



CYBER MANAGEMENT SYSTEM

BY GROUP 4

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CYBER MANAGEMENT SYSTEM

A SYSTEM DESIGNED TO MANAGE
AN ORGANIZATION'S
CYBERSECURITY

AIMS TO ENSURE COMPREHENSIVE
AND CONTINUOUS PROTECTION OF
AN ORGANIZATION'S NETWORK
AND DATA





NEU “FICTIONAL STORY” WITH CYBER MANAGEMENT SYSTEM

NEU HAS MORE THAN 10 CAMPUSES.

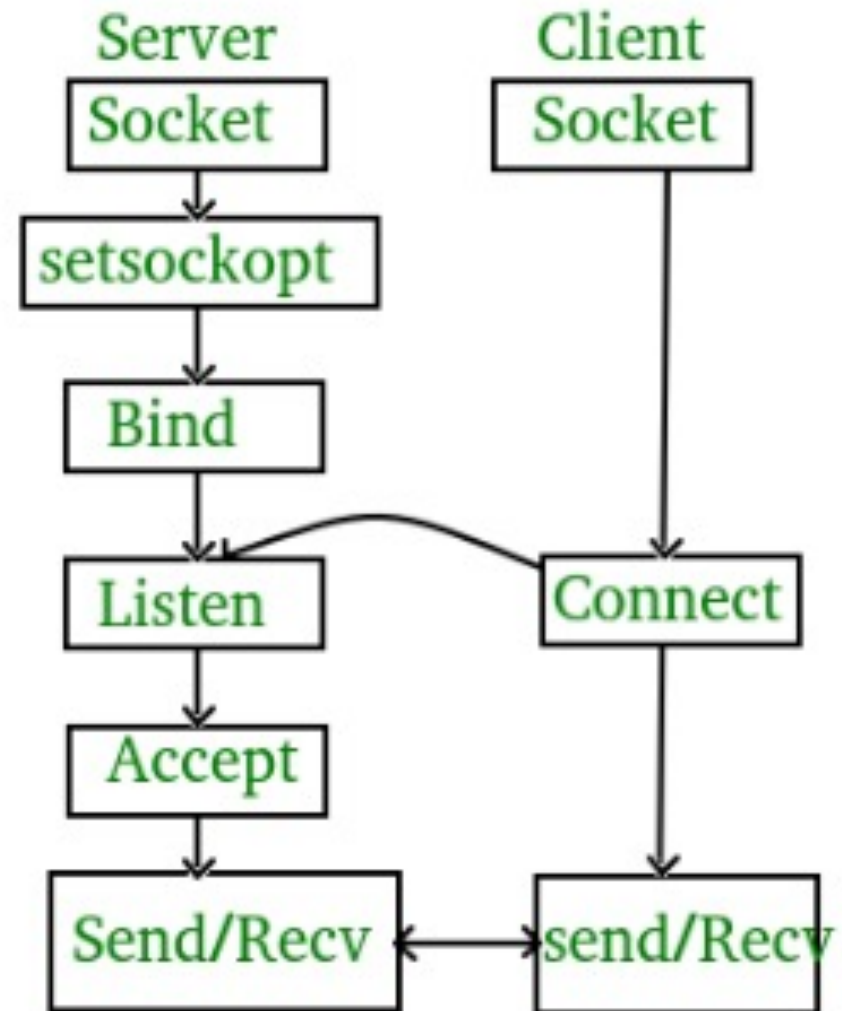
SUPPOSE THAT EACH CAMPUS HAS AN ADMIN TAKING CARE OF CAMPUS CONFIDENTIAL INFORMATION SUCH AS STUDENT INFO, TUITIONS AND SO ON.

