
CS304 Computer Networks

Lab Assignment - 2

3rd March 2021

Submitted By:

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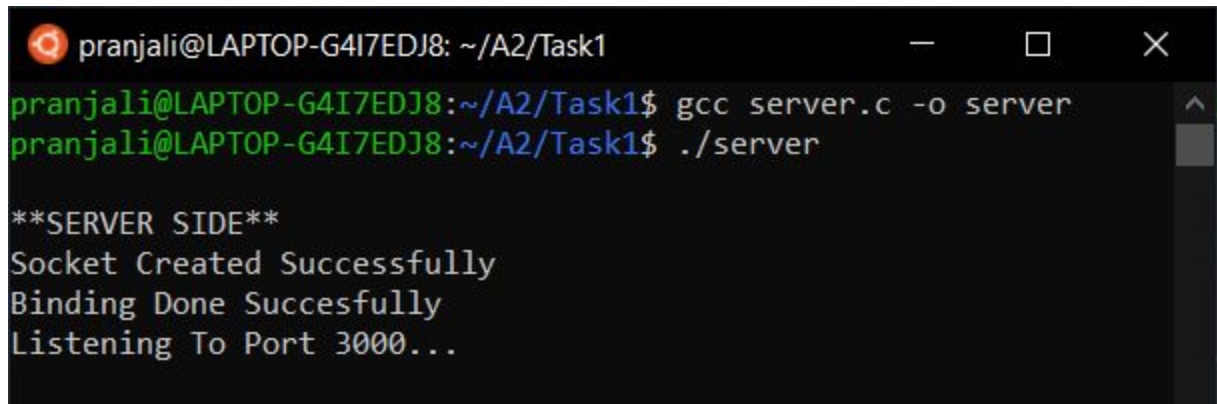
2018EEB1243

Task 1

1. To run server side:

```
gcc server.c -o server
```

```
./server
```



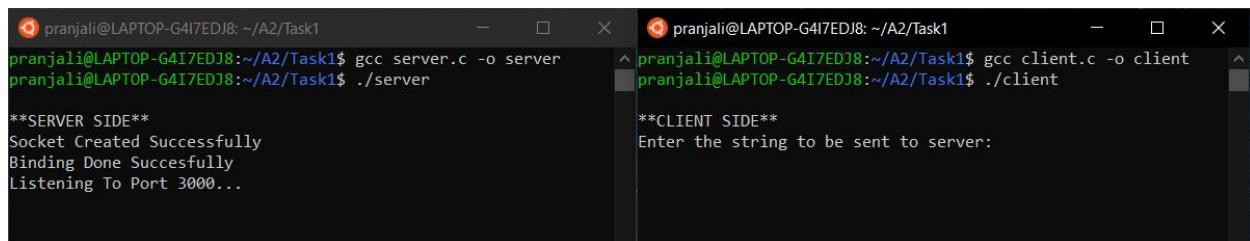
```
pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task1
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ gcc server.c -o server
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ ./server

**SERVER SIDE**
Socket Created Successfully
Binding Done Successfully
Listening To Port 3000...
```

2. To run client side

```
gcc client.c -o client
```

```
./client
```



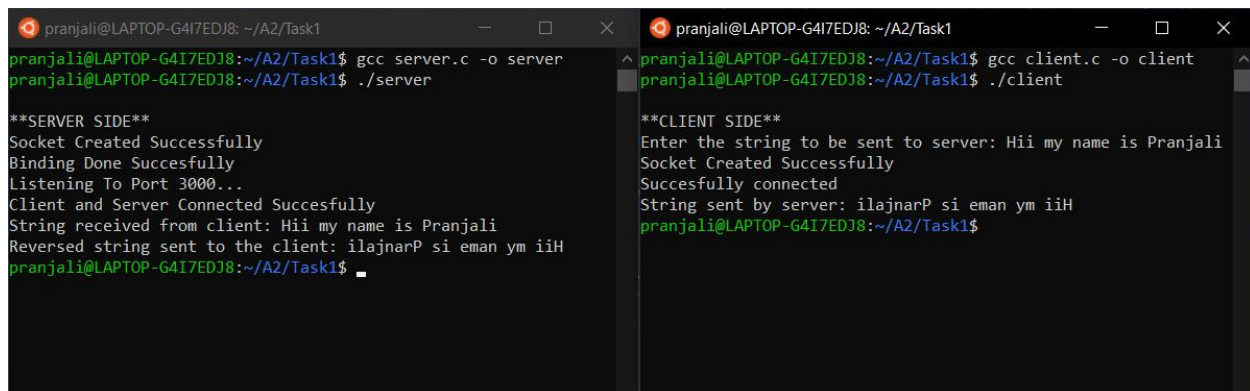
```
pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task1
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ gcc server.c -o server
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ ./server

**SERVER SIDE**
Socket Created Successfully
Binding Done Successfully
Listening To Port 3000...

pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task1
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ gcc client.c -o client
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ ./client

**CLIENT SIDE**
Enter the string to be sent to server:
```

