Project Title: DIU Buy and Sell

Date: 2/12/2024

1. Project Overview

Purpose:
The DIU Buy and Sell platform aims to provide a secure and convenient web based environment for students and staff of Daffodil International University to buy, sell, and trade products. It simplifies transactions through features such as user authentication, product posting, interactive commenting, and interest tracking, along with a robust admin moderation interface.

Scope:
This application is designed to manage end to end product transactions efficiently. Users can upload product details, engage with other users' listings, and track items of interest. Admins oversee the platform to ensure compliance and security. The system uses Flask for its backend, MySQL for data storage, and modern tools for data security and image processing.

Overview:
The platform bridges the gap between buyers and sellers in the DIU community, providing a transparent and efficient platform for product transactions. It offers detailed post management, interest tracking, and user engagement tools, ensuring an excellent user experience.

2. Overall Description

Product Perspective:
The DIU Buy and Sell platform is built as a modern web application, leveraging Flask for backend development. The backend is responsible for managing APIs, image processing, and authentication. The frontend, powered by Flask templates or React, offers a clean and interactive interface for end users.

User Characteristics:

Regular Users: Students and staff of DIU who utilize the platform for buying and selling.
Admins: Responsible for monitoring and maintaining the integrity of the platform.

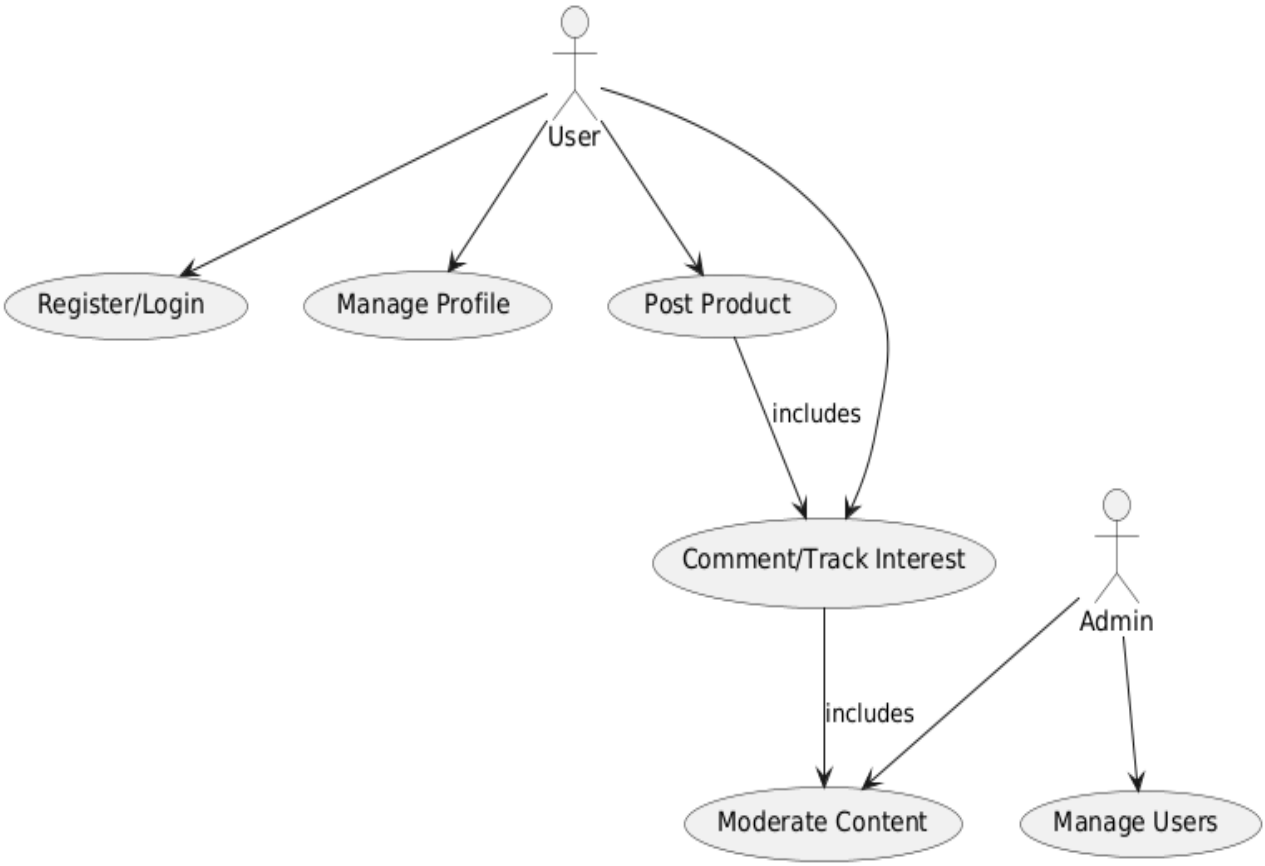
Constraints:

Dependent on MySQL for database management.
Secure and efficient handling of images using Pillow and rembg libraries.
Limited real time updates; polling and asynchronous methods are employed.

