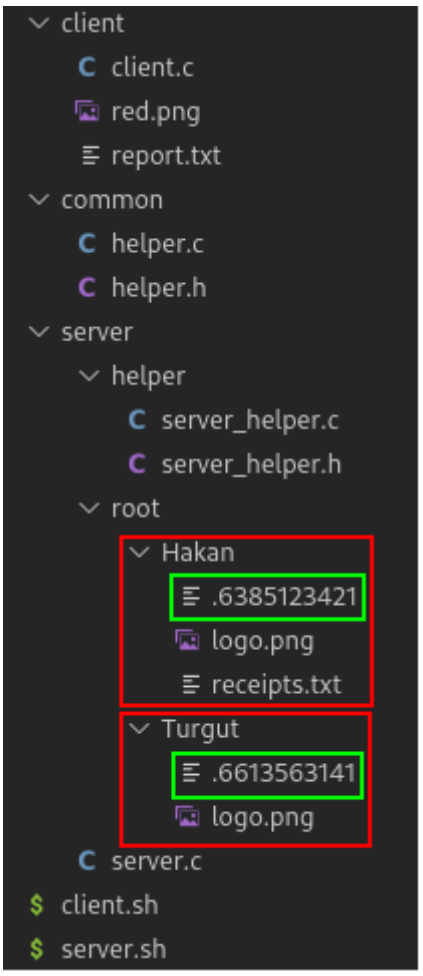
Izmir Institute of Technology
CENG421
Project Report

Introduction:

In this project I implemented a File Storage service. Server has a root folder, and clients can achieve following operations:

- Login
- Register
- Download File
- Upload File
- Remove File



Every registered user has its own folder, and there is a password file created in order to achieve authenticity. (**Green** ones are generated password files, **Red** ones are the folders for users) Password is hashed from a function I found from the internet, and a new file created named ".hashed_pw" inside of the user's folder. So the whole file hierarchy looks like this.

Protocol:

I send the message in the following manner: "<type:6byte>-<Message>".

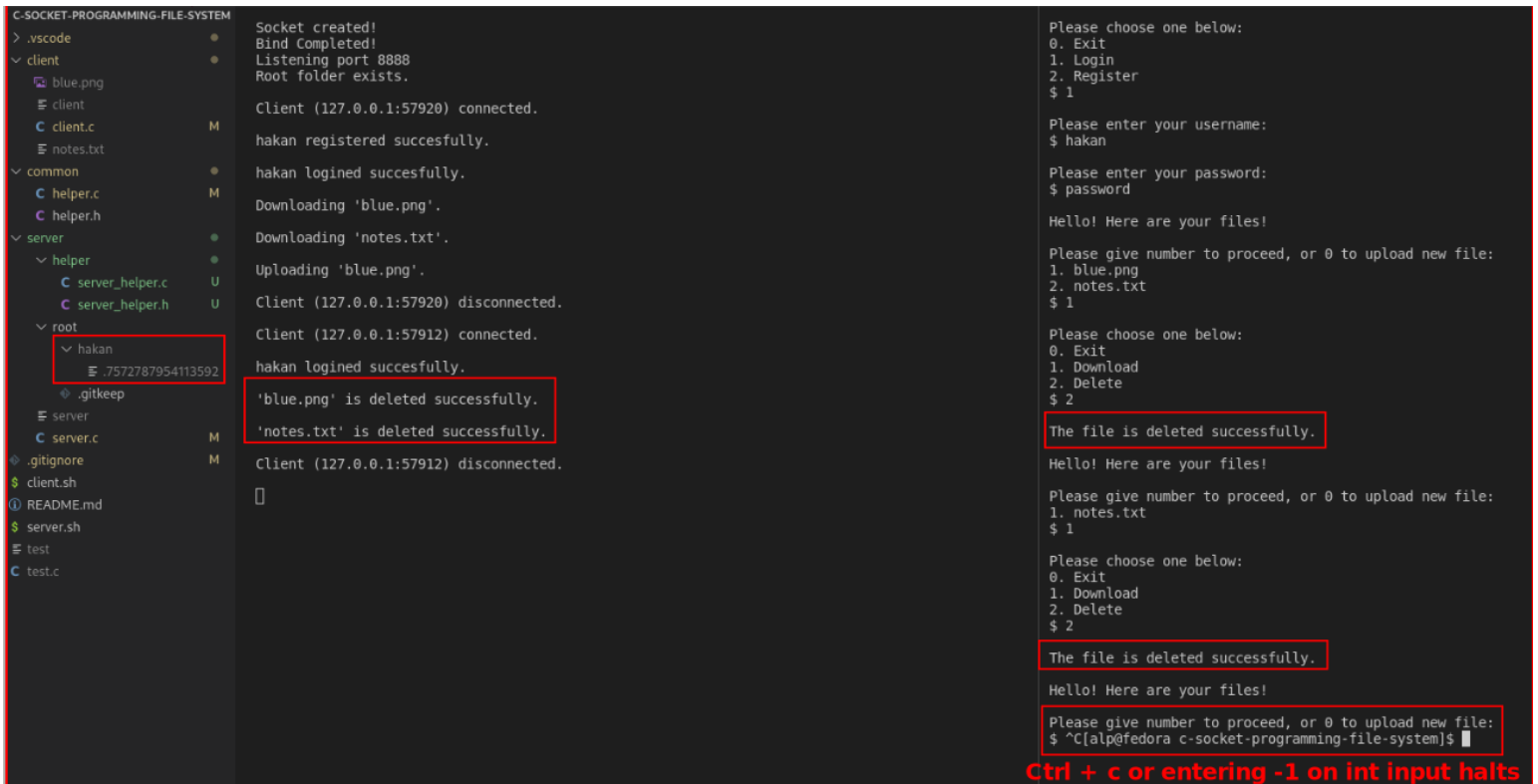
There are following message types:

- INPUT0: Asks for int input from client
- INPUT1: Asks for string input from client
- INPUT2: Asks for file input from client
- INFO00: Sends information message, asks nothing from client.
- INFO01: Sends file, asks nothing back from client.
- ERROR0: Sends information about errors.

How the code works:

In order to compile & run codes faster, I made quick bash scripts so you can run the server with “server.sh”, and client with “client.sh” from the root folder. You can use the account I created in the output screenshots which credentials are “hakan” and “password”. Or you can register new users freely.

Outputs:



Bugs I could not achieve to solve yet:

I believe it is caused by TCP connection and kernel but, I could not manage to send 2 packages repeatedly. 50% of the times both send successfully, 50% of the times the second package does not send.

Discussion & Future works:

Code base is public in github.com/hakanalpp/c-socket-programming-file-system. I will continue to develop here. Currently, my application only serves 1 client at a time. I will expand my code using threads to serve clients simultaneously.

Conclusion:

This project taught me a lot about socket programming, file systems and string/pointer operations in C. Besides the previous 2 programming assignments, I think this one is very useful for me since I have done a project myself.