A

PROJECT REPORT
ON

Social Media Mini Web Application

Submitted in partial fulfillment for the award of

Post Graduate Diploma in Advance Computing

(PG-DAC)
from

INSTITUTE OF EMERGING TECHNOLOGIES

Authorized Training Centre

Under the Guidance of

Mr.Manoj Deshmukh

BY

Prajakta Palaskar	**250845920051**
Pradnya Shinde	**250845920084**
Suhani Kasliwal	**250845920094**
Ganesh Gagare	**250845920022**
Shashank Mankar	**250845920082**

CERTIFICATE

This is to certify that the project report entitled **Social Media Mini Web Application** is a bonfire work carried out by **Prajakta Palaskar, Pradnya Shinde, Suhani Kasliwal, Ganesh Gagare, Shashank Mankar** and submitted in partial fulfilment of the requirement for the C-DAC ACTS, DAC course in Institute of Emerging Technology in the batch of Aug 2025

Course Coordinator
Mr. Manoj Deshmukh

ExternalExaminer

ACKNOWLEDGEMENT

This project **Social Media Mini Web Application** was a great learning experience for us and we are submitting this work to Advanced Computing Training School (CDAC).

We are very glad to mention the **Mr. Manoj Deshmukh** for his valuable guidance to work on this project. Her guidance and support helped us to overcome various obstacles and intricacies during the course of project work.

Our most heart full thanks goes to ***Mr. Sangram Patil*** **(Director, IET)** who gave all the required support and kind coordination to provide all the necessities like required hardware, internet facility and extra lab hours to complete the project and throughout the course up to the last day here in C-DAC ACTS, Pune.

Sign of student

Prajakta Palaskar 250845920051

Pradnya Shinde 250845920084

Suhani Kasliwal 250845920094

Ganesh Gagare 250845920022

Shashank Mankar 250845920082

Abstract

Social Media Mini Web Application is a web-based platform developed to enable secure and interactive social networking among users. The system provides essential social media functionalities such as user registration, login, content posting, and viewing posts through a simple and intuitive interface. Users can create posts, interact with content, and manage their profiles efficiently within the application.

The application is built using modern web technologies including ASP.NET, React.js, Express.js, and MongoDB, following a client-server architecture. Secure authentication is implemented using JSON Web Tokens (JWT) to ensure authorized access to application features. In addition, the system includes a simple GenAI caption tool that assists users in generating captions for their posts, enhancing content creation and user engagement.

The project aims to improve user interaction, ensure data security, and provide a scalable social media solution. With features such as secure authentication, post management, AI-based caption generation, and efficient data handling, the Social Media Mini Web Application delivers a reliable, secure, and scalable web-based social networking system.

Index

1. Introduction

In today's digital world, social media platforms play an important role in connecting people and sharing information online. The **Social Media Mini Web Application** is a web-based platform designed to make online interaction simple, secure, and efficient. It allows users to create accounts, share posts, and interact with other users through a modern and user-friendly interface.

This system replaces unorganized and insecure methods of online interaction where user data and content are not properly managed. Such approaches can lead to security issues, lack of control, and poor user experience. The proposed application solves these problems by providing a centralized and secure digital platform for social networking activities.

The platform allows users to create posts, view content from other users, interact with posts, and manage their profiles from anywhere. It also includes a simple GenAI caption tool that helps users generate captions for their posts, improving content creation and engagement. The application is designed with an easy-to-use interface so users can access all features comfortably.

The application is divided into the following primary modules:

- **User Module:** Allows users to register, log in, create posts, view feeds, use the GenAI caption tool, and manage their profiles.
- **Admin Module:** Enables the admin to manage users, monitor content, and maintain overall system security and performance.

This system helps in creating a secure, interactive, and scalable social media platform while improving user engagement and overall service quality.

2. Problem Definition and Scope

2.1 Problem Definition

Social media applications often face difficulties in managing daily user activities due to unstructured systems and weak security mechanisms. These include user registration, content posting, authentication, and monitoring user interactions. Poorly designed systems are slow, error-prone, and not suitable for handling a growing number of users and data.

Problems observed:

- Lack of secure and proper authentication for users.
- High risk of unauthorized access and data misuse.
- No centralized control for administrators to manage users and content.
- Difficulty in managing posts and monitoring user activities.
- Poor user experience due to limited features and security concerns.

To overcome these issues, a secure and user-friendly social media web application is required that can efficiently manage users, content, and interactions while ensuring data security and improved user engagement.

2.1 Goals & Objectives

The The goal of the **Social Media Mini Web Application** is to provide a secure and interactive digital platform for online social networking. The system aims to simplify user interaction, improve content management, and ensure data security through modern web technologies.

Goals:
• Provide a centralized platform for managing user accounts and social interactions.
• Enable users to create, view, and interact with posts in real time.
• Ensure secure access to the application using authentication mechanisms.
• Improve user engagement through features like AI-based caption generation.

Objectives:
• To develop a user-friendly web application with role-based access control.
• To implement secure authentication using JSON Web Tokens (JWT).
• To efficiently manage user data and posts using a database-driven approach.
• To integrate a simple GenAI caption tool for assisting users in content creation.

2.2 Major Constraints & Outcomes

Constraints:

- Internet connectivity is required for smooth access to the application.
- Application performance depends on server availability and database stability.
- The User data security relies on proper authentication and authorization mechanisms.
- Integration of the GenAI caption tool depends on external API availability..

Expected Outcomes:

- Secure and efficient management of user accounts and social interactions.
- Improved user engagement through easy post creation and AI-based captions.
- Reduced manual effort in managing content and user activities.
- Better control and monitoring of the system through centralized administration.
- A scalable and maintainable social media platform for future enhancements.

3. Software Requirement Specification

3.1 Proposed System

The **Social Media Mini Web Application** is a web-based software system designed to provide a secure and interactive platform for social networking. It offers a multi-user environment with different roles: User and Admin, each with specific permissions and functionalities, ensuring organized management of user activities and content.Main Features of the Proposed System.

- **User Module:**
  - User registration/login with secure authentication using JWT.
  - Create and manage posts, including text and images.
  - View feeds and interact with posts through likes, comments, and shares.
  - Generate post captions automatically using the GenAI caption tool.
  - Manage profile settings and notifications.
- **Admin Module:**
  - Manage users and monitor content across the platform.
  - Review and moderate posts and comments.
  - Access analytics and reports for user engagement and system activity.
  - Maintain system security and performance through centralized controls.

3.2 Scope

The system is built to enhance user engagement and improve the overall social networking experience. It offers complete control over user activities, content management, and system security, ensuring a seamless and interactive platform for users and administrators.

Scope Includes:

- End-to-end social media management (user → admin)
- Multi-role access with secure authentication and authorization using JWT
- Post creation, feed management, and real-time content interaction
- AI-based caption generation to assist users in content creation
- Admin monitoring of users, posts, and platform activity

3.3 Functional Requirements

1. **User Login & Registration**
    - New users can register by providing personal details.
    - Registered users can log in securely using username and password with JWT authentication.
2. **Post Creation & Management**
    - Users can create new posts including text and images.
    - Users can edit or delete their own posts.
3. **Feed & Interaction**
    - Users can view posts from others in their feed.
4. **GenAI Caption Tool**
    - Users can generate captions automatically for their posts using the integrated AI tool.
5. **Admin Management**
    - Admin can monitor and manage users, posts, and comments.
    - Admin can access reports for user activity and engagement.
6. **Notifications & Profile Management**
    - Users receive notifications for interactions on their posts.
    - Users can update profile information and manage account settings.