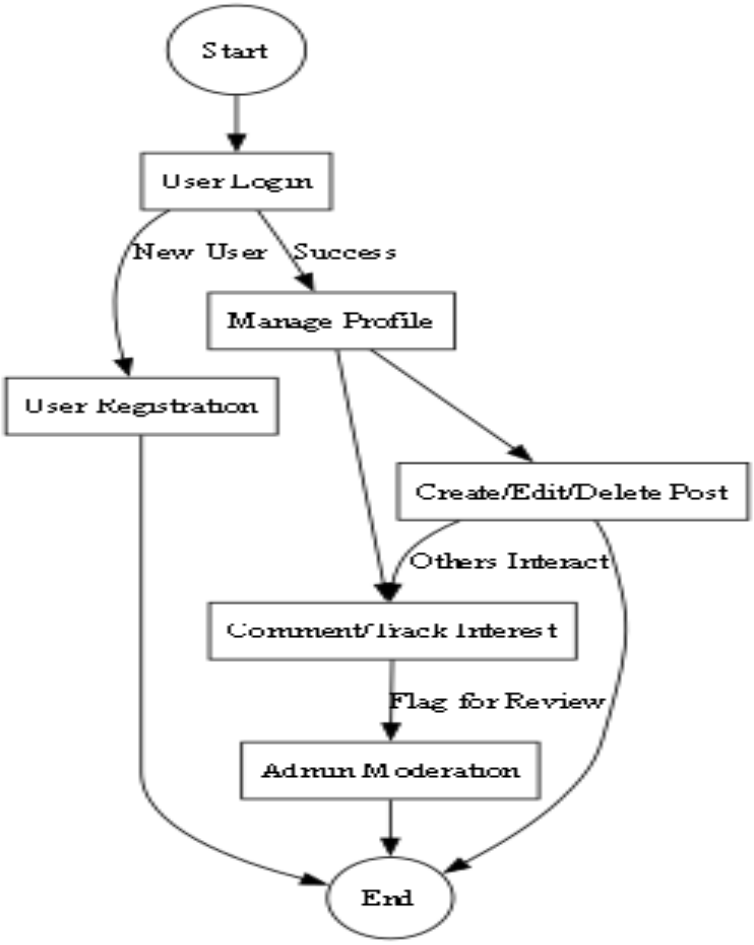
Assumptions and Dependencies:

A reliable hosting environment with Python and MySQL support.
Required libraries like bcrypt, werkzeug, Pillow, and rembg are installed and configured.

