BANGABANDHU SHEIKH MUJIBUR RAHMAN SCIENCE AND TECHNOLOGY UNIVERSITY

Project Report On HOME-FTP

Course Code: CSE278
Course Title: Project

Submitted By	Submitted To
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Contents

Introduction:

The purpose of **"Home FTP"** project is to develop a LAN-based file sharing application using Java Socket Programming. The application enables users on the same local area network (LAN) to share files seamlessly and securely. The project utilizes the client-server architecture to facilitate the transfer of files between multiple clients connected to a central server.

Objectives:

- Enable file sharing between clients connected to the same LAN.
- Implement a secure and reliable file transfer mechanism.
- Provide a user-friendly interface for selecting and transferring files.
- Support concurrent connections from multiple clients.
- Implement basic error handling and data validation.
- Ensure efficient data transfer and minimize latency.

Technologies Used:

- Java: Programming language for application development.
- Socket Programming: API for network communication.
- Java Swing: Library for building the graphical user interface.

System Architecture:

The system architecture consists of two main components: the server and the clients.

Server:

- Accepts incoming connections from multiple clients.
- Manages the file sharing requests and transfers.
- Handles authentication and authorization of clients.
- Facilitates the transfer of files between clients.

Clients:

- Connect to the server to initiate file sharing.
- Authenticate with the server using a username and password.
- Browse and select files for sharing.
- Upload files to the server or download files from other clients.

Implementation Details:

Server-side:

- Set up a server socket to listen for incoming connections.
- Maintain a list of connected clients and handle concurrent connections.
- Authenticate clients using username and password verification.
- Implement file transfer functionality using input/output streams.
- Implement multi-threading to handle multiple file transfer requests.

Client-side:

- Establish a socket connection with the server.
- Implement user authentication using a login screen.
- Display the list of connected clients and available files.
- Allow clients to browse, select, and upload/download files.
- Show the progress of file transfers and handle any errors.

Features:

File Share:

- Public Share: Allows users to share files publicly with all connected clients on the LAN.
- Private Share (Peer-to-Peer): Enables users to share files directly with specific clients on the LAN.

File Receive:

- Download from FTP: Provides the capability to download files from an FTP server.
- User Management: Allows the system administrator to manage user accounts, including data providers and registered users.

Host Management:

- Add New Host: Allows the system administrator to add new hosts or devices to the LAN.
- Delete Existing Host: Provides the ability to remove existing hosts or devices from the LAN.

Settings:

- Profile Name Modification: Allows users to modify their profile names or usernames.
- File Path Modification: Enables users to modify the default file path for file storage or sharing.

Use Case Diagram:

