FINAL YEAR MINI PROJECT REPORT

Project Title: Real-Time Chat Application

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Abstract

The Real-Time Chat Application is designed to enable users to communicate with each other instantly over a network. This project uses socket programming to connect multiple clients to a server that manages message transmission. The application provides an understanding of client-server communication and real-time data exchange. It demonstrates basic networking principles and multithreading in Python.

Objective

The objective of this project is to develop a simple chat system that allows two or more users to send and receive messages in real time. The project aims to help students understand socket programming, client-server architecture, and threading concepts.

Modules

1. User Login/Registration – Users enter their nickname and connect to the chat server.
2. Message Sending – Users send messages to the server, which broadcasts them to all clients.
3. Message Receiving – Clients receive and display messages instantly from the server.
4. Chat History (Optional) – Stores previous messages in a local database or file.

System Architecture

The system follows a client-server model. The server listens for incoming connections from clients, while clients send and receive messages. Each client communicates through the server to ensure message delivery to all connected users.

Future Scope

In the future, this project can be enhanced by adding user authentication, chat history storage in a database, emoji and file sharing features, and a web-based user interface using HTML and JavaScript frameworks.

Conclusion

The Chat Application project successfully demonstrates real-time communication using socket programming. It is simple to implement, useful for understanding core networking concepts, and serves as a foundation for more advanced communication systems.