3.4 Non-Functional Requirements

1. **Performance Requirements**
    - The system should handle at least 50–100 concurrent users.
    - Posts, comments, and AI-generated captions should load and update in less than 2 seconds.
2. **Reliability**
    - The application must be available 99.9% of the time.
3. **Scalability**
    - The system should support an increasing number of users and posts efficiently.
    - Additional AI caption requests and content features should be accommodated without performance degradation.
4. **Security**
    - User passwords must be securely encrypted.
    - Role-based access control using JWT must be implemented to protect user data and system integrity.
5. **Usability**
    - The UI should be user-friendly, responsive, and compatible with desktop and mobile devices.

4. System Modules

The **Social Media Mini Web Application** is divided into two main modules: User Module and Admin Module. Each module is designed with specific features and responsibilities to ensure smooth, secure, and interactive social networking.

1. User Module

- Allows users to register and log in securely using JWT authentication.
- Users can create new posts including text and images.
- Users can edit or delete their own posts.
- Users can view feeds and interact with posts through likes, comments, and shares.
- Users can generate post captions automatically using the GenAI caption tool.
- Access to profile management and notifications.

2. Admin Module

- Full control over the system dashboard.
- Manage users (add/edit/remove) and monitor activity.
- Moderate posts and comments to ensure safe content.
- View analytics and reports for user engagement and platform performance.
- Monitor system security and performance metrics.
- Update site content and manage platform-wide settings.

5. Performance Requirements

To ensure the **Social Media Mini Web Application** runs efficiently and reliably, the following hardware and software requirements must be met:

5.1 Hardware Requirements

- **Processor:** Intel Core i3 or higher
- **RAM:** Minimum 4 GB (8 GB recommended)
- **Storage:** At least 100 GB HDD or SSD
- **Internet Connection:** Required for web access and real-time features

5.2 Software Requirements

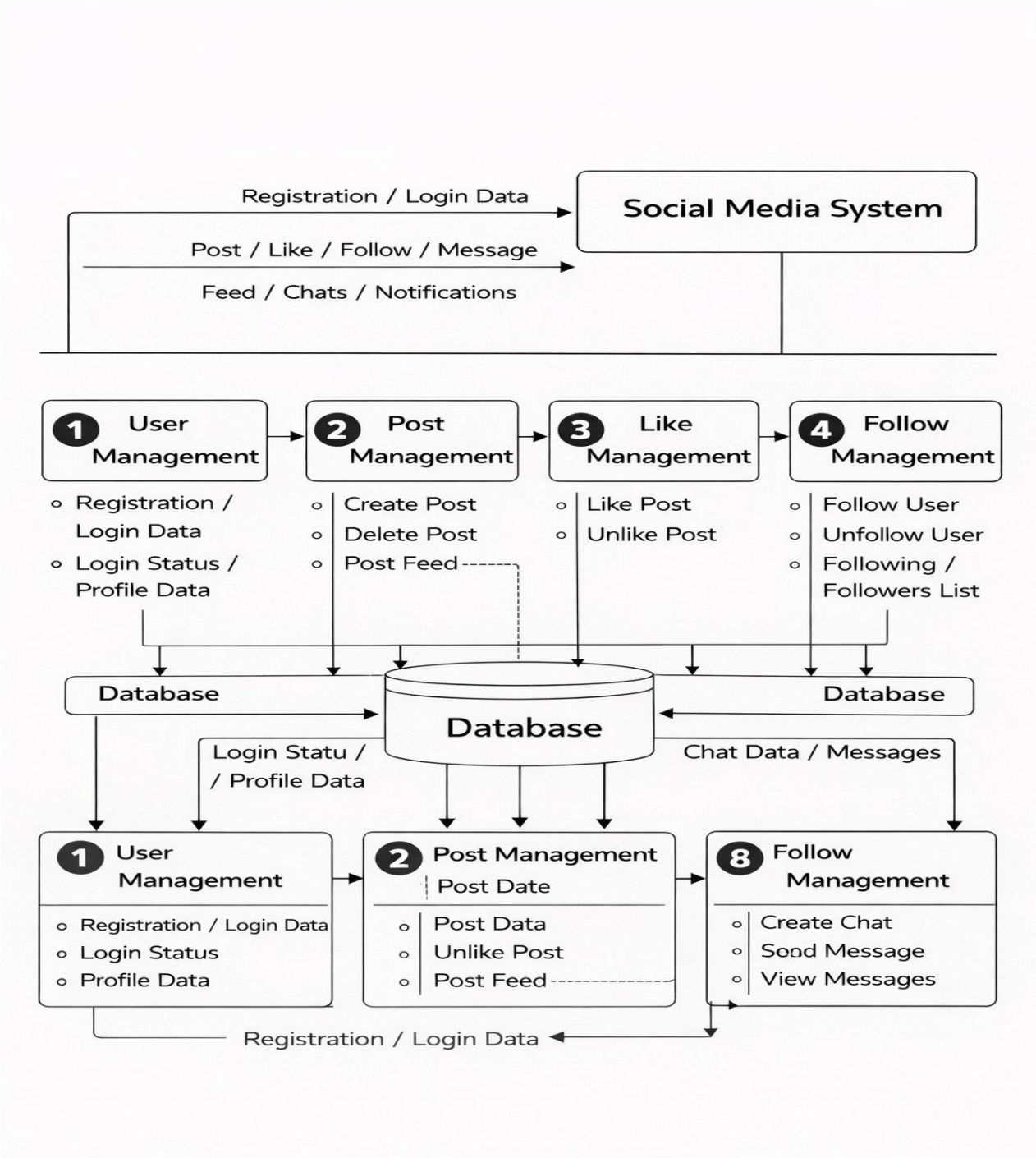
- **Operating System:** Windows 10 or later
- **Web Server:** IIS Server / Node.js Server
- **Database: MongoDB**
- **IDE:** Visual Studio, VS Code
- **Frontend:** HTML, CSS, JavaScript, Bootstrap, React.js
- **Backend:** ASP.NET Core Web API, Express.js

5.3 Security and Reliability

- Secure login with encrypted passwords and JWT-based authentication tokens.
- Role-based access control (User, Admin) to restrict unauthorized access and protect user data.
- Data validation on both frontend and backend to prevent malicious inputs.
- Regular backup of database to ensure reliability and prevent data loss.
- Monitoring and logging of user activities for detecting and responding to security threats.

