

**Object Oriented Programming**  
**Semester Project**

In this project. You will develop a social interaction system where a user can register his/herself and can make friend, can post, search post, can comment, can like and interact the other user with messaging in private or can make the group.

### User Management:

Create a User class with attributes such as userID, name, email, password, birthdate, etc.

Friendship System: Implement a mechanism for users to send and accept friend requests. Include features for managing friends and connections.

### Post Management:

Create a Post class with attributes like postID, content, timestamp, and a reference to the user who made the post.

Allow users to comment on posts and like posts. Implement classes for comments and likes.

### Messaging System:

Design a Message class for private conversations between users.

Implement group messaging functionalities.

### Profile Management:

Create a Profile class to manage user profiles with features such as user bio like first name, last name, Date of birth, phone number, email-id, location, either student of working in different organization, interests' number of post and these post-likes and comment etc.

Timeline: Implement a user timeline that displays posts in chronological order.

### Search Functionality:

Develop a search functionality to find users, posts, and groups. Advanced Search Filters Include filters for searching by location, interests, etc.

### Group and Page Management:

Create a Group class for users with shared interests.

Implement a Page class for entities like businesses, organizations, etc.

### File Management:

You are supposed to properly perform file management for each activity in your project. Consider a user gets registered in your he/she should have credentials for the lifetime and same case for his other operations like total posts he/she posted should be maintained which can search in future.

How the system follow works is that

1. **User Registration and Authentication:** Users register by providing necessary information such as name, email, password, and birthdate.
2. **User Profile and Friendships:** After registration, users can create and customize their profiles, including profile pictures, cover photos, and personal information. Users can search for other users and send friend requests. Friend requests can be accepted or declined by the recipient.

3. **Timeline and Posting:** Users can create posts containing text. Posts are displayed on the user's timeline in chronological order. Friends can interact with posts by commenting on them and liking them.
4. **Messaging System:** Users can initiate private conversations by sending messages to their friends. Group chat functionality allows users to create and participate in group discussions.
5. **Groups and Pages:** Users can create interest-based groups and join existing groups. Pages can be created for businesses, celebrities, and organizations to interact with their audience.
6. **Search and Discovery:** Users can search for friends, groups, and pages based on various criteria likes user from same location, have common friends etc.
7. **Date Class:** This class should handle all operations related to date i.e., maintaining date for each post, comment and more.

You are tasked to identify and create separate classes for the entities, and implement it. Draw a class diagram for the identified classes with proper identification of the relationships. Add appropriate functionalities, as mentioned in the roles of the user. You are required to identify appropriate relationship between different classes and apply polymorphic behavior between them. A proper menu driven is required from your end.

Add as much detail and functionality to the project on your own as needed. Your implementation should demonstrate file handling, operator overloading, polymorphism and virtual functions, as well as all other concepts taught in the course. Output should be clear and easy to follow. Write your driver program such that you can easily demonstrate all features. Bonus marks will be awarded if you implement any features extraordinarily well and thoroughly, and for original thought and design.

Possible classes that you can be imagine in this project could be the following.

- **User Class.**
- **Friend Class (Customized Class).**
- **Post Class.**
- **Comments Class.**
- **Like Class.**
- **Message Class.**
- **Chat Class.**

Moreover, you are supposed to create a menu driven system where each and every option shall be understandable.