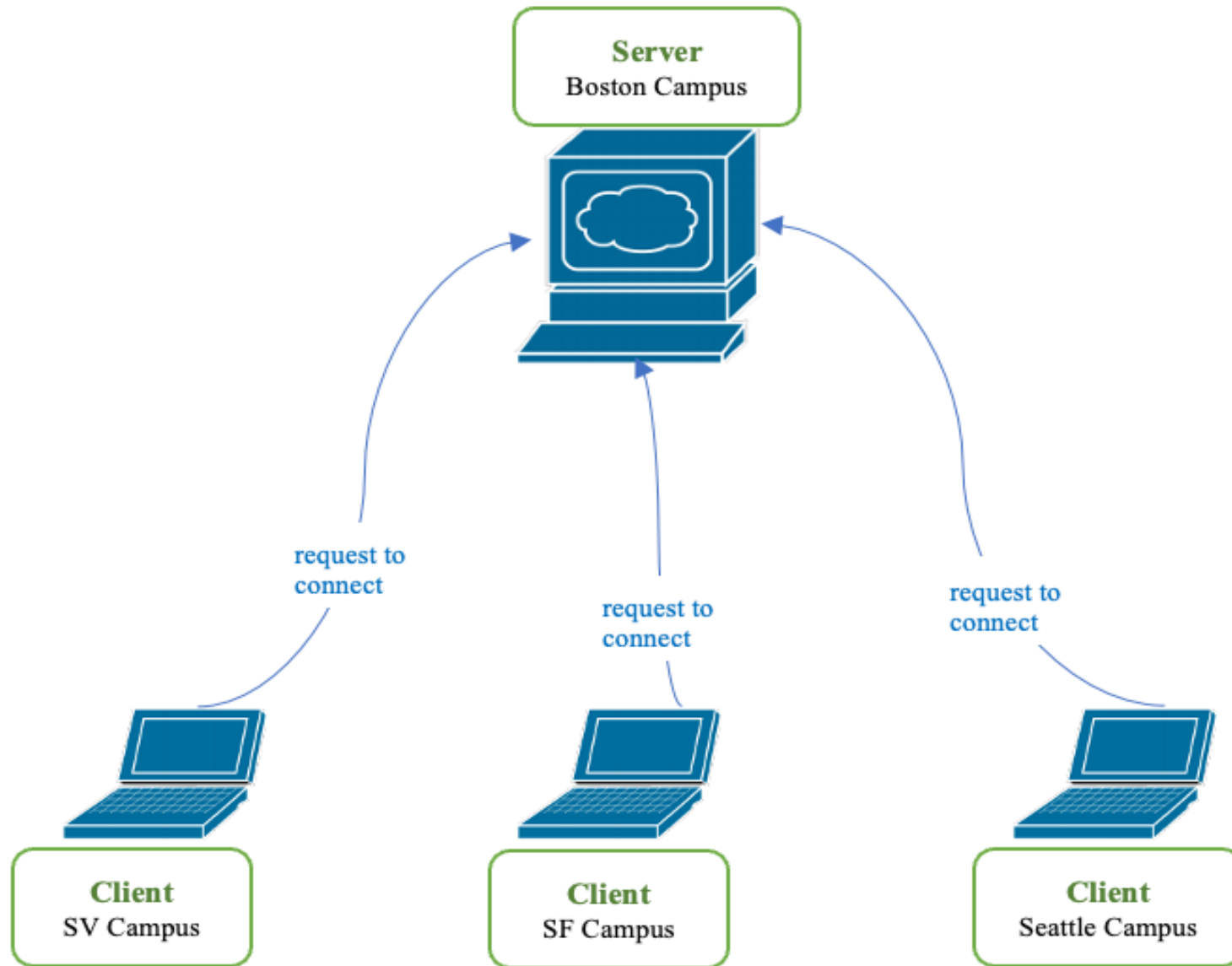
FROM TIME TO TIME, THE ADMIN NEEDS TO SHARE THE CONFIDENTIAL INFORMATION WITH THE MAIN BOSTON CAMPUS.

EMAIL SERVICE IS CONSIDERED NOT SAFE SOLUTION TO TRANSFER CONFIDENTIAL NEU INTERNAL DATA.

WHAT TO DO?