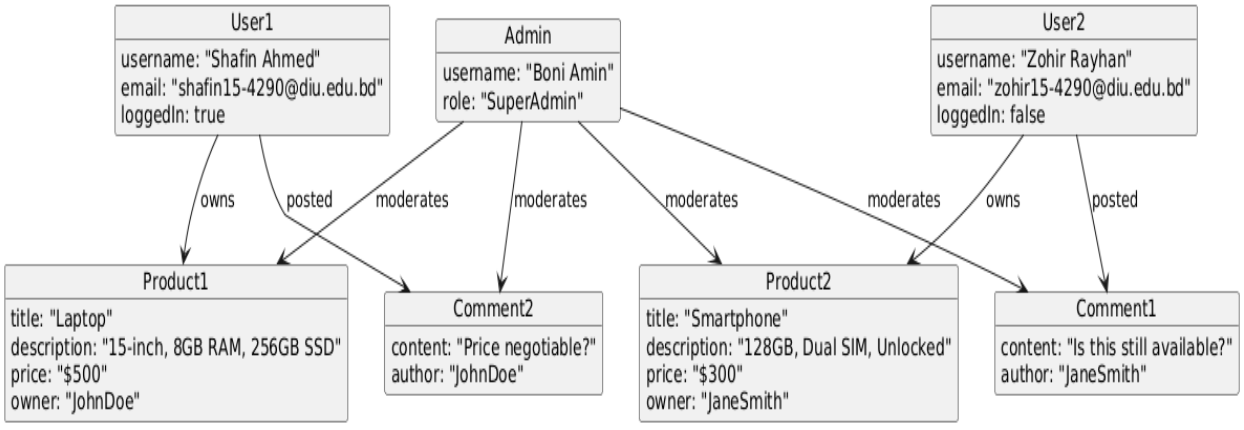
Use Case Diagram



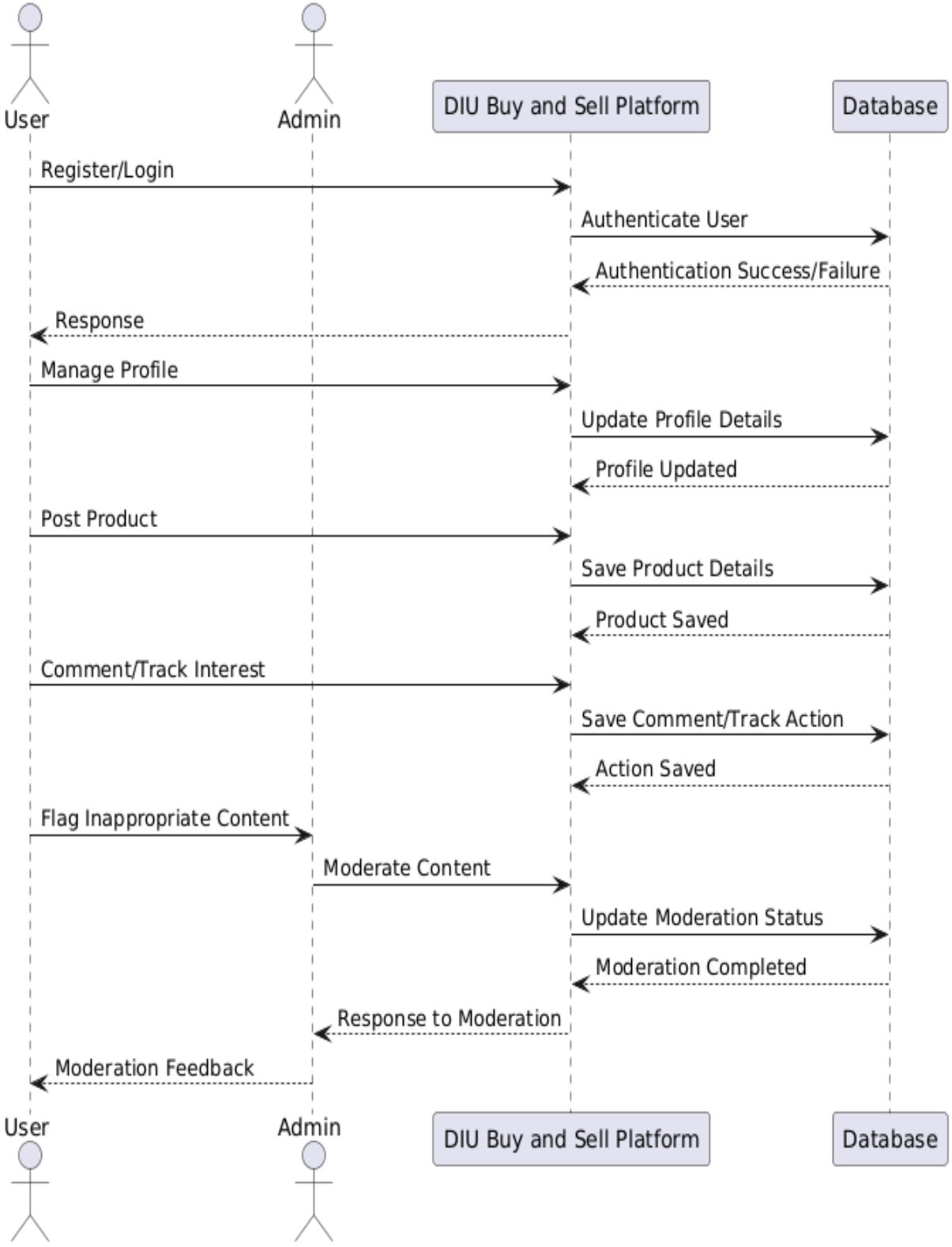
Activity Diagram



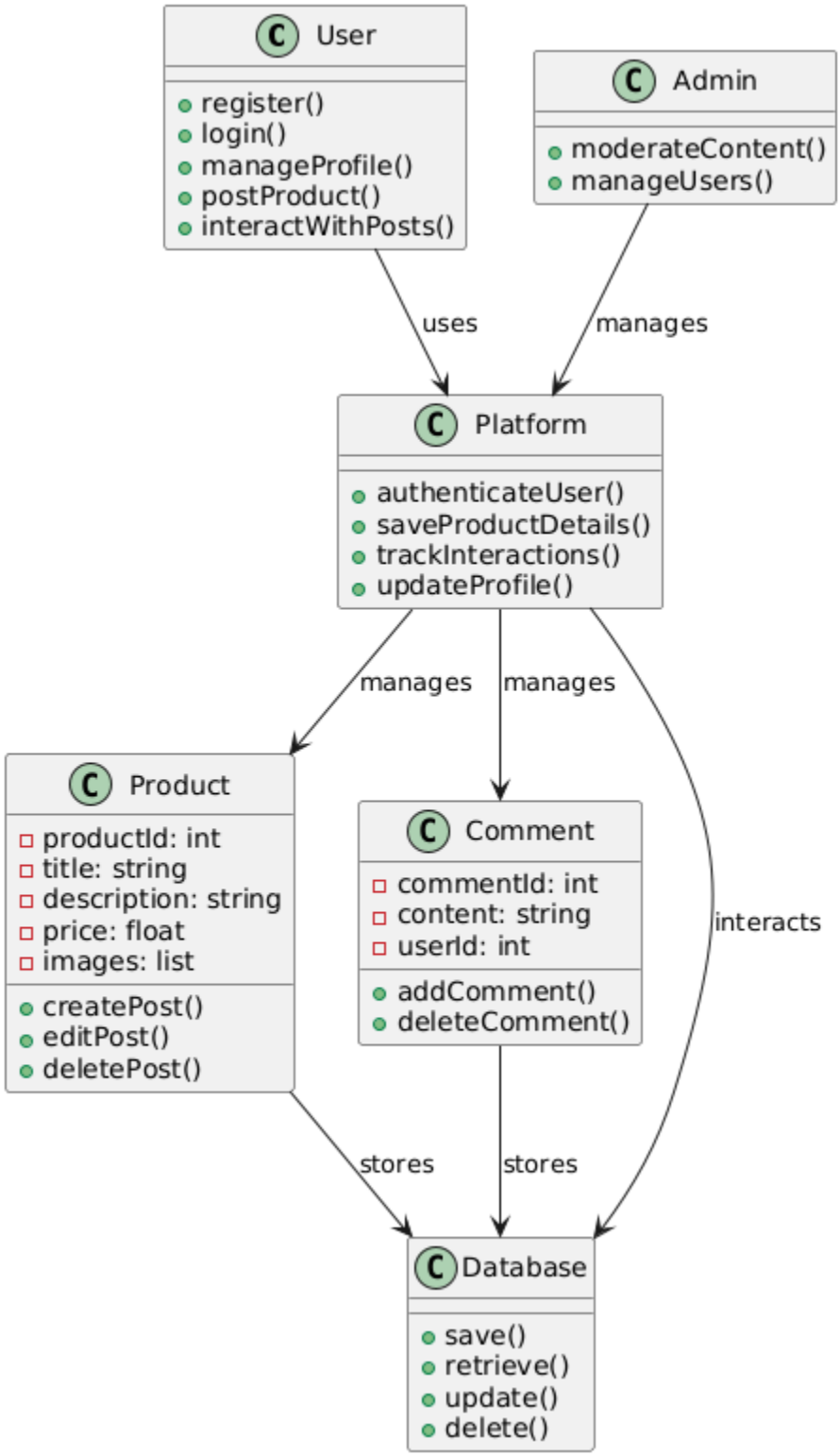
Object Diagram



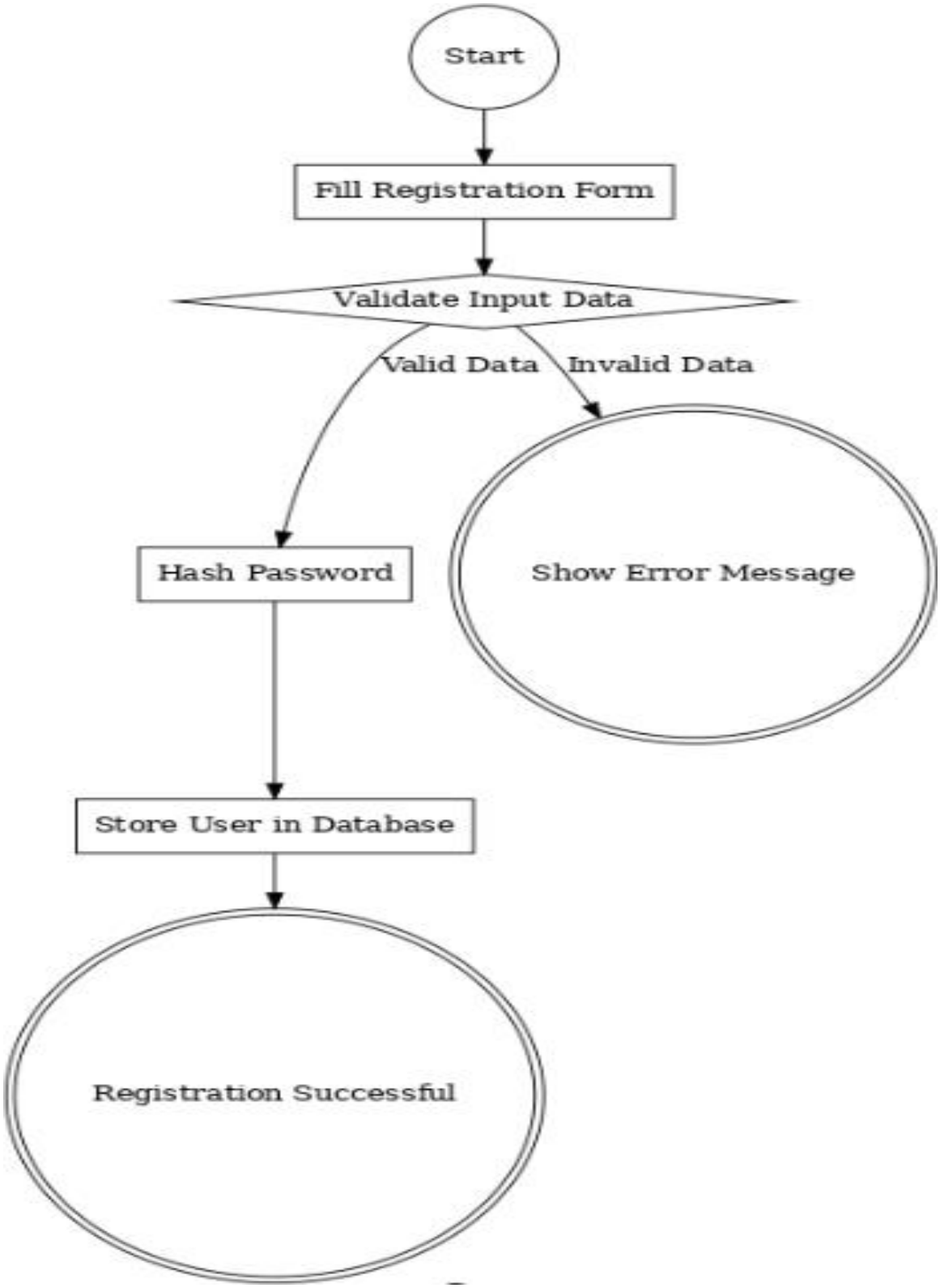
Sequence Diagram



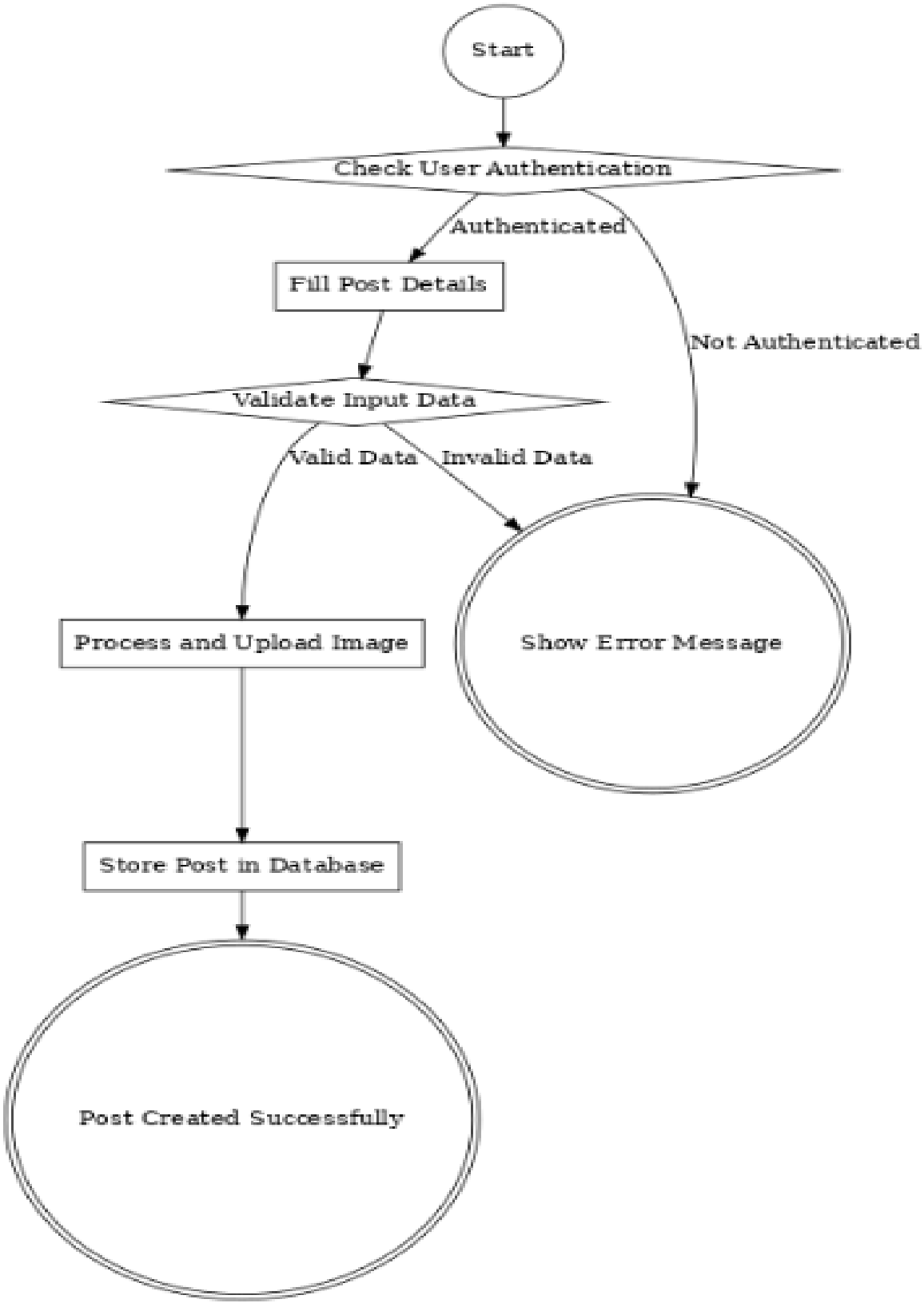
Class Diagram



Flowchart for registration Process



Flowchart for Sell Process



3. System Features

3.1 User Roles and Permissions

Regular User:
Register, log in, and manage their profiles.
Create, edit, and delete product posts.
Add comments and track interest in specific posts.

Admin:
Moderate posts and comments to maintain platform integrity.