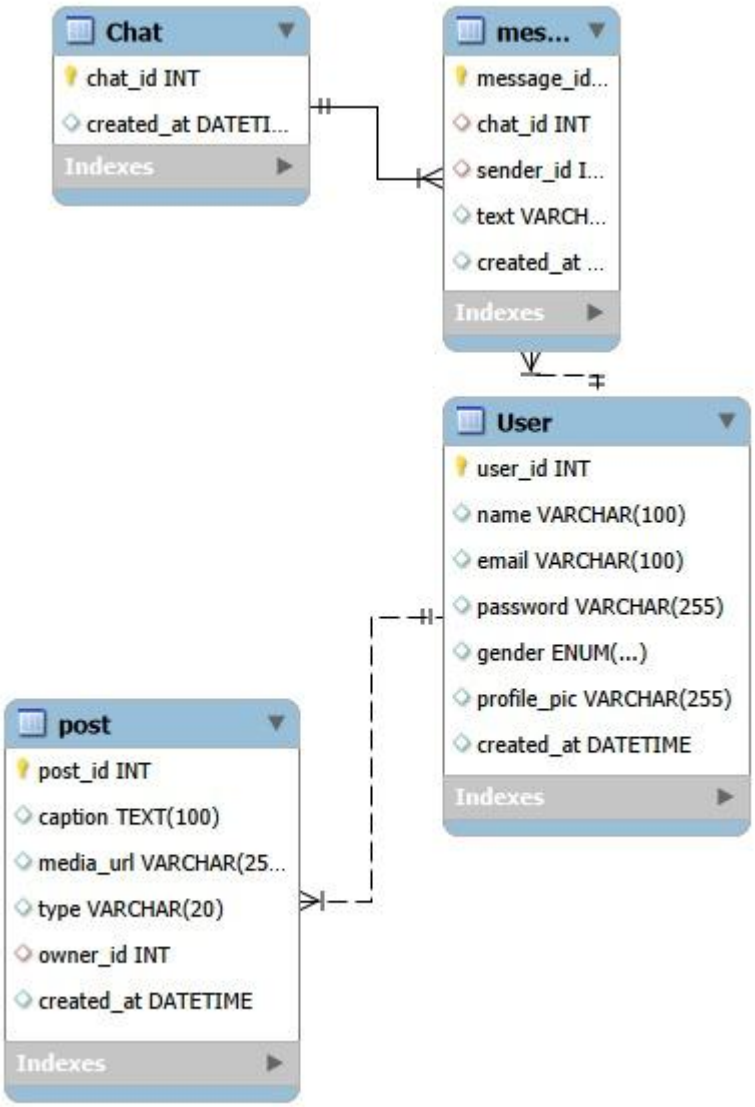
6. UML Diagrams

6.1 DFD (Data Flow Diagram)

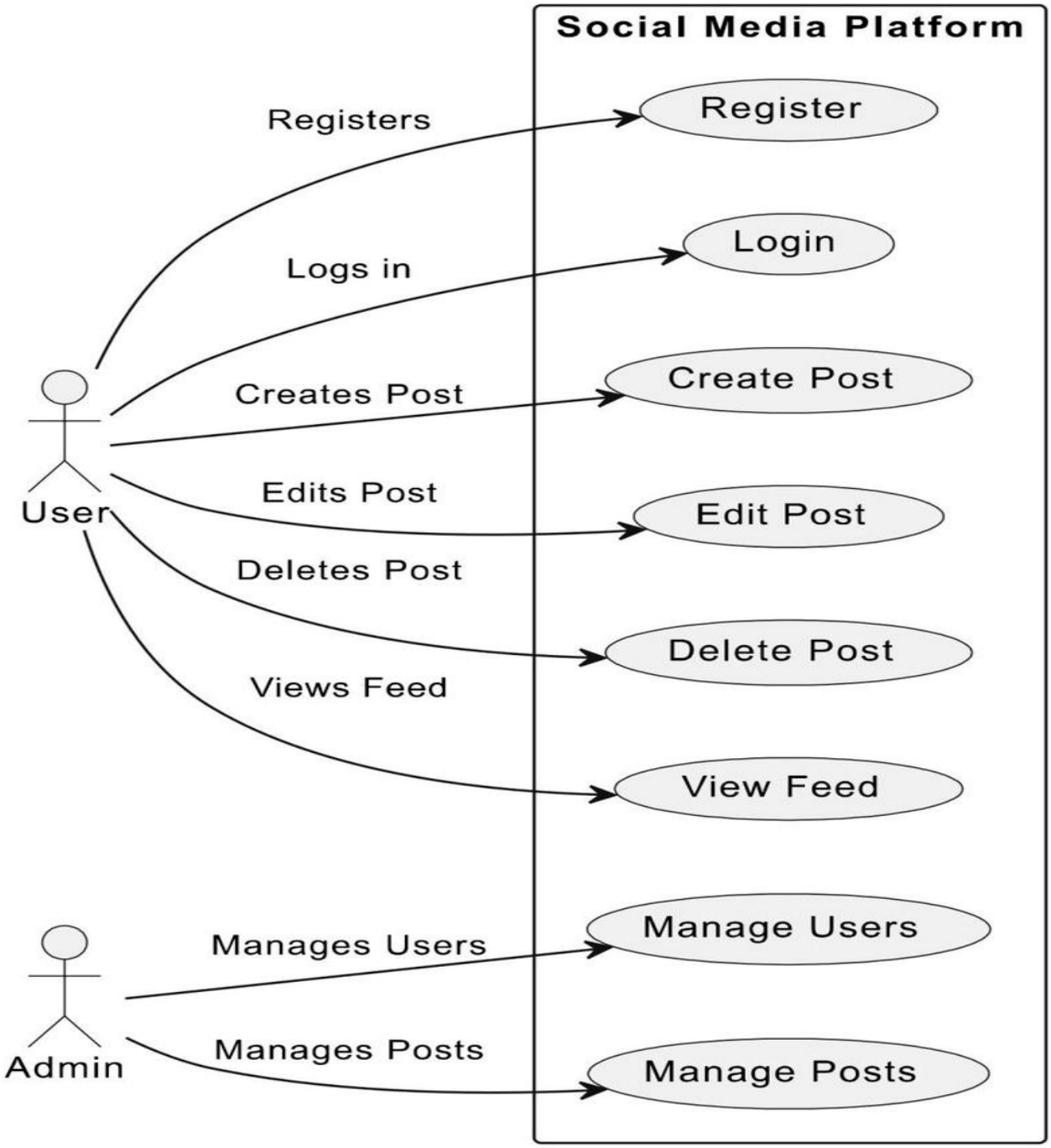


6.2 ERD (Entity Relationship Diagram)

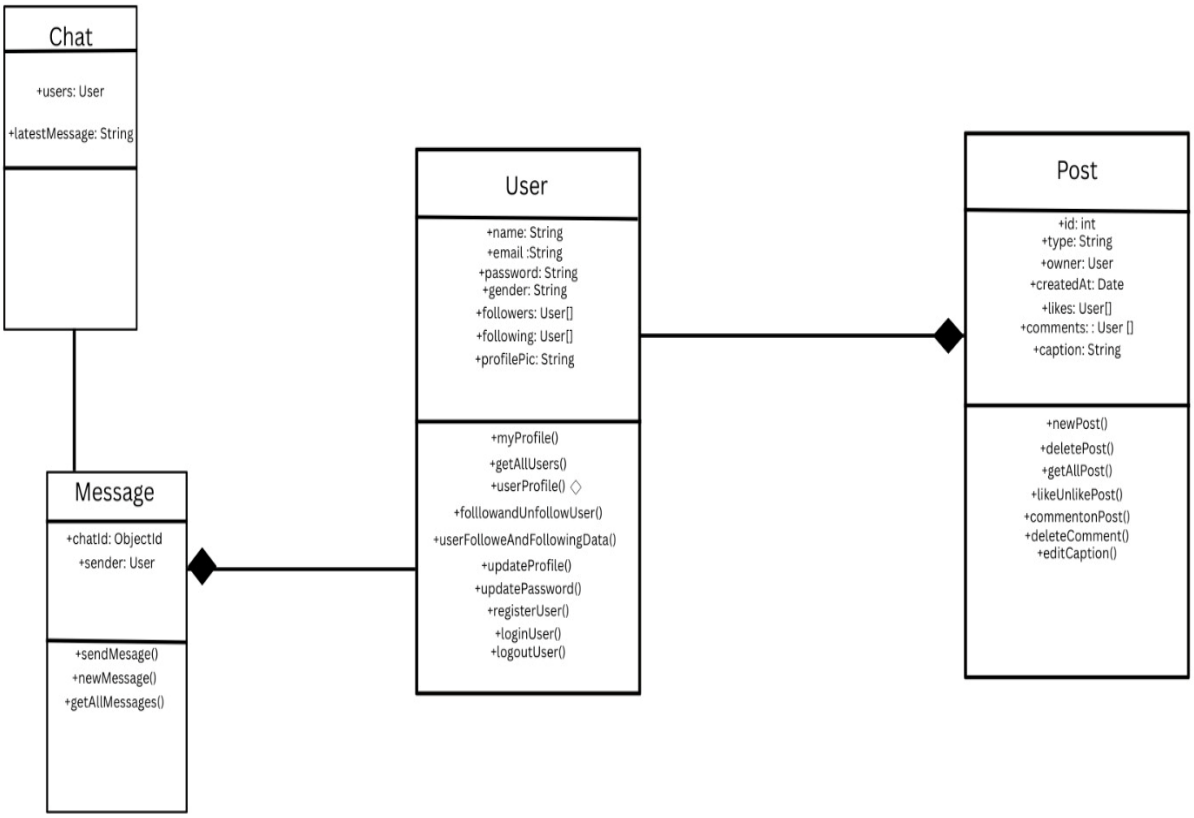
An ERD shows **the database structure** of the system and the relationships between tables/entities.