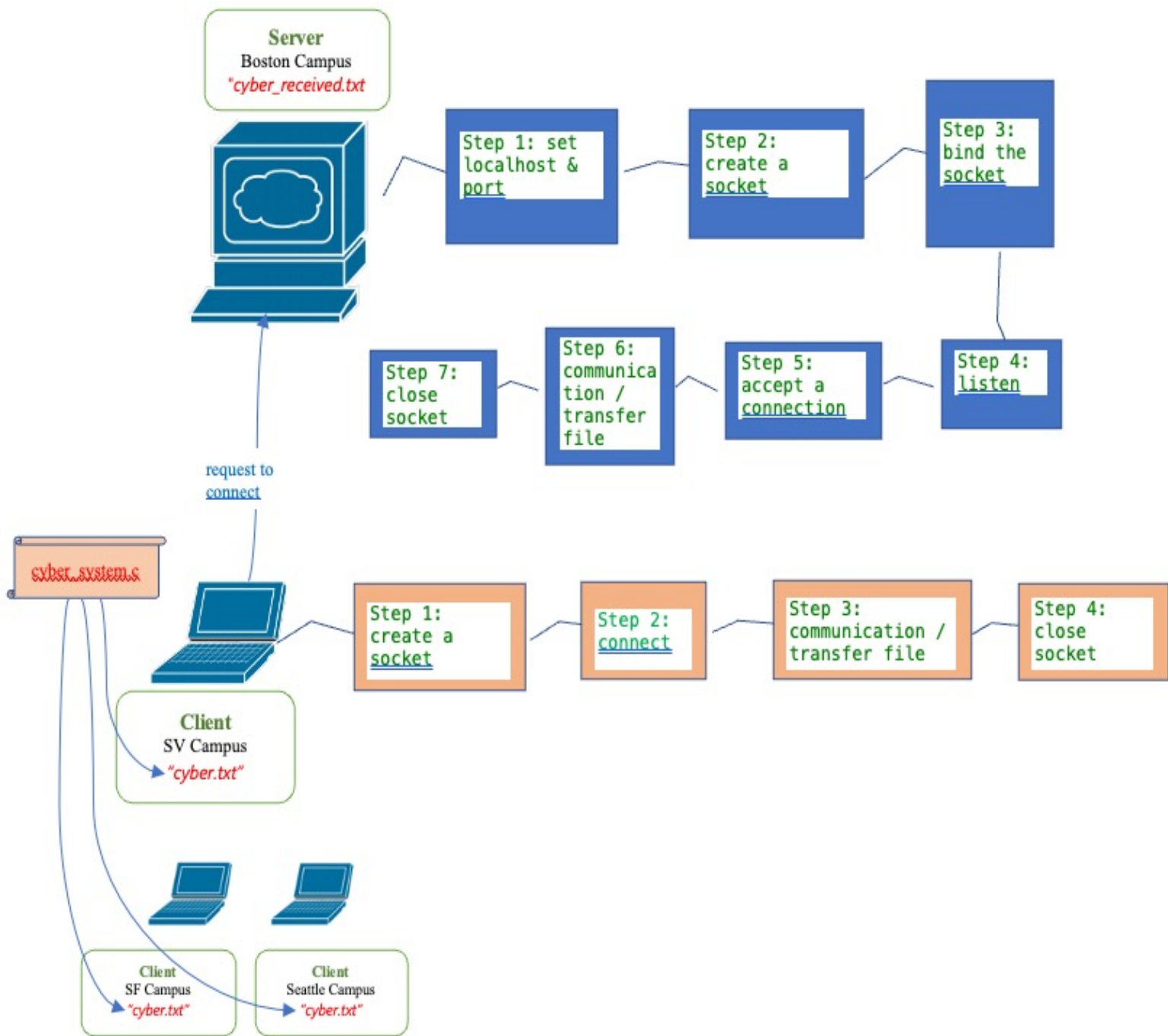
Introduction to Socket Programming



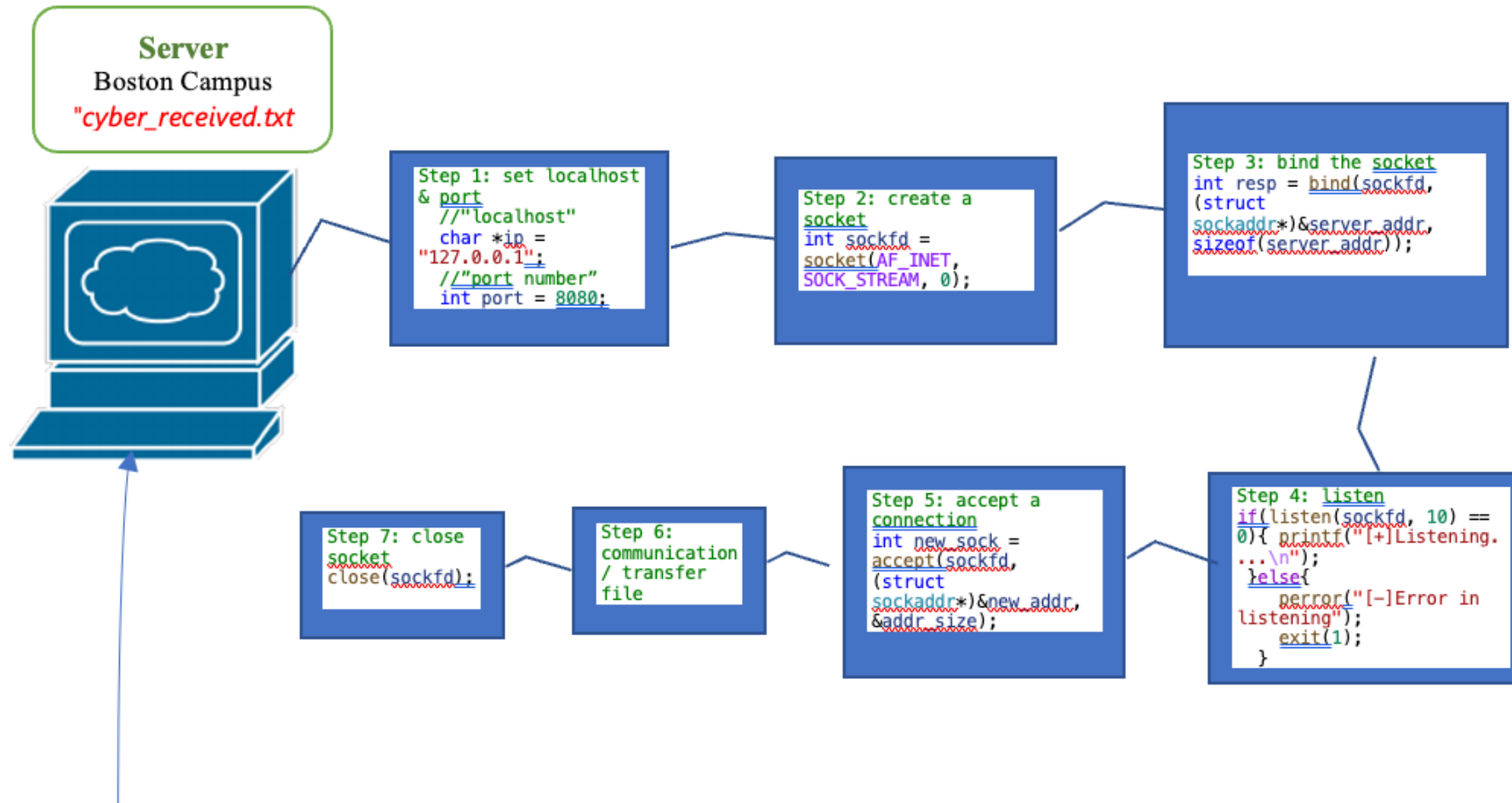


THE SERVER CREATES A SOCKET AND BINDS IT TO A PORT TO LISTEN FOR INCOMING CONNECTIONS FROM CLIENTS.

