Java Chat Application Project Report

Introduction

The Java Chat Application is a real-time peer-to-peer messaging system designed to allow users to communicate seamlessly over a network. This project focuses on implementing socket programming in Java and uses multithreading to enable simultaneous message handling.

Abstract

This project implements a client-server-based chat application using Java. The server manages multiple client connections through threading, while the client provides an interactive chat interface. Users can exchange private or group messages in real time. Additionally, basic encryption techniques ensure secure communication.

Tools Used

- Programming Language: Java - Libraries: Java Swing, JavaFX, AWT, I/O, Networking (java.net) - Technologies: Socket Programming, Multithreading - IDE: IntelliJ IDEA / Eclipse

Steps Involved in Building the Project

1. Designed a server using ServerSocket to accept incoming client connections. 2. Implemented multithreading to handle multiple clients simultaneously. 3. Created a simple client application using Java Swing for GUI. 4. Added features like private and group messaging. 5. Implemented basic message encryption for secure communication. 6. Added connection logs and user nicknames for better tracking.

Conclusion

The Java Chat Application demonstrates the use of networking concepts and multithreading in Java to create a fully functional chat system. The project enhances understanding of socket programming, GUI development, and encryption techniques, making it a great foundation for building more advanced messaging platforms.