Computer Networks Lab 5
CS F303

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Lab 5: Client-Server Programming using TCP

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Labs • 30 points   **Due Tomorrow, 7:00 PM**

ASSIGNMENT:
Q1) Develop a TCP-based server and client using C. The single client requests data from a file on the server. The server opens the file and sends data back to the client.
Given: The server has few text files files in its present working directory. The client and server will work in separate directories.

Input: The server will accept its port number as the input parameter. (5 marks) The client sends a query to server requesting data from <filename> to the server. The client will accept sever's IP address, server' port number, and the requested <filename> as input parameters. (5 marks)

Output: The server parses the query and returns the first 10 bytes of the file <filename>. (5 marks)
On receiving the data, the client creates the file <filename> and stores the data. (5 marks). A sample file is attached.

Error handling:
If the server is unreachable, the client must say so. (2 marks)
If the requested <filename> file is missing, the server sends an empty file to the client. (2 marks)

DELIVERABLES
Source code of client and server.
Screenshots of an example showing the input and outputs described above in a PDF. (4 marks)
README file on how to compile and run the code. (2 marks)

Basic Startup for Server

```
lenovo@susmits-lenovo:~$ cd "Desktop/CN Lab 5/Server_dir"
lenovo@susmits-lenovo:~/Desktop/CN Lab 5/Server_dir$ gcc -o server.out server.c
lenovo@susmits-lenovo:~/Desktop/CN Lab 5/Server_dir$ ./server.out
Enter the port number you want to be active on: 5555
Socket created successfully.
Binded to the server successfully
Server listening
server acccept the client...
Reading the filename from client
```

Basic Startup for Client

```
lenovo@susmits-lenovo:~$ cd "Desktop/CN Lab 5/Client_dir"
lenovo@susmits-lenovo:~/Desktop/CN Lab 5/Client_dir$ gcc -o client.out client.c
lenovo@susmits-lenovo:~/Desktop/CN Lab 5/Client_dir$ ./client.out
Enter the IP address of server: 127.0.0.1
Enter the port number: 5555
Socket created successfully.
connected to the server successfully
```

Client enters the filename


```
lenovo@susmits-lenovo:~/Desktop/CN Lab 5/Client_dir$ ./client.out
Enter the IP address of server: 127.0.0.1
Enter the port number: 5555
Socket created successfully.
connected to the server successfully
Enter the file you want to access: Networkingtrends.txt
In the request function
Getting Networkingtrends.txt from server
Do you want to request for another file? Answer 0 for no and 1 for yes.
```

Server response to the filename


```
lenovo@susmits-lenovo:~/Desktop/CN Lab 5/Server_dir$ ./server.out
Enter the port number you want to be active on: 5555
Socket created successfully.
Binded to the server successfully
Server listening
server acccept the client...
Reading the filename from client
Requested file is: Networkingtrends.txt
Opening file
File has been successfully transferred
File sent. Waiting for new client.
```

Client can choose to request another file by entering 1 or 0

```
lenovo@susmits-lenovo:~/Desktop/CN Lab 5/Client_dir$ ./client.out
Enter the IP address of server: 127.0.0.1
Enter the port number: 5555
Socket created successfully.
connected to the server successfully
Enter the file you want to access: Networkingtrends.txt
In the request function
Getting Networkingtrends.txt from server
Do you want to request for another file? Answer 0 for no and 1 for yes.
0
Closed the connection
```

When server is offline, client is notified

```
Do you want to request for another file? Answer 0 for no and 1 for yes.
1
Connection to server failed. Server unreachable.
lenovo@susmits-lenovo:~/Desktop/CN Lab 5/Client_dir$
```

Server waiting for new client every time it serves one