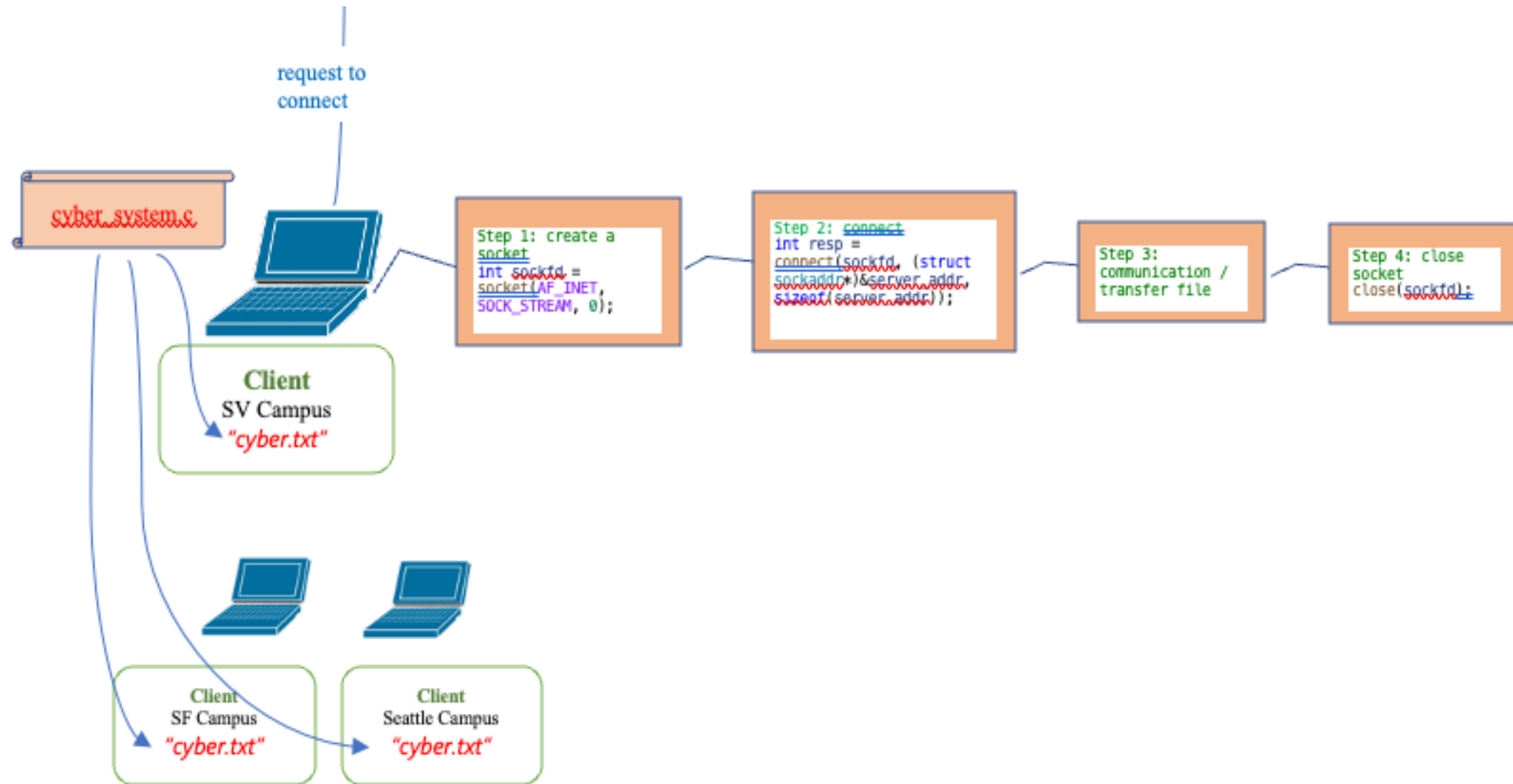
ON THE OTHER HAND, THE CLIENT SIDE CREATES A SOCKET AND CONNECTS IT TO THE SERVER'S IP ADDRESS AND PORT.