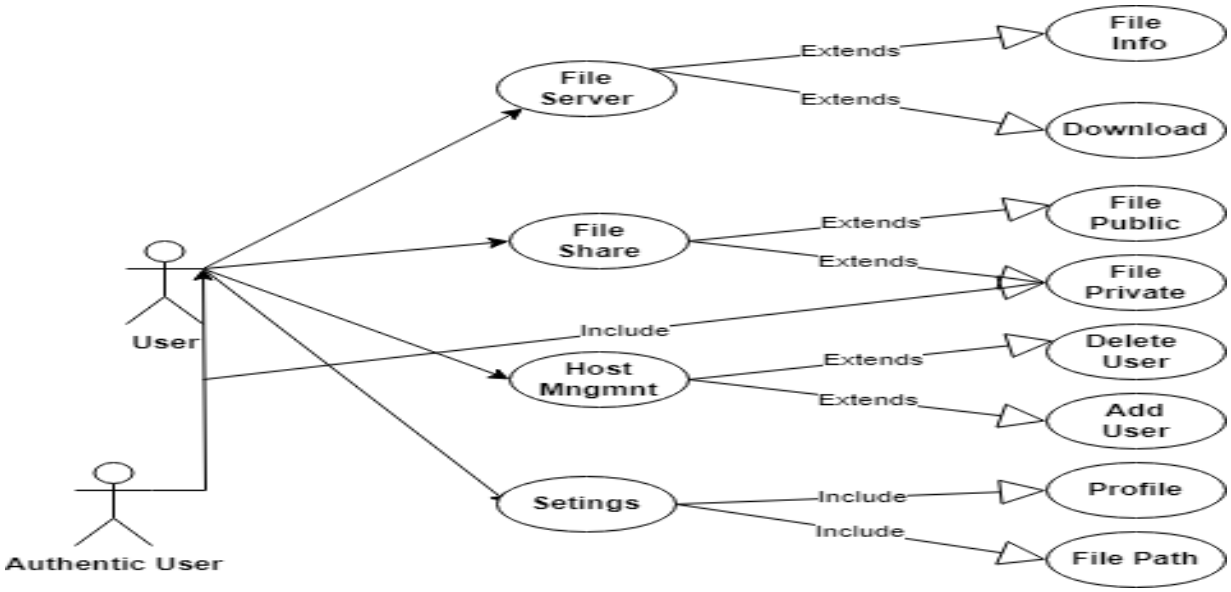

Figure 1:Use Case Diagram OF Home FTP

User Interface of Home FTP:

Home Page:

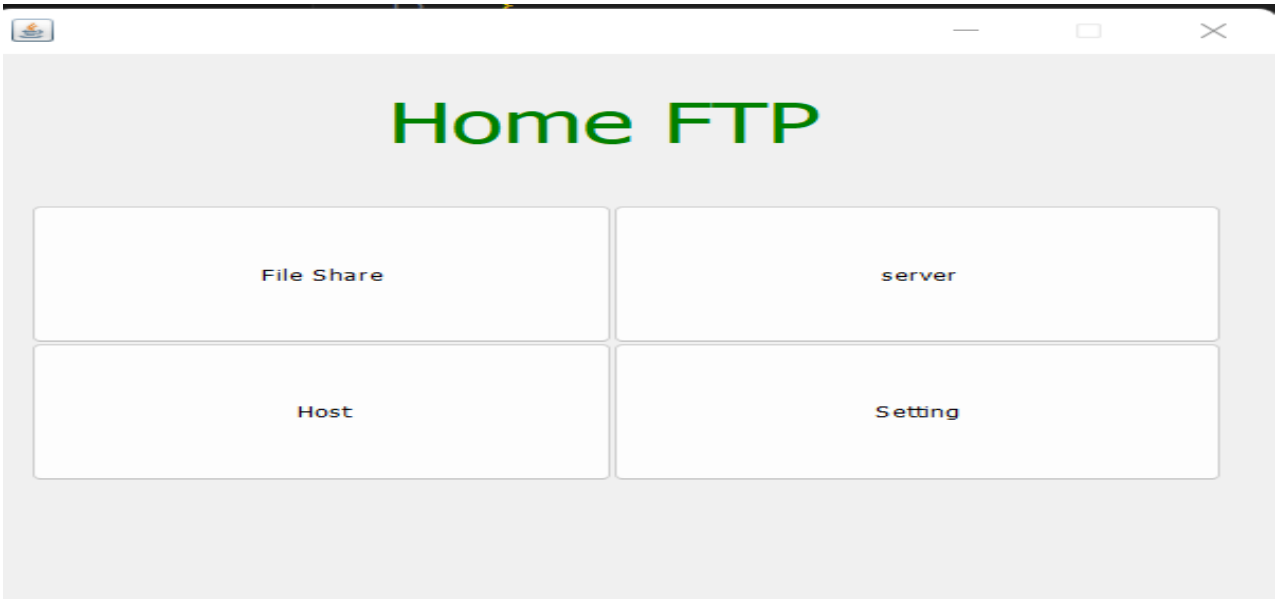

Figure 2:"Home FTP" Home Page

File Sharing Page:

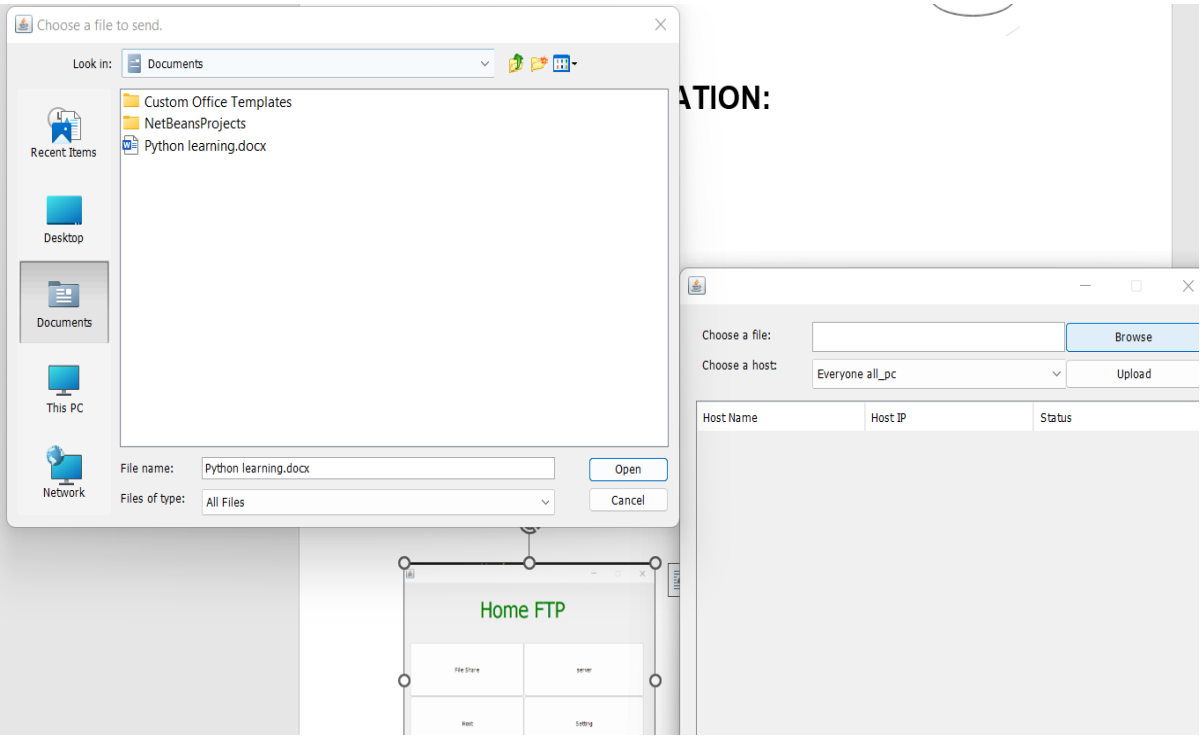

Figure 3:File sharing Page Of File Selected

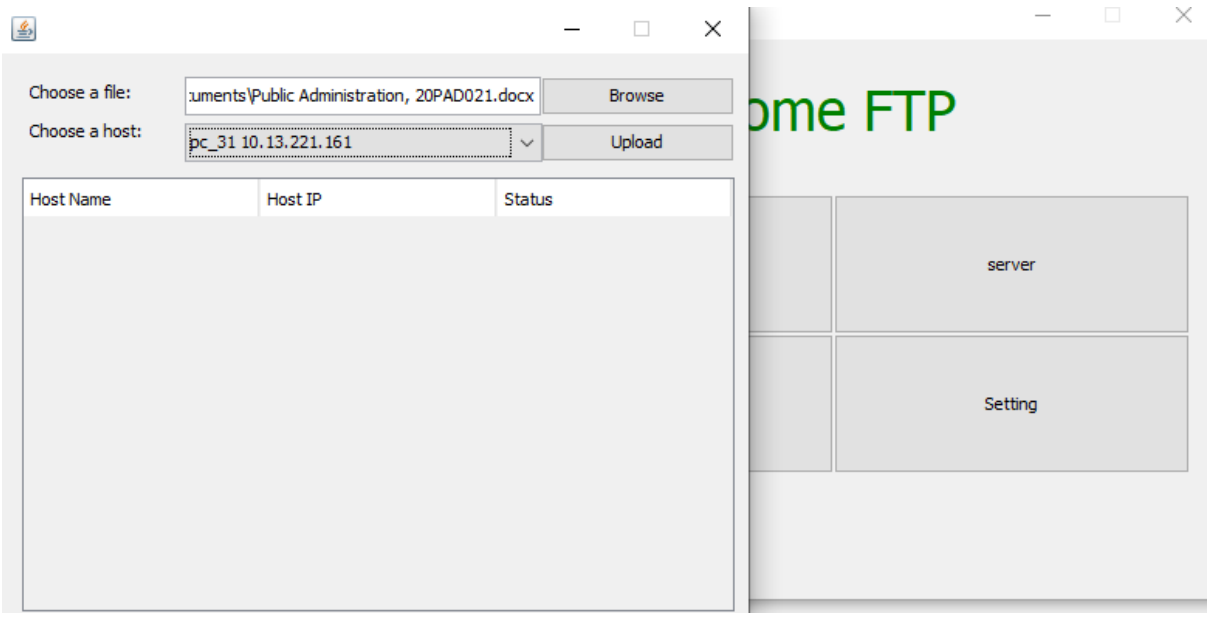

