

BLG337E Project II

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Introduction

The Socket Programming project aimed to develop a client and server application that communicates using the TCP protocol. The client was responsible for uploading a text file containing student information (student name, student number, course name) to the server, which would store this information in a file. After the initial connection closed, the client would establish a second connection to download the uploaded text file. Subsequently, the client would compare the downloaded file with the original, generating a report indicating whether the transmission was successful or an error occurred.

Project Implementation

Server Application

The server application was designed to listen for incoming client connections on a specified IP address and port number. When a connection was established, the server received the text file data sent by the client and stored it in a file named `server_data.txt`. The server's implementation involved socket creation, binding, and listening for incoming connections.

Client Application

The client application was designed to connect to the server, upload a text file named `client_data.txt`, and then download the server-stored file. Additionally, the client conducted a file comparison to verify the integrity of the transmission.

Results

The project was successfully implemented, demonstrating the following outcomes:

- **Data Transmission** The client was able to connect to the server, upload the `client_data.txt` file, and download the server-stored file.
- **File Comparison** A file comparison was conducted between the original `client_data.txt` and the downloaded file. The results indicated whether the files were identical, which served as a success indicator.

Conclusion

Socket programming is a fundamental concept in network communication, and this project provided valuable hands-on experience in developing client-server applications using TCP. The project outcomes confirm that data transmission was successfully implemented, and the file comparison mechanism

effectively detected discrepancies in file content.