DEMO:
NEU INTERNAL DATA
TRANSMISSION PROCESS
USING SOCKET
PROGRAMMING



DETAILS ON
SERVER.C FILE



DETAILS ON
CLIENT.C FILE

*ONCE SERVER AND CLIENT
CONNECTS,*

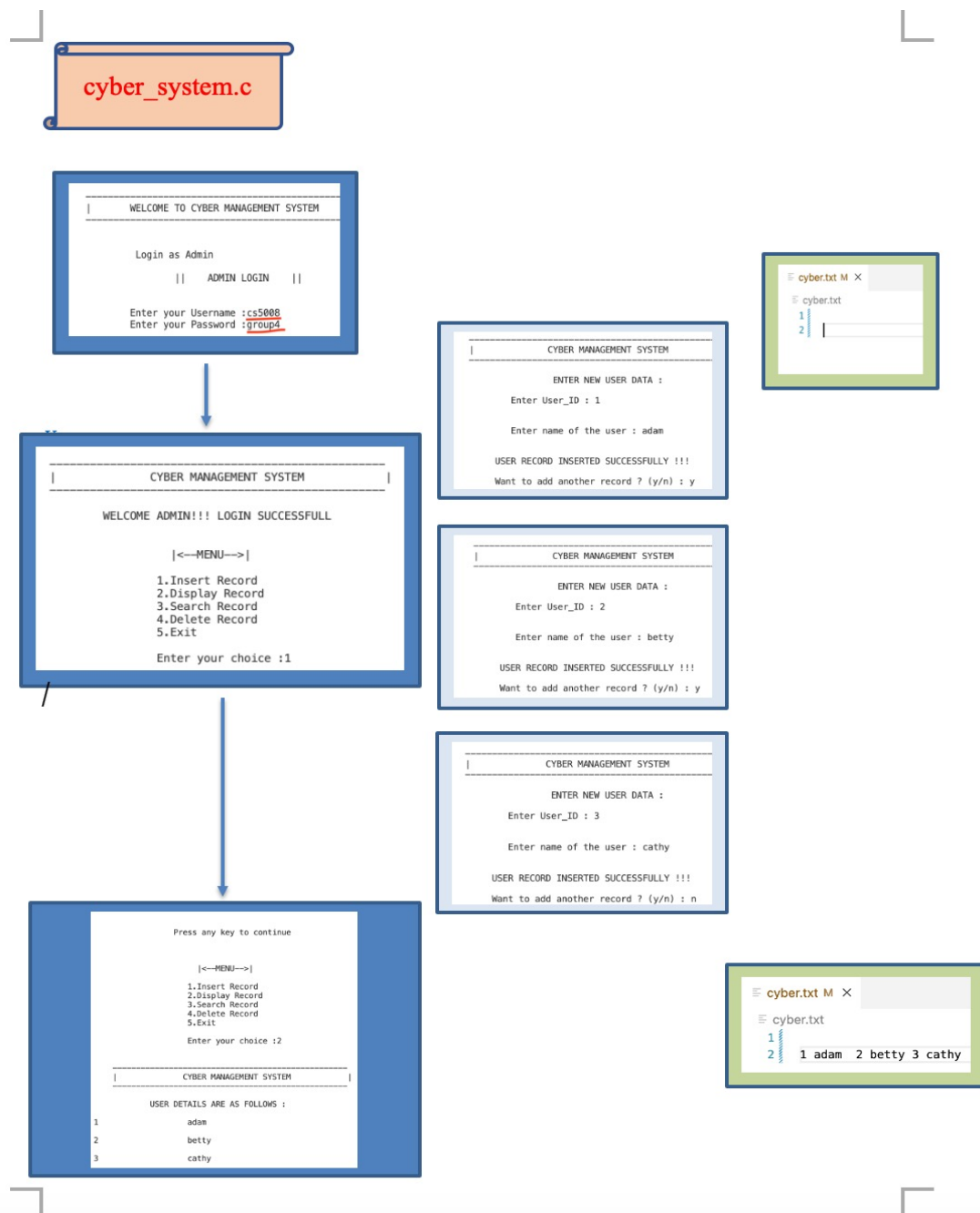
WHAT HAPPENS NEXT...

SCENARIO ONE: CLIENT(SV
CAMPUS) SENDS “*CYBER.TXT*” FILE
GENERATED BY THE
“*CYBER_SYSTEM.C*” PROGRAM TO
THE SERVER(BOSTON CAMPUS);

SERVER(BOSTON) SYNC THE TEXT
FILE AND THEN CONVERTED THE
RECEIVED DATA TO
“*CYBER_RECEIVED.TXT*”.

SCENARIO TWO: ON THE TOP OF
SCENARIO ONE, ONCE
CONNECTED, SERVER(BOSTON)
FIRST “**CHATS**” WITH CLIENT(SV)
SIDE A LITTLE BIT, BEFORE
TRANSFERRING THE FILE.





DETAILS ON
CYBER_SYSTEM.C FILE

cyber_system.c

|<--MENU-->|

- 1.Insert Record
- 2.Display Record
- 3.Search Record
- 4.Delete Record
- 5.Exit

Enter your choice :3

|----- CYBER MANAGEMENT SYSTEM -----|

Enter user_ID to fetch information :1

RECORD FOUND SUCCESSFULLY !!!

User_ID : 1

Name of User : adam

```
cyber.txt M X
cyber.txt
1
2 1 adam 2 betty 3 cathy
```



|<--MENU-->|

- 1.Insert Record
- 2.Display Record
- 3.Search Record
- 4.Delete Record
- 5.Exit

Enter your choice :4

|----- CYBER MANAGEMENT SYSTEM -----|

|----- PREVIOUS ENTERED DATA -----|

USER DETAILS ARE AS FOLLOWS :

- 1 adam
- 2 betty
- 3 cathy

Enter ID of the user which you want to delete : 1

Record Deleted Successfully!!!

|----- Updated Records -----|

USER DETAILS ARE AS FOLLOWS :

