COSC 439: Operating Systems Project
Title: Multicomputer Chat Clients Development

Objective: The objective is to design and create a multi-computer chat client system using socket/pipe/RPC programming, facilitating real-time communication among users across a local network. While input via a text file or directly in the terminal is allowed, it may result in a point deduction. The team is expected to implement some form of UI/interface for user input. Therefore, the project can be implemented using any programming language. However, the communication data transfer must be exclusively through socket/pipe/RPC programming, as other methods are not permitted.

Features to Implement:

- **Real-Time Messaging:** Enable users to exchange real-time messages across different computers.
- **One-to-Many and One-to-One Messaging:** Implement options for both one-to-many and one-to-one messaging within the chat system.
- **File Sharing:** Include the ability to share files among users connected to the chat system.

Requirements:

1. **Progress Report:** Submit a progress report outlining encountered challenges, how you have solved them, the current status, and forthcoming steps. Upon submission, feedback will be given for project adjustment based on the provided feedback. **(1 pt)**
2. **Code Implementation:** Develop a functional multi-computer chat client system relying on socket/pipe/RPC-based communication for all listed features **(6 pts)**.
3. **Technical Report:** Prepare a detailed report that includes **(5 pts)**:
    - **Introduction to the Project:** Define objectives, importance in real-time communication, and the scope of the chat client system.
    - **Features Description:** Detail each implemented feature and its significance in facilitating real-time chat among multiple computers.
    - **Implementation Details:** Discuss technical insights, challenges faced, and significant decisions made during the development process.
    - **Results Analysis:** Showcase outcomes from each feature and their contributions to effective multi-computer chat client systems.
    - **Conclusion:** Summarize key findings.
4. **Presentation:** In person presentation that focuses on the technical aspects of the project. Utilize PowerPoint slides to highlight project goals, algorithms employed, implementation details, evaluations, challenges encountered, and insights gained. Additionally, ensure the presentation includes a live demonstration of the project to provide a practical illustration of its functionality. **(5 pts)**
5. **Retrospective and Contribution Report:** Reflect on the Operating Systems (OS) course, summarizing significant lessons learned, their practical relevance, and their impact on understanding OS principles. Additionally, list your own contributions as well as those of your teammates towards the project. **(1 pt)**

Deadlines:

- **Progress Report:** November 17, 2025
- **Presentation and Demo:** December 3–8, 2025 (In person)
    - Presentations will take place in the professor's office (YR 456) or in the library (YR 454).
    - Each group will present together, and all group members must be present.
    - The professor may ask questions or request modifications to the project or source code to verify that the work was done by the students and not generated by GenAI or copied from online sources.
    - Time slots will be provided via Calendly, and students should book a slot according to their convenience.
- **Source Code Submission:** December 8, 2025
- **Technical Report:** December 11, 2025
- **Retrospective and Contribution Report:** December 11, 2025