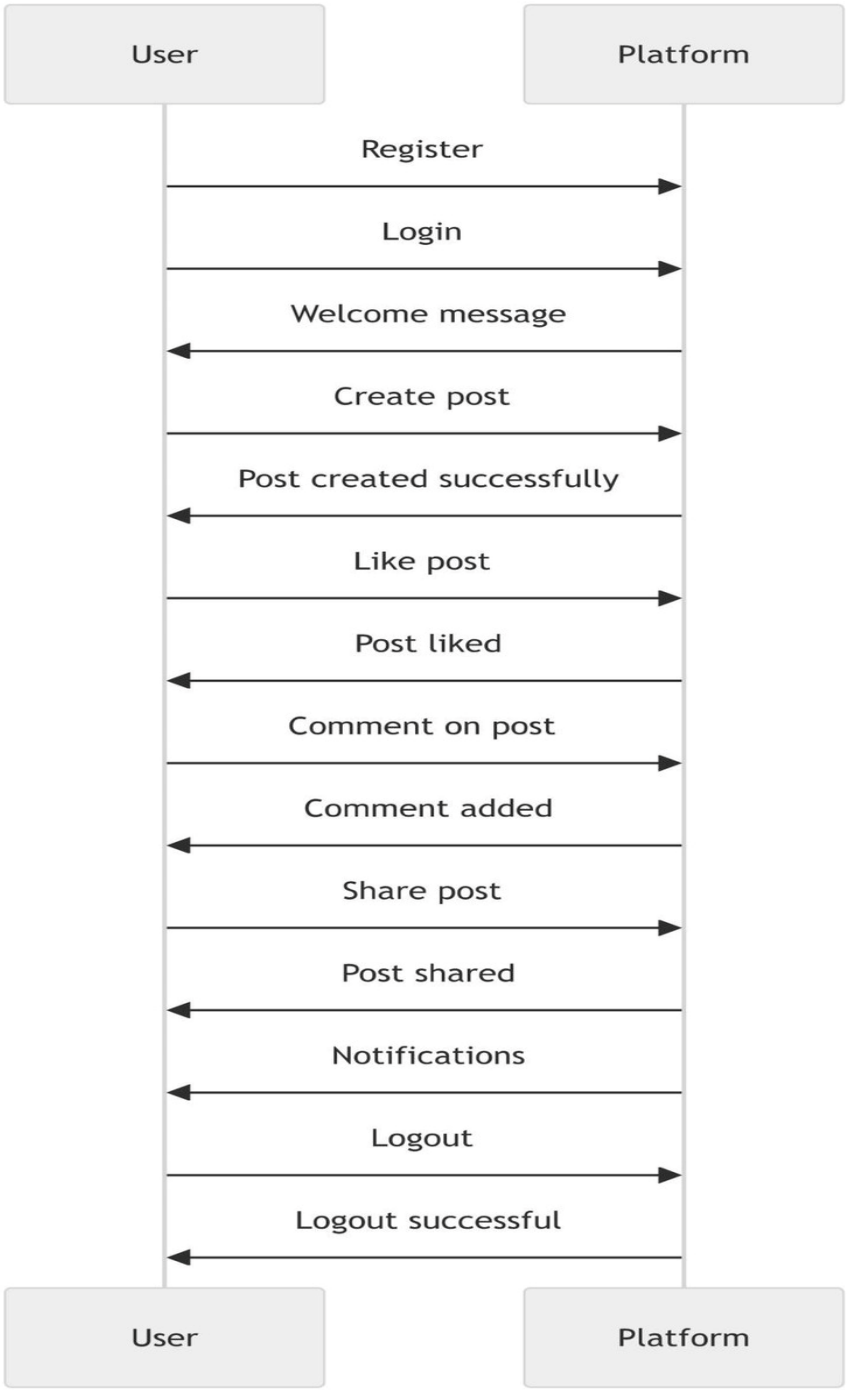
6.3 Use Cases Diagram



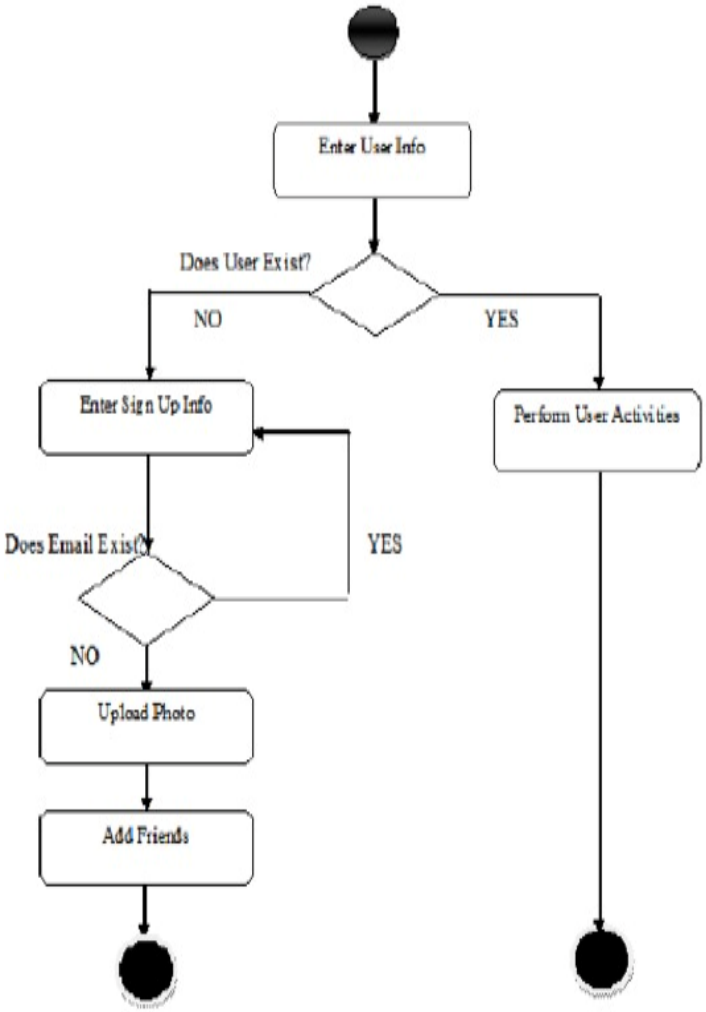
6.4 Class Diagram



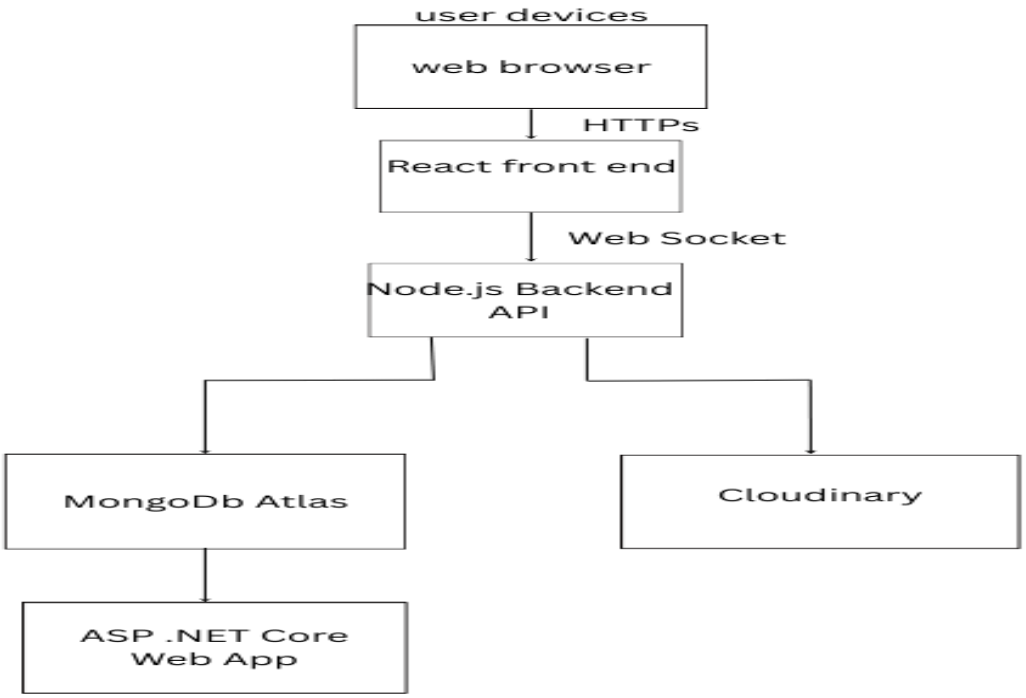
6.5 Sequence Diagram



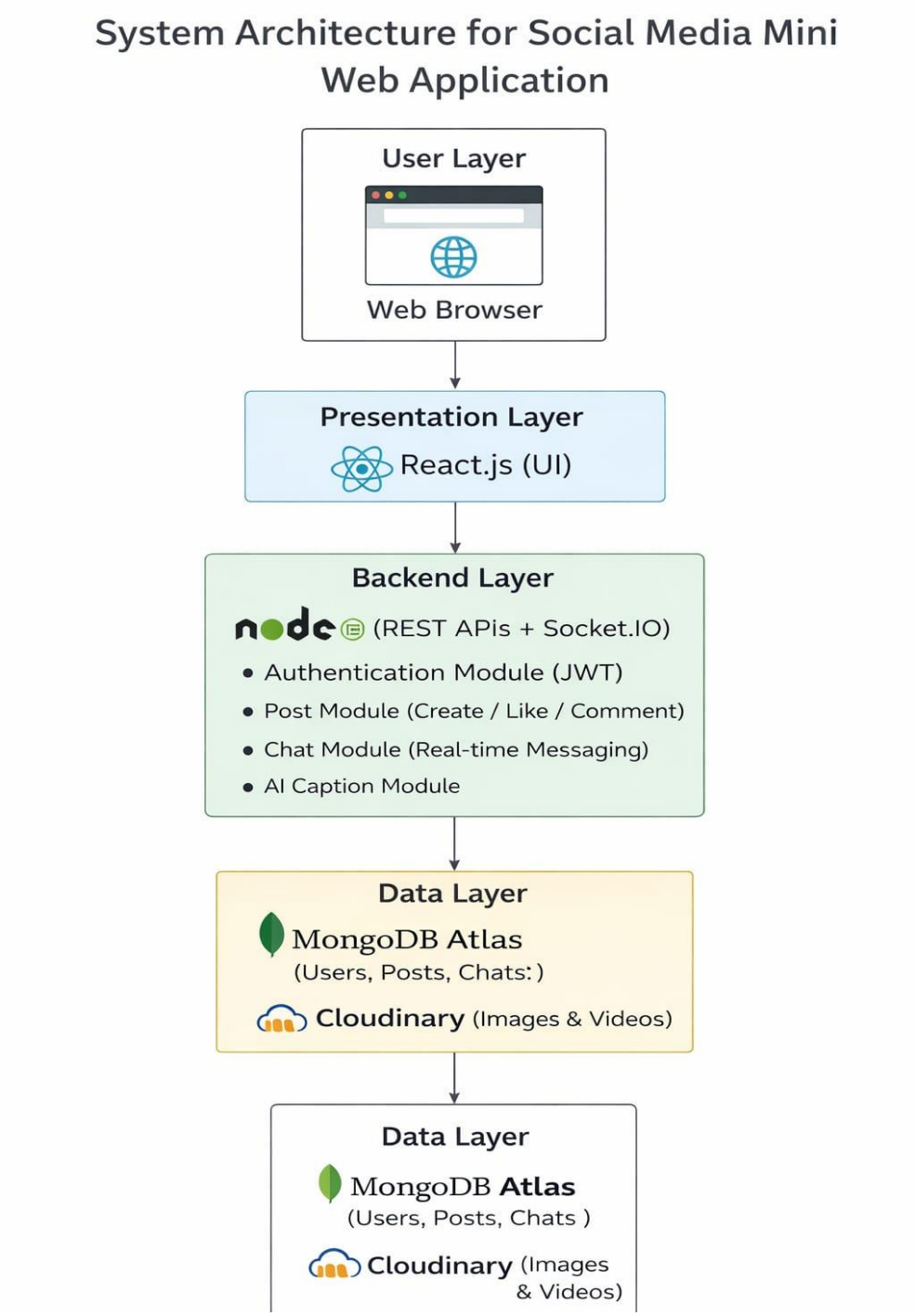
6.6 Activity Diagram