Manage user activities and restrict or ban accounts if needed.

3.2 Detailed Workflows

Customer Workflow:
****Registration/Login**:** Users authenticate themselves securely.
****Post Item for Sale**:** Provide product details like description, price, and images.
****Manage Posts**:** Modify or delete posts created by the user.
****Interact with Posts**:** Add comments or mark interest on others' posts.

Admin Workflow:
****View and Moderate Posts**:** Review user generated content and remove inappropriate material.
****Manage Users**:** Restrict or delete user accounts as necessary.

4. Module Description

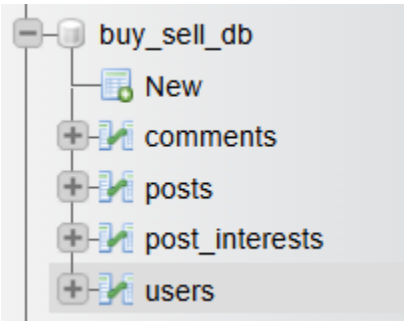
4.1 Customer Modules
****Home Page**:** Displays all active posts with sorting and filtering capabilities.
****Product Posting**:** Userfriendly interface for uploading product details and images.
****Post Management**:** Dashboard for users to manage their listings.
****Commenting and Interest Tracking**:** Features to engage with posts through comments or interests.

4.2 Admin Modules
****Content Moderation**:** Tools to remove inappropriate posts or comments.
****User Management**:** Ability to manage user accounts, including restricting access.

