

# Chat Room Design

You need to design a basic chat room system. The system should allow users to engage in text-based conversations and send/receive messages in real-time within the chat room.

## Requirements

### 1. User Registration

Users should be able to register an account by providing a username and password. After registration, users can use the provided credentials to log into the chat room.

- List all users in the system with their joined chat room name

### 2. Authentication

Users should be able to log into the chat room using their account credentials and log out when they are finished.

### 3. Chat Room

Once logged in, an user can:

- List existing chat rooms
- Enter existing chat room (one at a time)
  - List current members
- Create chat room (one at a time)
- Exit chat room

### 4. Messaging

Users can send text messages to a joined chat room and it's public to any other joined users. Each user can see all messages from other joined users.

## Additional Features (Optional)

### 1. Private Messaging

Users can send private messages directly to other users instead of sending them publicly in the chat room.

### 2. Add friends and direct messaging

### 3. Security

All messaging should be encrypted for security reasons.

You can use any programming language or framework to implement the chat room system and consider using relevant technologies such as network communication and databases.

*Notes: The key is to simulate how a chat room work. Therefore, the user interface definition can be re-defined if you have an idea to better demonstrate it.*