- 2 betty
- 3 cathy

```
cyber.txt M X
cyber.txt
1 2 betty
2 3 cathy
3
```

DETAILS ON

CYBER_SYSTEM.C FILE



DEMO

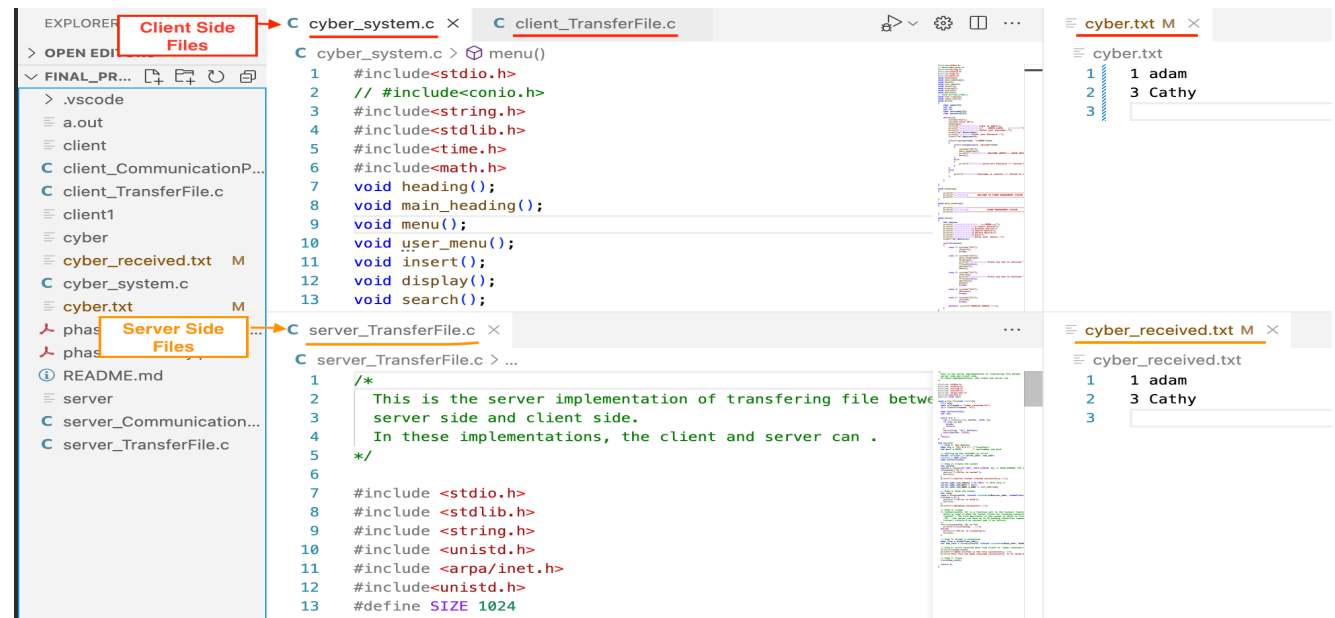
Overview of Scenario one:

CLIENT SIDE:

1. **"CYBER_SYSTEM.C" FILE:** FOR NEU SV CAMPUS ADMIN TO MANAGE STUDENT INFO, GENERATE "CYBER.TXT" FILE IN THE LOCAL.
2. **"CLIENT_TRANSFERFILE.C" FILE:** SOCKET PROGRAMMING FILE FOR CONNECTING TO SERVER AND THEN TRANSFER "CYBER.TXT" TO SERVER ONCE CONNECT.
3. **"CYBER.TXT" FILE:** STORES THE STUDENT DATA GENERATED BY RUNNING "CYBER_SYSTEM.C" FILE.

SERVER SIDE:

1. **"SERVER_TRANSFER.C" FILE:** SOCKET PROGRAMMING FILE FOR CONNECTING NEU SV CAMPUS SIDE AND THEN RECEIVE "CYBER.TXT" DATA AND REWRITE IT TO "CYBER_RECEIVED.TXT" FILE.
2. **"CYBER_RECEIVED.TXT":** COPY OF THE DATA IN "CYBER.TXT" SENT BY NEU SV CAMPUS ADMIN (CLIENT SIDE).



- linjingli@Linjings-MacBook-Pro Final_Project_Cyber_Management_System % gcc client_TransferFile.c -o client
 - linjingli@Linjings-MacBook-Pro Final_Project_Cyber_Management_System % ./client
- [+]Server socket created successfully.
[+]Connected to Server.
[+]File data sent successfully.
[+]Closing the connection.

- linjingli@Linjings-MacBook-Pro Final_Project_Cyber_Management_System % gcc server_TransferFile.c -o server
 - linjingli@Linjings-MacBook-Pro Final_Project_Cyber_Management_System % ./server
- [+]Server socket created successfully.
[+]Binding successfull.
[+]Listening....
[+]Data written in the file successfully.
This file has been received successfully. It is saved by the name cyber_received.txt.