4.3 Shared Modules
****Authentication**:** Ensures secure user login and registration.

****Profile Management**:** Allow users to update personal details and upload profile pictures.

Data Base Schema



Data Base Structure for Users storing

	id	username	email	password	is_admin	profile_pic
Edit Copy Delete	8	shafin test	shafin@gmail.com	$2b$12$ZjMoWVQWNJ5N0ilat4LoW.YbMWYb1fSVo1VdLZCcKKa...	0	2.PNG
Edit Copy Delete	9	test1	test1@gmail.com	$2b$12$w/iTOLI3SD4LpLzZoo094OFJVQ2b2AOKFk9HOuk8Fmv...	0	*NULL*
Edit Copy Delete	10	test2	test2@gmail.com	$2b$12$RM8xpnjXQbpRfoPgHL1ucuJ03tCD8XI2wB8q6YuKSws...	0	clipart3467636.png
Edit Copy Delete	11	admin	admin@gmail.com	$2b$12$z.yzvuhCq1eVCfD9AmPzp.72MV6E.EaeEqhtzmFPG3v...	1	*NULL*
Edit Copy Delete	12	test1	test1@gmail.com	$2b$12$8knotjLjdtmR5wZW8WNlseoJvXV6ofsd0BkV7XttPPE...	0	*NULL*
Edit Copy Delete	13	test1	test1@gmail.com	$2b$12$HjXG7kqxV8g/33lMyYmcG.4go0HOOX3VY5uH4h4/hqq...	0	*NULL*
Edit Copy Delete	14	test3	test3@gmail.com	$2b$12$DGRcWmhqV5pceHLLF4iZN.LoCojNXMiM3wdz8aqODkz...	0	*NULL*

Data Base Structure for product storing

	id	user_id	image	description	price	created_at	interest
Edit Copy Delete	30	8	ai_2.jpg	1	3.00	2024-12-03 03:08:43	1

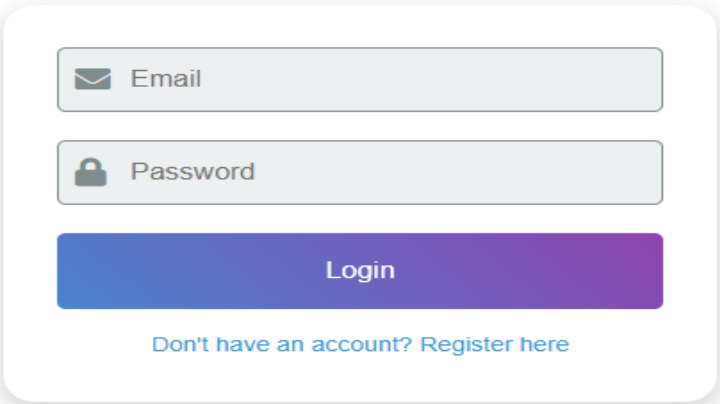
Data Base Structure for post interest count

	id	post_id	user_id
Edit Copy Delete	9	30	8

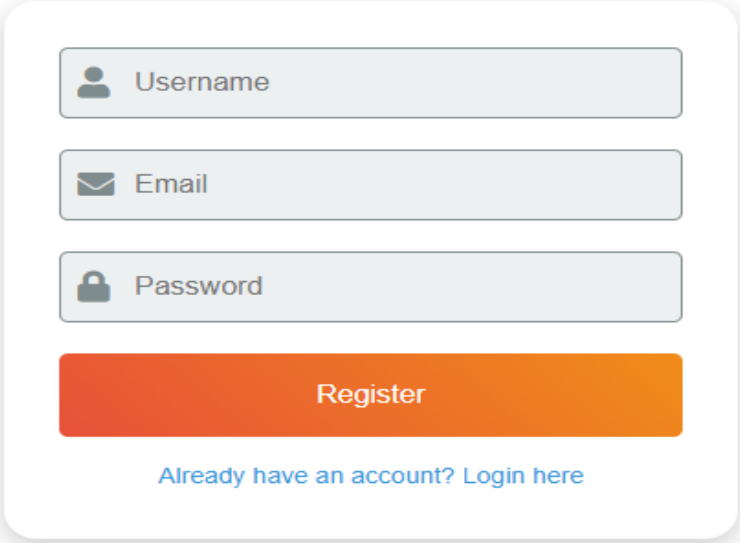
Data Base Structure for Comment handle

	id	post_id	user_id	comment_text	created_at
Edit Copy Delete	61	30	8	i want to buy this	2024-12-04 09:21:04