6.7 Deployment Diagram



6.8 System Architecture



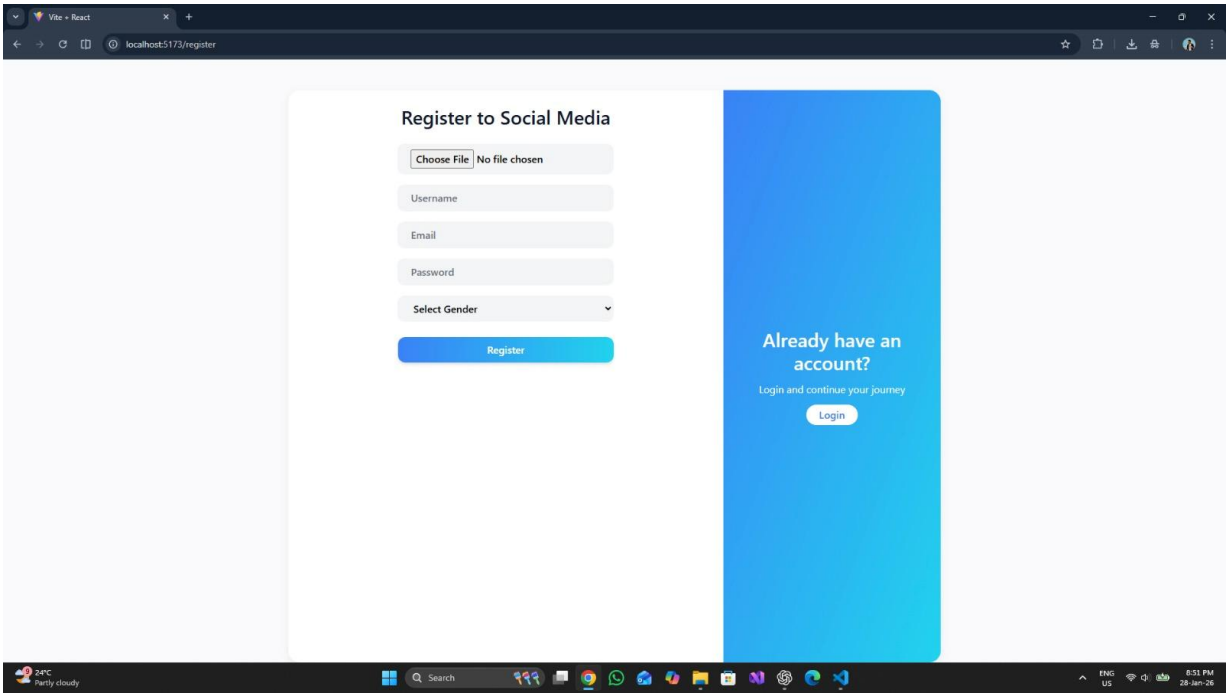
7. Test Cases

Testing is a critical step to ensure the application works correctly and meets its requirements. Below are some major test cases executed during system testing:

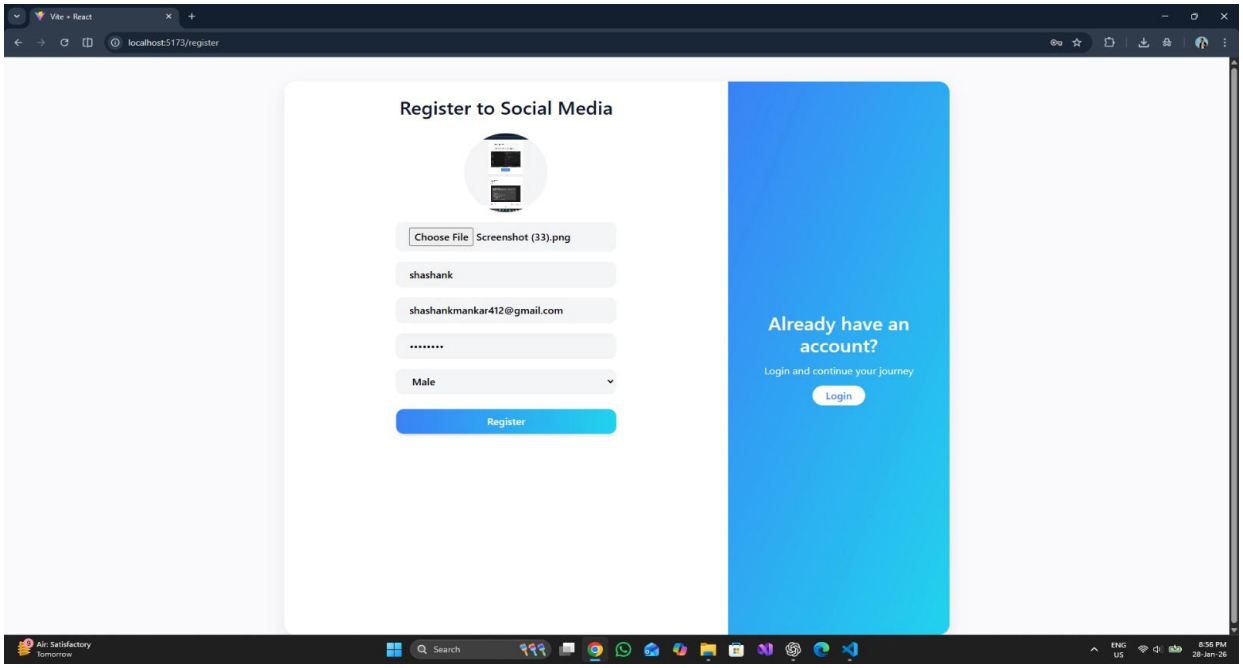
Sr. No.	Test Case	Expected Result	Actual Result	Status
1	Register New User	User is registered and redirected to login page	Same	Pass
2	Login with valid credentials	Dashboard/Feed is displayed	Same	Pass
3	Create New Post	Post is saved and visible in feed	Same	Pass
4	Edit/Delete Post	Post is updated or deleted successfully	Same	Pass
5	Generate AI Caption	Caption is generated and displayed for post	Same	Pass
6	Like/Comment on Post	Interaction is saved and reflected in feed	Same	Pass
7	Follow/Unfollow	Follow and Unfollow Users	Same	Pass
8	Message	Send and Receive Message Synchronous	Same	Pass
9	Invalid login attempt	Shows error message	Same	Pass
10	Logout	Redirects to login/home page	Same	Pass