Figure 4:File Sharing Page

Host Management Page:

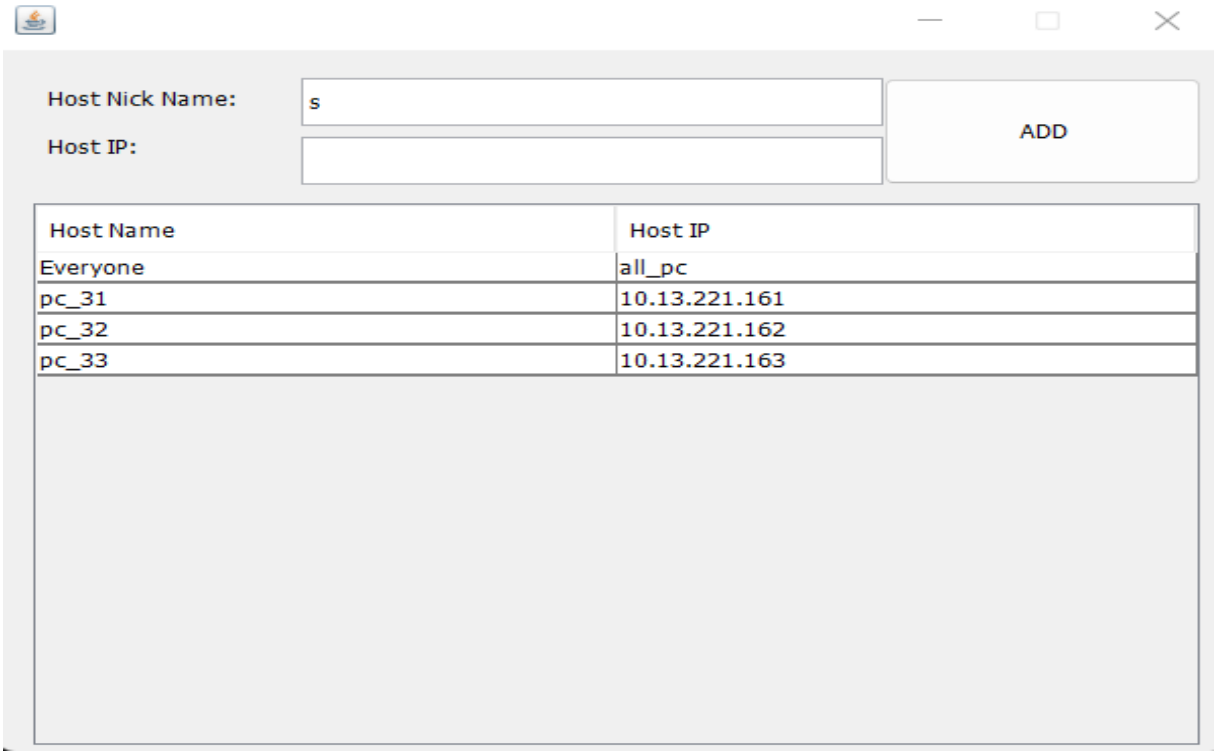

Figure 5:Host Management Page

Server Page:

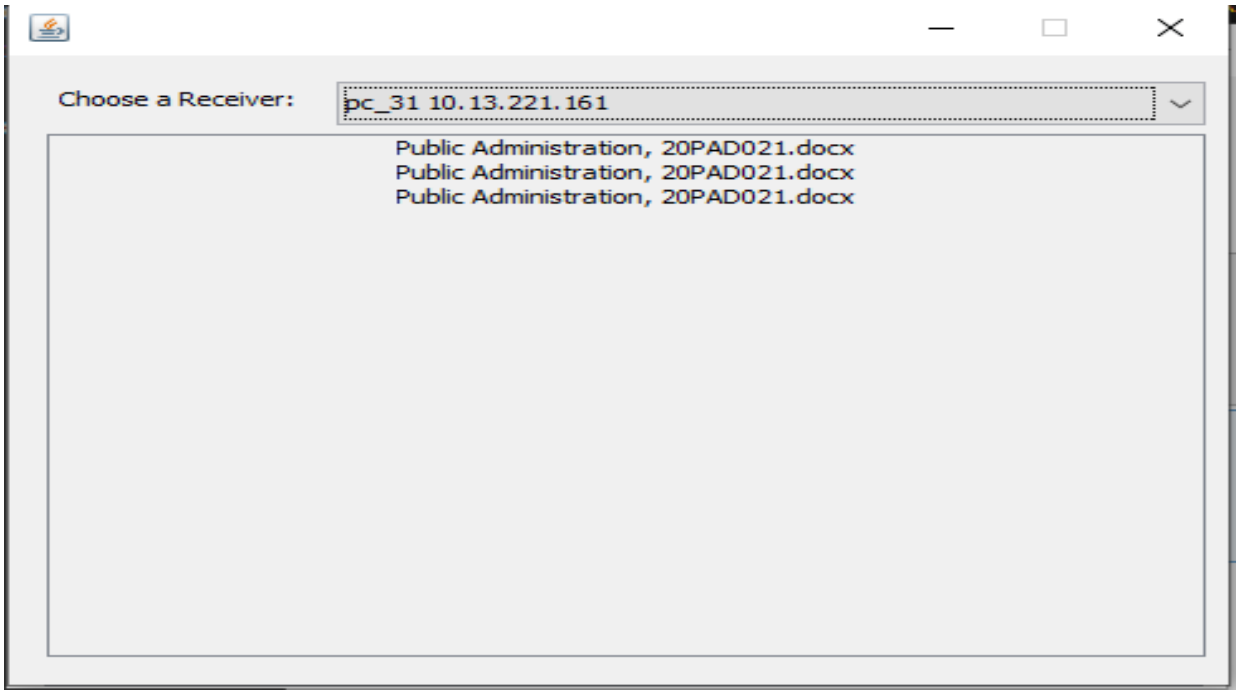

Figure 6:Server Page

Conclusion:

The LAN-based file sharing application developed using Java Socket Programming provides a reliable and secure platform for sharing files within a local area network. The client-server architecture allows for concurrent connections and efficient file transfers. The application offers a user-friendly interface, ensuring a seamless experience for users. Future enhancements could include additional security features, such as encryption, and the implementation of a more robust error handling mechanism.

References:

Oracle Java Documentation: https://docs.oracle.com/en/java/
Java Socket Programming Tutorial: https://www.javatpoint.com/socket-programming