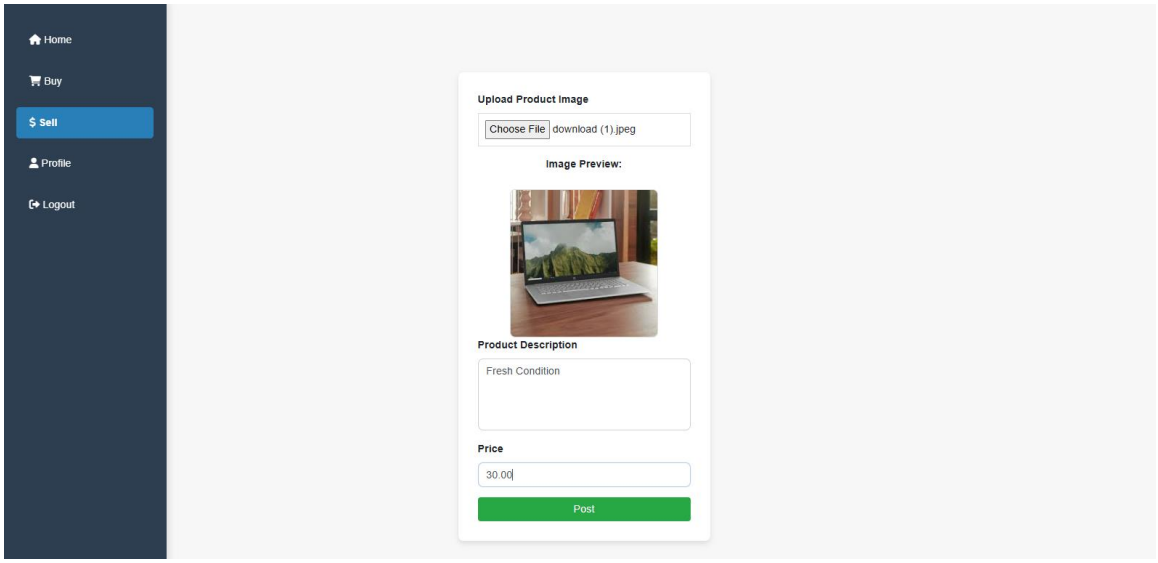
User Interface



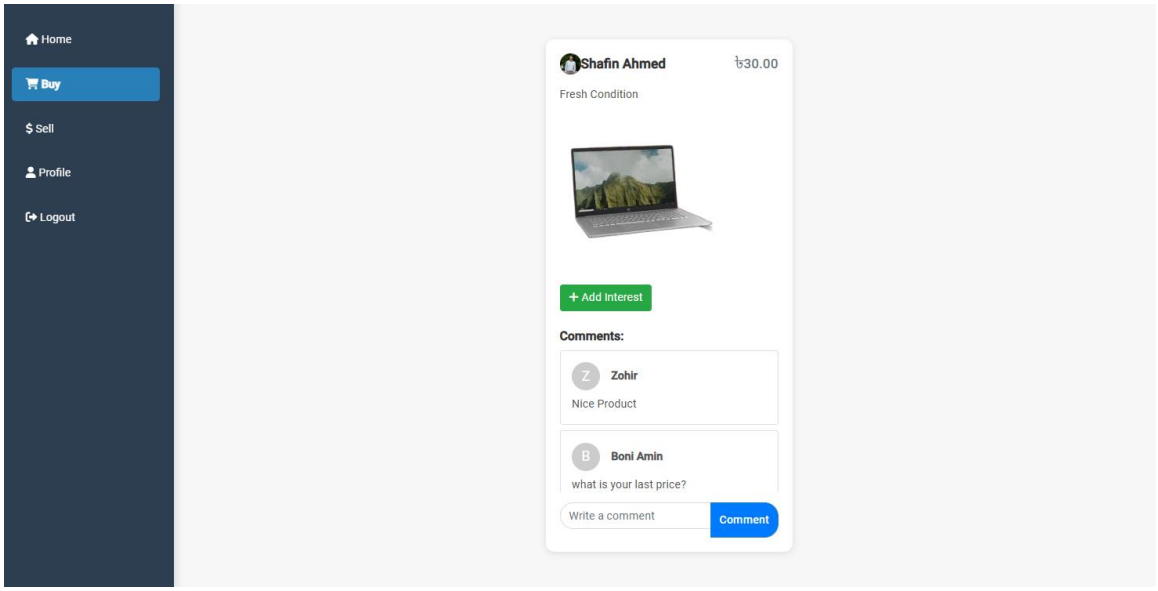
Registration



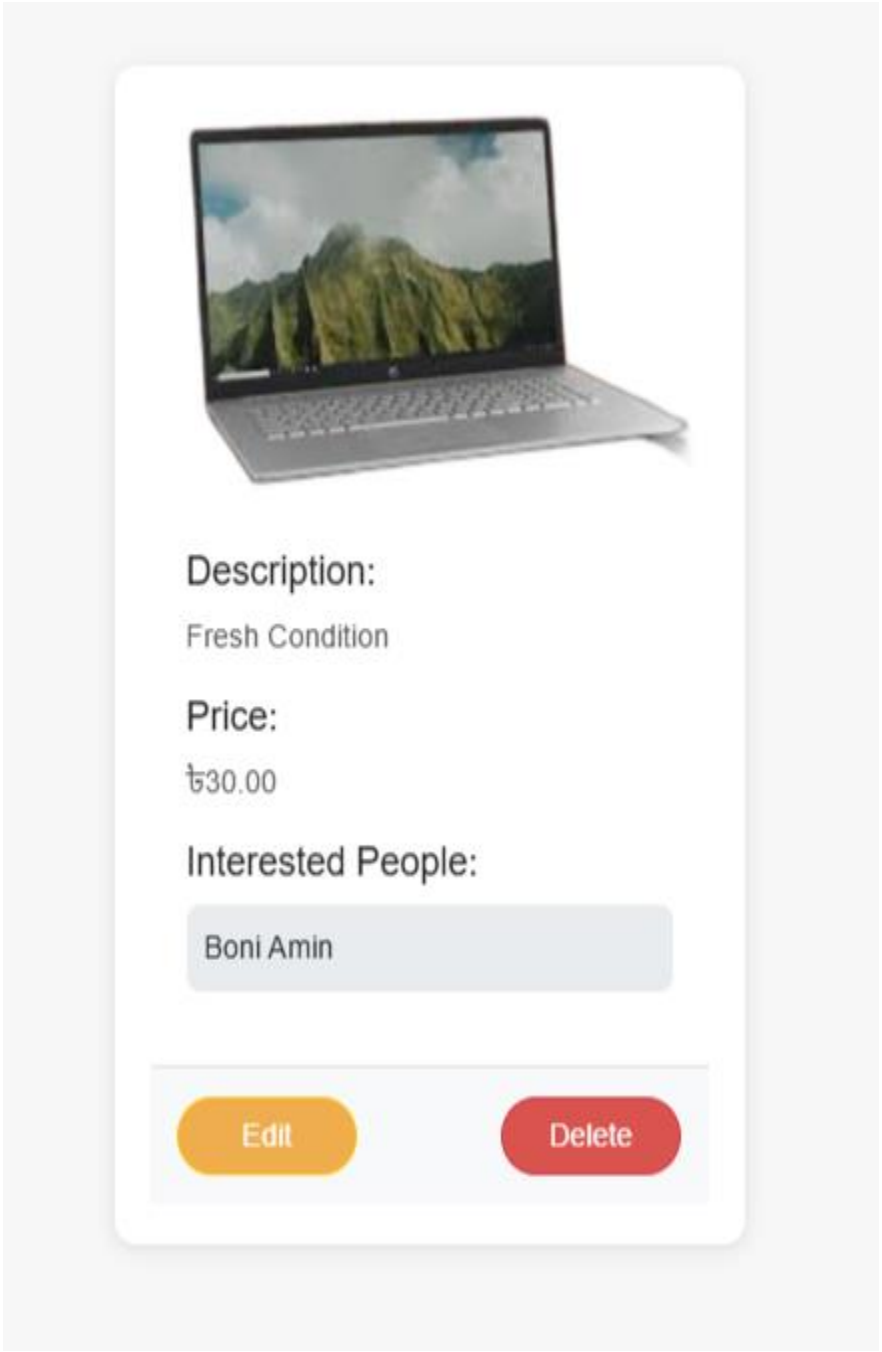
Post Create for Product



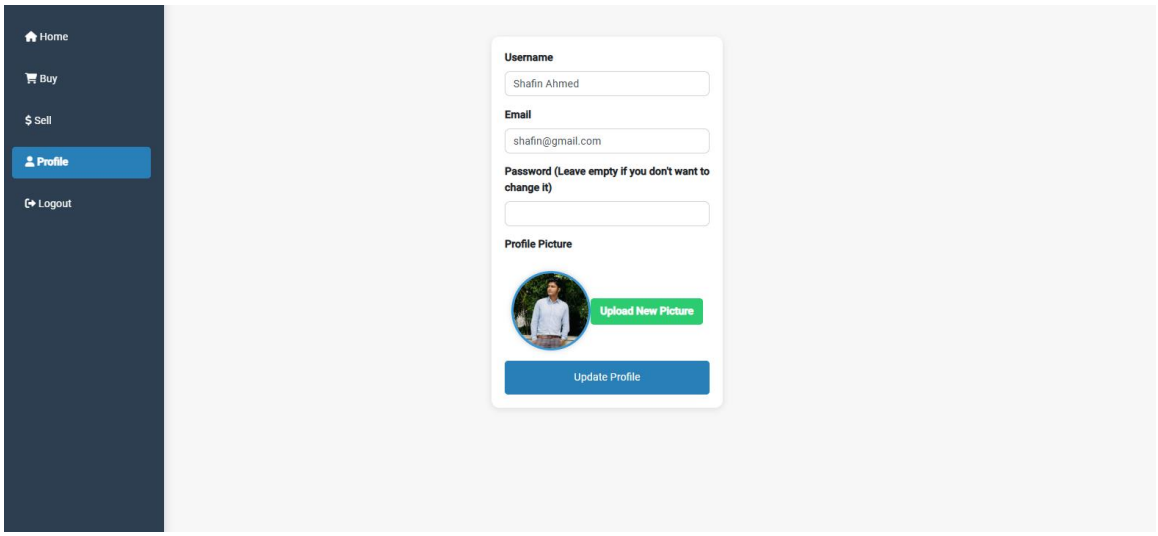
Community



Edit for post



Profile Section



5. Technology Stack

Frontend: Flask templates with Jinja.
Backend: Flask.
Database: MySQL for structured data storage.
Libraries: bcrypt, werkzeug, Pillow, rembg for security and image processing.

6. Milestones and Timeline

Week 1: Backend and database setup.
Week 2: Implement authentication and profile management.
Week 3: Add product posting and image processing features.
Week 4: Build commenting and interest tracking modules.
Week 5: Finalize admin controls and conduct thorough testing.

7. Testing Process

Unit Testing: Validate backend API functionality using unittest.
Integration Testing: Test the interaction between frontend and backend.
End to End Testing: Simulate user workflows from registration to post creation.

User Acceptance Testing: Gather feedback from actual users for improvement.

8. Support and Maintenance

Support Services: Email and phone support during business hours.
Maintenance Plan: Regular updates and bug fixes based on user feedback.

9. Pricing and Payment Terms

Total Project Fee: 60,000 Tk
Payment Schedule:
20% upon requirement analysis completion.
40% upon initial development completion.
30% after testing and user acceptance testing (UAT).
10% upon final deployment.

10. Roles and Responsibilities

Client: DIU students and staff.

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