8. Screenshots

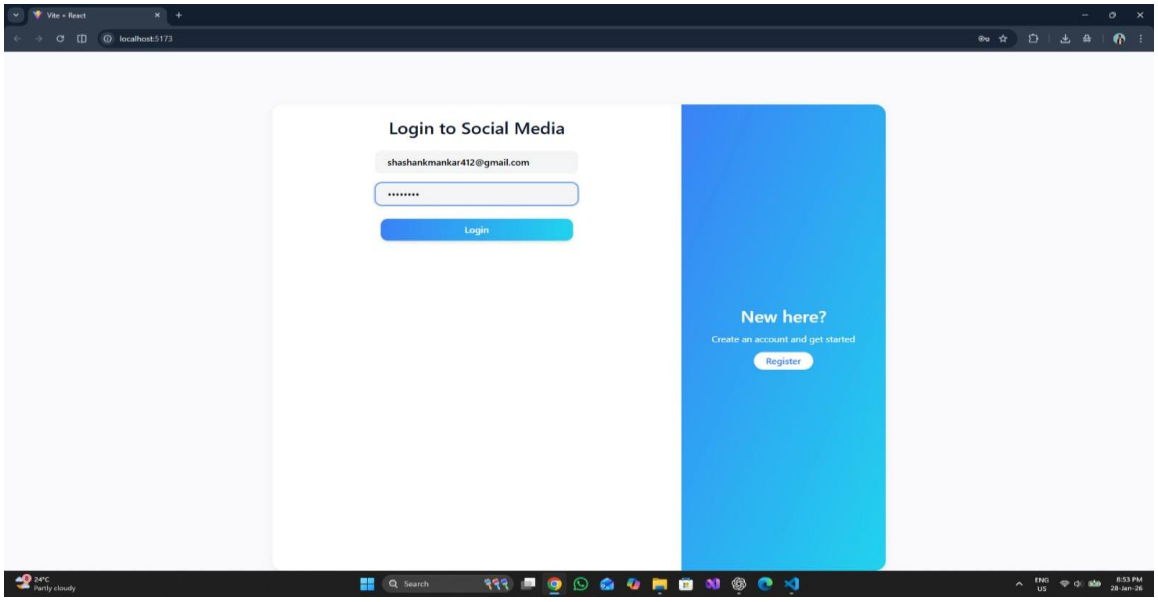
1. Home Page



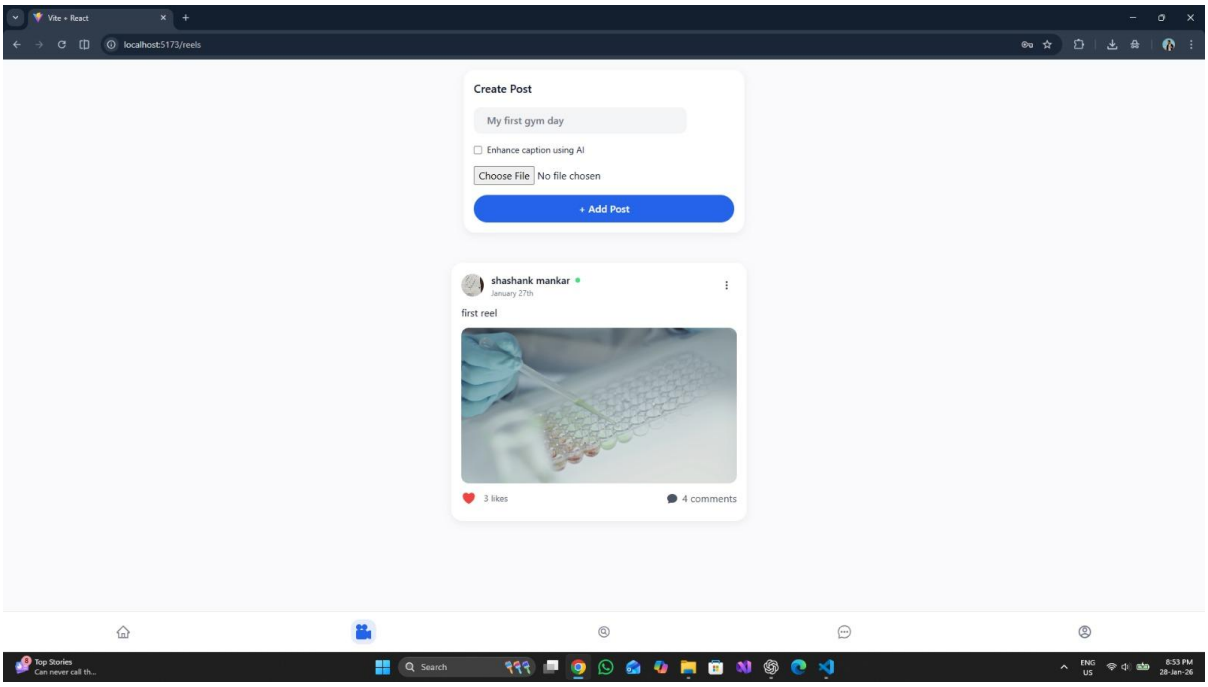
2.Regisration



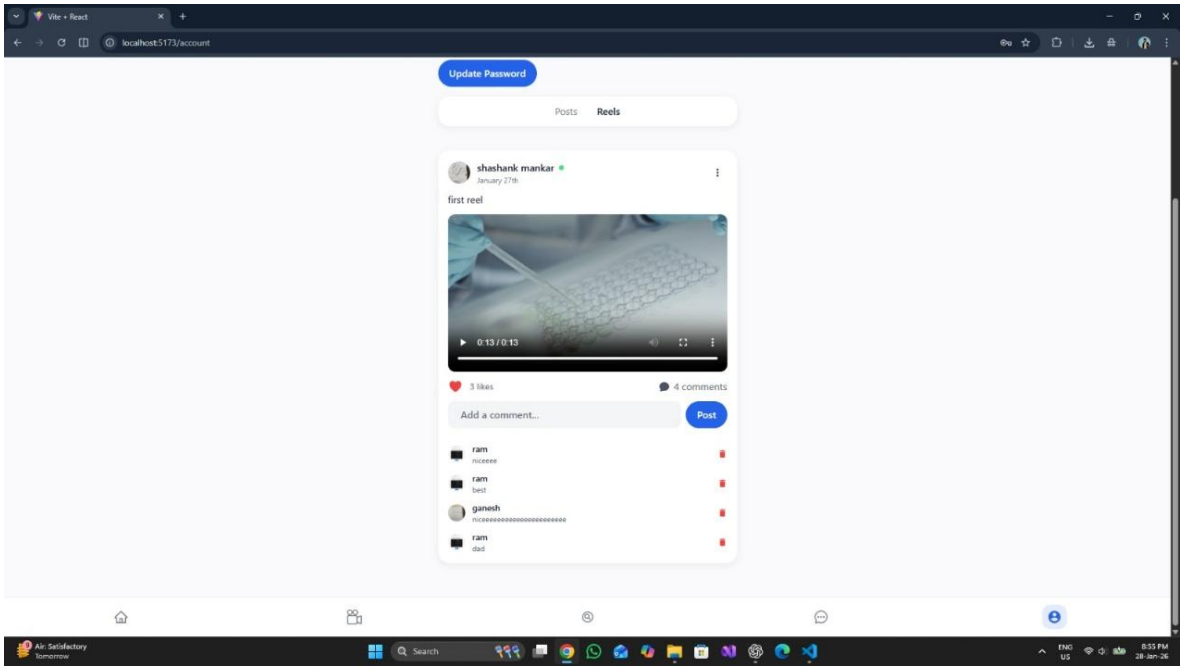
3.Login



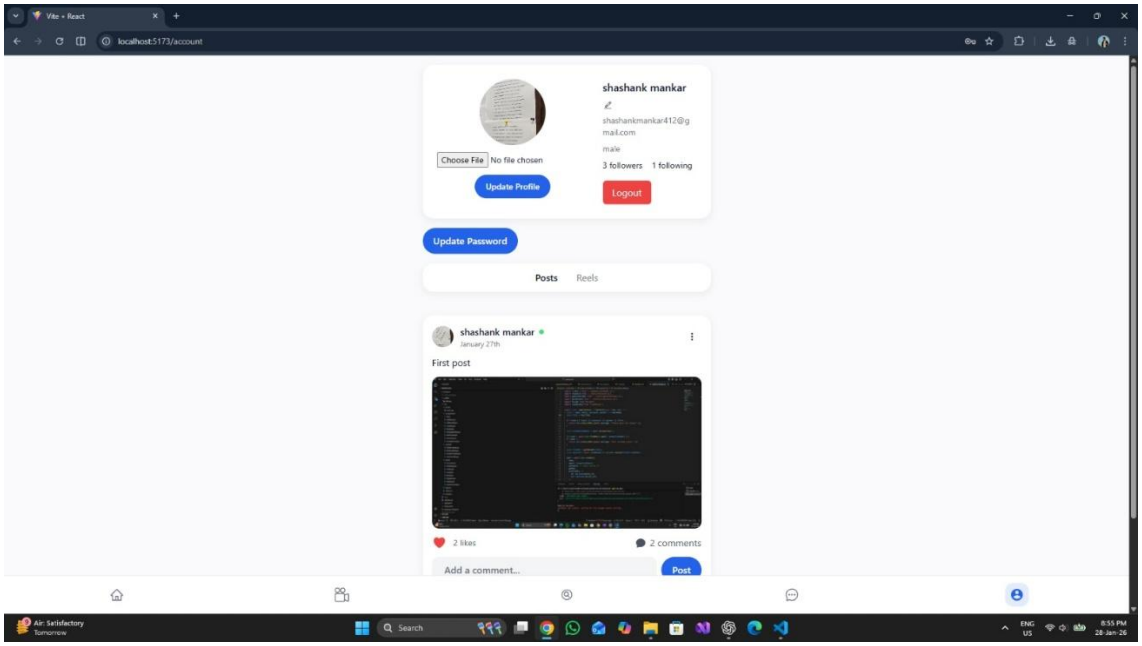
4.Create Post



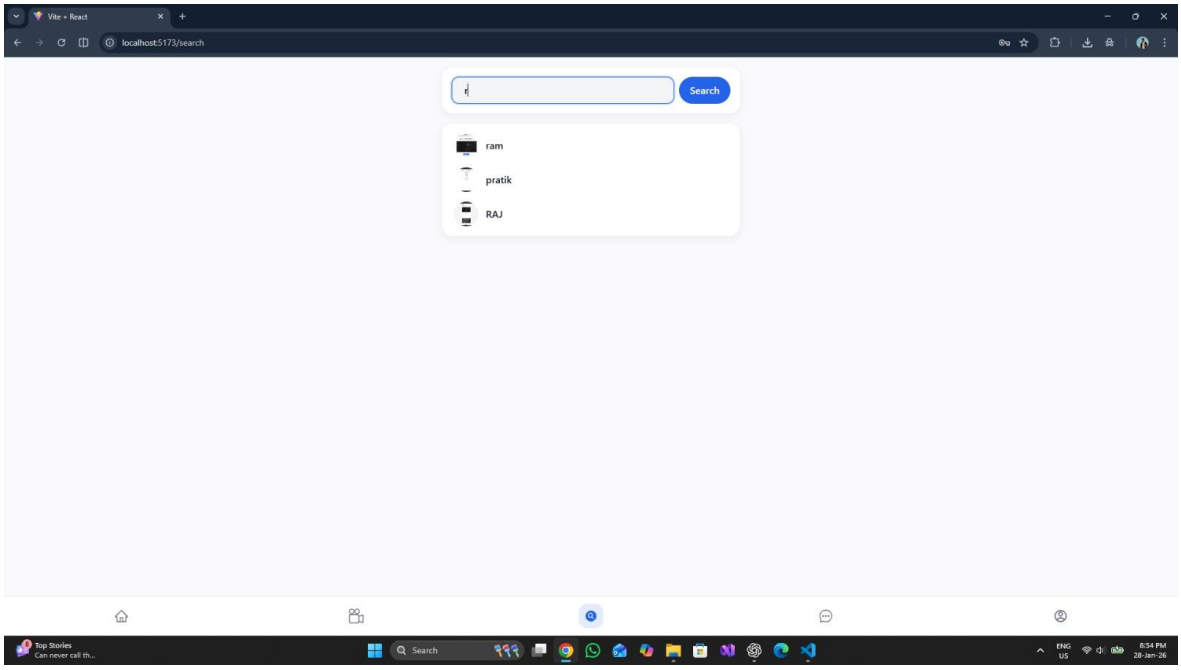
5. Like



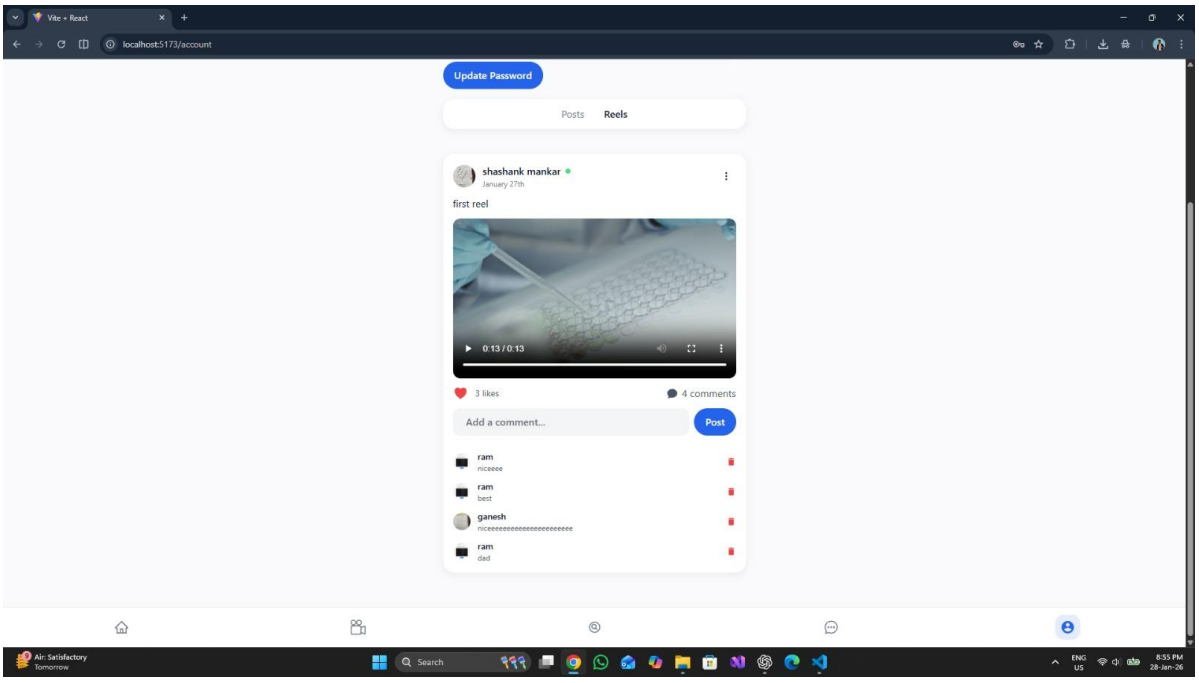
6. Profile Page



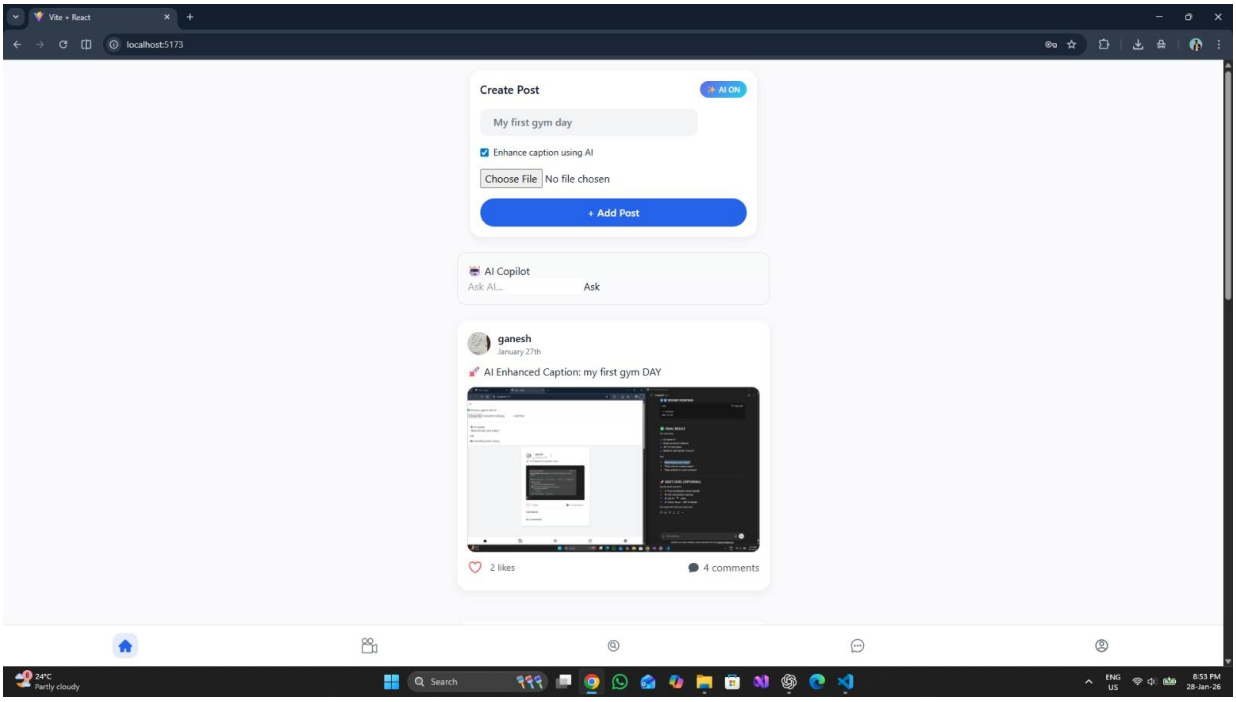
7.Search



8.Comment



9. GenAI Caption Tool



10. References

The following websites and tools were referred to during the design, development, and documentation of the project:

1. **https://www.w3schools.com** – Tutorials and references for HTML, CSS, JavaScript, React basics and web development concepts used in frontend creation.
2. **https://reactjs.org** – Official React.js documentation for building responsive UI components and single-page applications.
3. **https://docs.microsoft.com/aspnet/core** – ASP.NET Core documentation for backend Web API development, routing, middleware, and services.
4. https://draw.io – UML diagram creation
5. **https://www.mongodb.com** – Documentation and guides for MongoDB database setup, schema design, and CRUD operations used for storing users and posts.
6. https://fonts.google.com – Fonts used in design
7. **https://jwt.io** – Official site for understanding JSON Web Token (JWT) authentication and secure access management.
8. **https://www.udemy.com/fullstack-web-development-course-projects-base/** – Course reference covering full-stack development with React, Node/Express, MongoDB, and GenAI integration concepts.