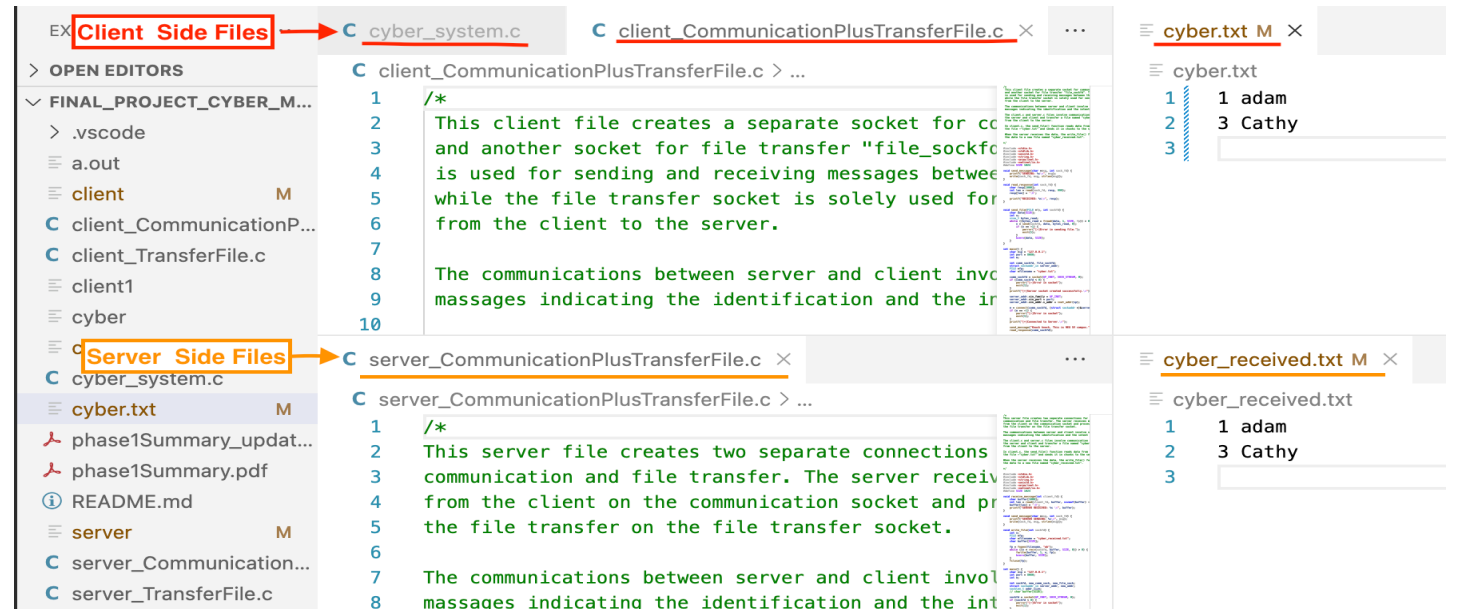
Overview of Scenario two:

CLIENT SIDE:

1. **"CYBER_SYSTEM.C" FILE:** FOR NEU SV CAMPUS ADMIN TO MANAGE STUDENT INFO, GENERATE "CYBER.TXT" FILE IN THE LOCAL.
2. **"CLIENT_COMMUNICATIONPLUSTRANSFERFILE.C" FILE:** SOCKET PROGRAMMING FILE TO CONNECT TO SERVER. AFTER CONNECTION, FIRST CHAT WITH SERVER, THEN TRANSFER "CYBER.TXT" TO SERVER.
3. **"CYBER.TXT" FILE:** STORES THE STUDENT DATA GENERATED BY RUNNING "CYBER_SYSTEM.C" FILE.

