

Object Oriented Programming

Topic 1: Social Media Simulation

Project Description

Create a simplified social media simulation with classes representing users, posts, comments, and friendships where you'll model and simulate interactions between users in a social network. Implement features for posting, liking, and commenting on posts. This project will help you understand how core features of social media platforms work.

Key Features to Implement

- User Class: Create a class to represent users. Each user should have a unique username, a list of friends (other users they are friends with), and a list of posts they've created.
- Post Class: Model a post as a separate class. A post should have attributes like the content, timestamp, and the user who created it.
- Friendship Management: Implement the ability for users to send and accept friend requests. Users can be friends with one another.
- Posting: Users should be able to create posts with text content. Posts should be associated with the user who created them and have a timestamp.
- Liking Posts: Users can like posts created by their friends.
- Commenting on Posts: Users can leave comments on their friends' posts.

Sample Usage

- Create a few user profiles, add friends, and simulate interactions between them.
- User A creates a post, and their friends (Users B, C, and D) can like and comment on it.

Topic2: Flight Booking System

Project Description

Design a flight booking system that models the core functionalities of an airline's reservation system. Use classes to model flights, passengers, and bookings. This project will help you understand the concepts of managing flights, passenger bookings, and seat availability.

Key Features to Implement

- Flight Class: Create a class to represent flights. Flights should have attributes like flight number, departure and arrival locations, departure time, and the number of available seats.
- Passenger Class: Model passengers with attributes like name, age, and contact information.
- Booking System: Implement a system for passengers to book flights. Passengers should be able to select a flight, provide their details, and receive a booking confirmation.

- **Seat Availability:** Track the number of available seats on each flight. Passengers can only book available seats.
- **Booking Records:** Keep records of passenger bookings, including the passenger's information and the flight they've booked.
- **Flight Search:** Allow passengers to search for available flights based on departure and arrival locations and travel dates.

Sample Usage

- Create flight schedules for different routes.
- Passengers can search for flights, book seats on available flights, and receive booking confirmations.
- The system should maintain passenger and flight information for future reference.