Caesar Cipher Encryption Project Report

Introduction

The Caesar Cipher is a simple and widely used encryption technique that shifts each letter in a message by a fixed number of positions down or up the alphabet. This project implements a client-server model in Python, where the server encrypts messages sent by the client using the Caesar Cipher.

Approach

Server Side:

- The server sets up a socket to listen for incoming connections.
- Upon connection, it receives plaintext messages and shift values from clients.
- It encrypts the messages using the Caesar Cipher and sends back the encrypted messages.
- Error handling is implemented to ensure a smooth user experience.

Client Side:

- The client sends plaintext messages and desired shift values to the server.
- It receives confirmation from the server and displays the encrypted messages.

Detailed Explanation: [Link To Be Updated**]**

Caesar Cipher Function:

The caesar_cipher function takes a plaintext message and a shift value as input and returns the encrypted message. It handles both uppercase and lowercase letters separately to ensure proper wrapping within the alphabet.

Server Code Explanation:

- The server sets up a socket to listen for connections on localhost and port 65432.
- Upon connection, it receives plaintext and shift values from clients.
- It uses the caesar_cipher function to encrypt the plaintext message with the provided shift value.
- The encrypted message is sent back to the client along with a success message.

Client Code Explanation:

- The client prompts the user for a plaintext message and a shift value.
- It establishes a connection with the server and sends the plaintext message and shift value.
- The client receives the encrypted message from the server and displays it to the user.

Example Execution

Start the Server:

Run the server code in a terminal or script.

Run the Client:

Run the client code in another terminal or script.

Enter a plaintext message and a shift value.

Result:

- The client sends the plaintext and shift value to the server.
- The server encrypts the message using the Caesar Cipher and sends back the encrypted message.
- The client receives the encrypted message and displays it to the user.

Conclusion

This project demonstrates a basic implementation of the Caesar Cipher encryption technique in a client-server model. It provides a simple yet effective way to encrypt messages for secure communication.