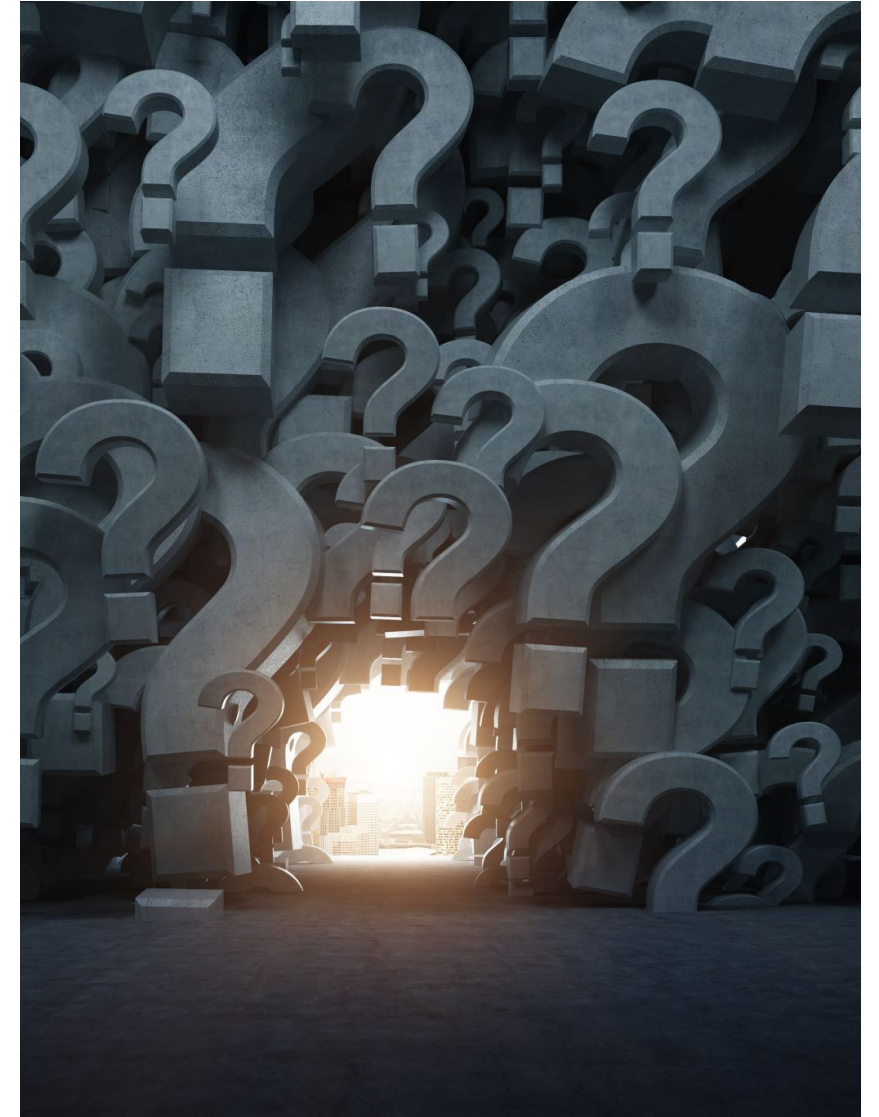
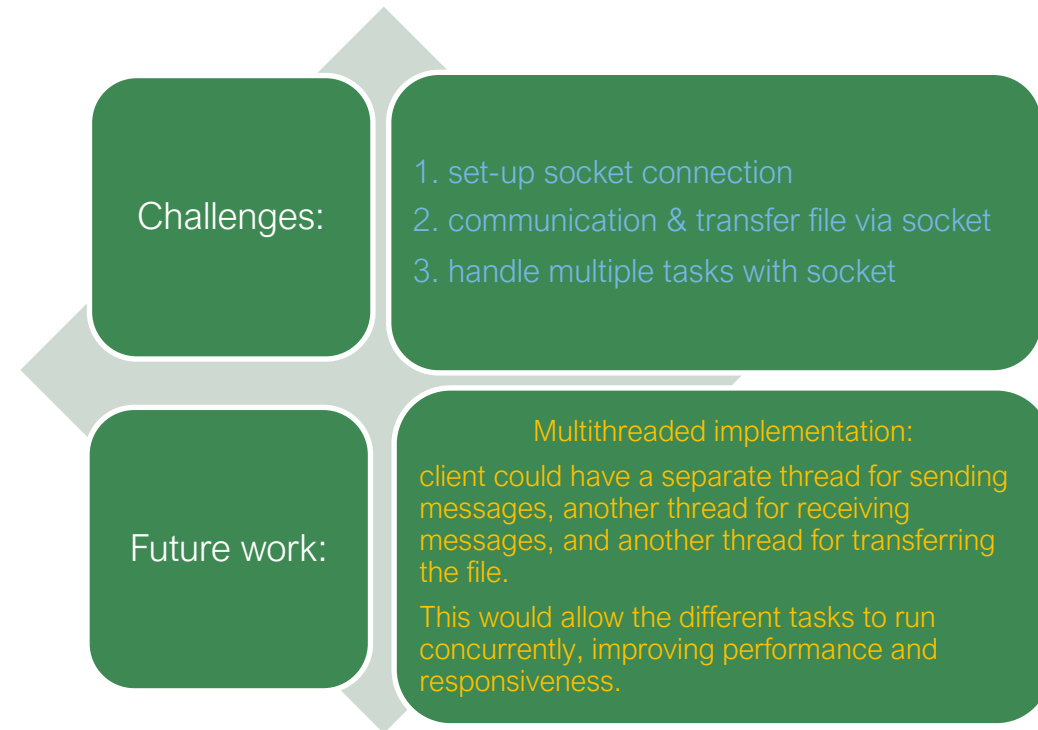
SERVER SIDE:

1. **"SERVER_COMMUNICATIONPLUSTRANSFERFILE.C" FILE:** SOCKET PROGRAMMING FILE FOR CONNECTING CLIENT - NEU SV CAMPUS SIDE. ONCE CONNECTED, FIRST CHAT WITH CLIENT AND THEN RECEIVE "CYBER.TXT" DATA AND REWRITE IT TO "CYBER_RECEIVED.TXT" FILE.
2. **"CYBER_RECEIVED.TXT":** COPY OF THE DATA IN "CYBER.TXT" SENT BY NEU SV CAMPUS ADMIN (CLIENT SIDE).



- linjingli@Linjings-MacBook-Pro Final_Project_Cyber_Management_System % **./client**
[+]Server socket created successfully.
[+]Connected to Server.
SENDING: Knock knock, This is NEU SV campus.
RECEIVED: Hello! Here is the server at Boston main campus. I'm listening..
SENDING: Here is the student info at SV campus. Can I send it now?
RECEIVED: Yes please!
[+]File transfer socket created successfully.
[+]Connected to Server for file transfer.
SENDING: Sending file...
[+]File data sent successfully.
- linjingli@Linjings-MacBook-Pro Final_Project_Cyber_Management_System % **./server**
[+]Server socket created successfully.
[+]Binding successful.
[+]Listening....
Communication connection made: client_fd=4
SERVER RECEIVED: Knock knock, This is NEU SV campus.
SERVER SENDING: Hello! Here is the server at Boston main campus. I'm listening..
SERVER RECEIVED: Here is the student info at SV campus. Can I send it now?
SERVER SENDING: Yes please!
File transfer connection made: client_fd=4
[+]File data received successfully.

Challenges & Future work



Conclusion



LEARNT SOCKET PROGRAMMING



UNDERSTOOD THE FUNDAMENTALS OF
NETWORKING, SUCH AS IP ADDRESSES,
PORTS, AND PROTOCOLS



EXPLORED CROSS-PLATFORM
APPLICATION, DISTRIBUTED SYSTEMS