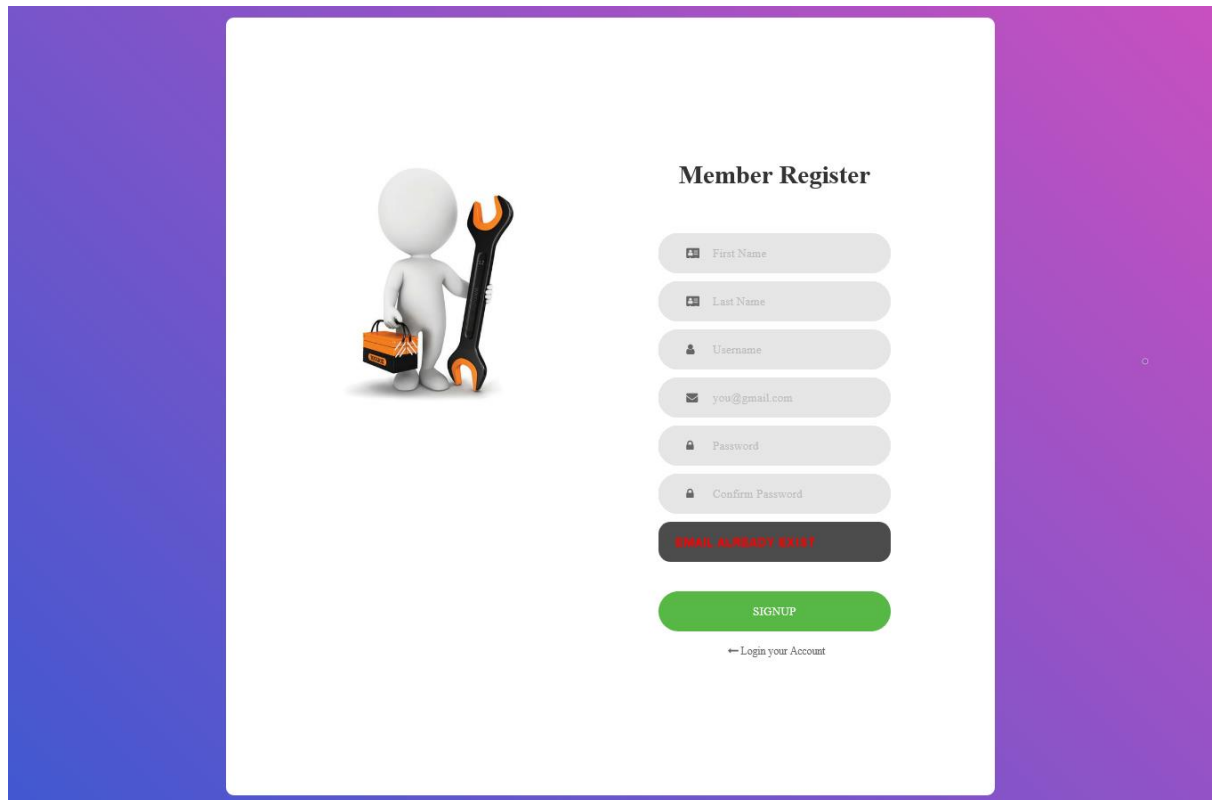


Figure: Email Already Exist

Hardware Interfaces

The minimum hardware requirements of that supported to install a web browser that can easily access the internet. Django needs to be installed on the computer with a MongoDB database to locally run this system.

Software Interfaces

To run the application, users need a browser. Django, any command line interface and MongoDB database need to locally run this system.

Communications Interfaces

A good internet connection is needed for this application system.