3. After entering the string



```
pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task1
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ gcc server.c -o server
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ ./server

**SERVER SIDE**
Socket Created Successfully
Binding Done Successfully
Listening To Port 3000...
Client and Server Connected Successfully
String received from client: Hii my name is Pranjali
Reversed string sent to the client: ilajnarP si eman ym iiH
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$

pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task1
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ gcc client.c -o client
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$ ./client

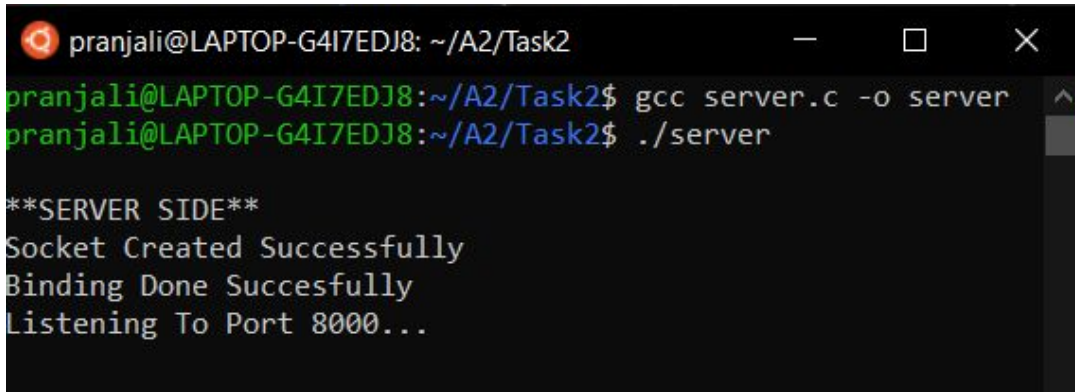
**CLIENT SIDE**
Enter the string to be sent to server: Hii my name is Pranjali
Socket Created Successfully
Successfully connected
String sent by server: ilajnarP si eman ym iiH
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task1$
```

Task 2

1. To run server side:

```
gcc server.c -o server
```

```
./server
```

A terminal window titled 'pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2'. It shows the compilation of 'server.c' into 'server' using 'gcc', followed by running './server'. The output indicates successful socket creation, binding to port 8000, and listening.

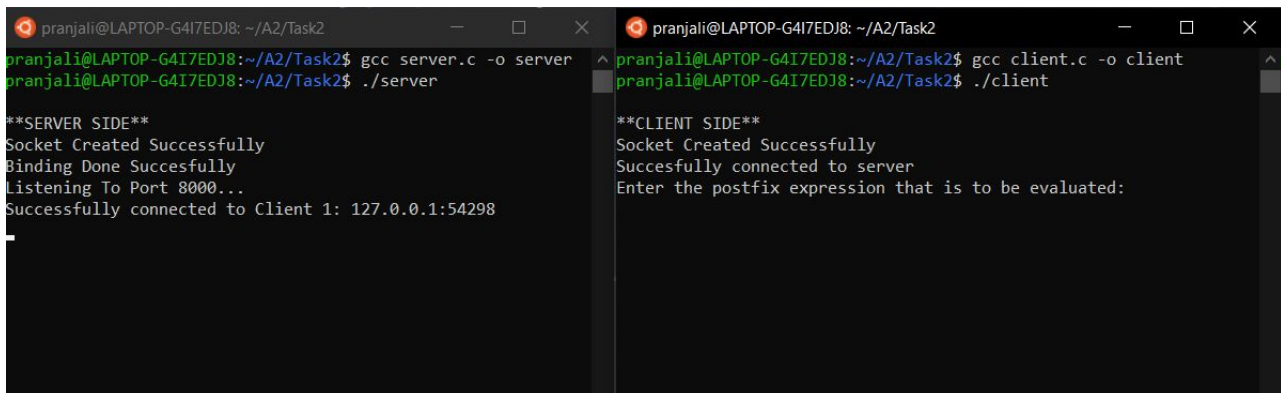
```
pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc server.c -o server
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./server

**SERVER SIDE**
Socket Created Successfully
Binding Done Successfully
Listening To Port 8000...
```

2. Connecting Client 1

```
gcc client.c -o client
```

```
./client
```

Two side-by-side terminal windows. The left window shows the server's output, including the message 'Successfully connected to Client 1: 127.0.0.1:54298'. The right window shows the client's output, including 'Successfully connected to server' and a prompt for a postfix expression.

```
pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc server.c -o server
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./server

**SERVER SIDE**
Socket Created Successfully
Binding Done Successfully
Listening To Port 8000...
Successfully connected to Client 1: 127.0.0.1:54298

pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc client.c -o client
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./client

**CLIENT SIDE**
Socket Created Successfully
Successfully connected to server
Enter the postfix expression that is to be evaluated:
```

3. Receiving request from client 1 and sending the value

```
pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc server.c -o server
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./server

**SERVER SIDE**
Socket Created Successfully
Binding Done Successfully
Listening To Port 8000...
Successfully connected to Client 1: 127.0.0.1:54298
Postfix expression received from client: 1 2 +
Value of the expression sent to client: 3.000000
Postfix expression received from client: 3 4 /
Value of the expression sent to client: 0.750000

pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc client.c -o client
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./client

**CLIENT SIDE**
Socket Created Successfully
Successfully connected to server
Enter the postfix expression that is to be evaluated: 1 2 +
Value of expression received from server: 3.000000
Enter the postfix expression that is to be evaluated: 3 4 /
Value of expression received from server: 0.750000
Enter the postfix expression that is to be evaluated:
```

4. Connecting To Client 2

```
pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc server.c -o server
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./server

**SERVER SIDE**
Socket Created Successfully
Binding Done Successfully
Listening To Port 8000...
Successfully connected to Client 1: 127.0.0.1:54298
Postfix expression received from client: 1 2 +
Value of the expression sent to client: 3.000000
Postfix expression received from client: 3 4 /
Value of the expression sent to client: 0.750000
Successfully connected to Client 2: 127.0.0.1:54308
Postfix expression received from client: 30 1.0 /
Value of the expression sent to client: 30.000000

pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc client.c -o client
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./client

**CLIENT SIDE**
Socket Created Successfully
Successfully connected to server
Enter the postfix expression that is to be evaluated: 30 1.0 /
Value of expression received from server: 30.000000
Enter the postfix expression that is to be evaluated:
```

5. Connecting To Third Client

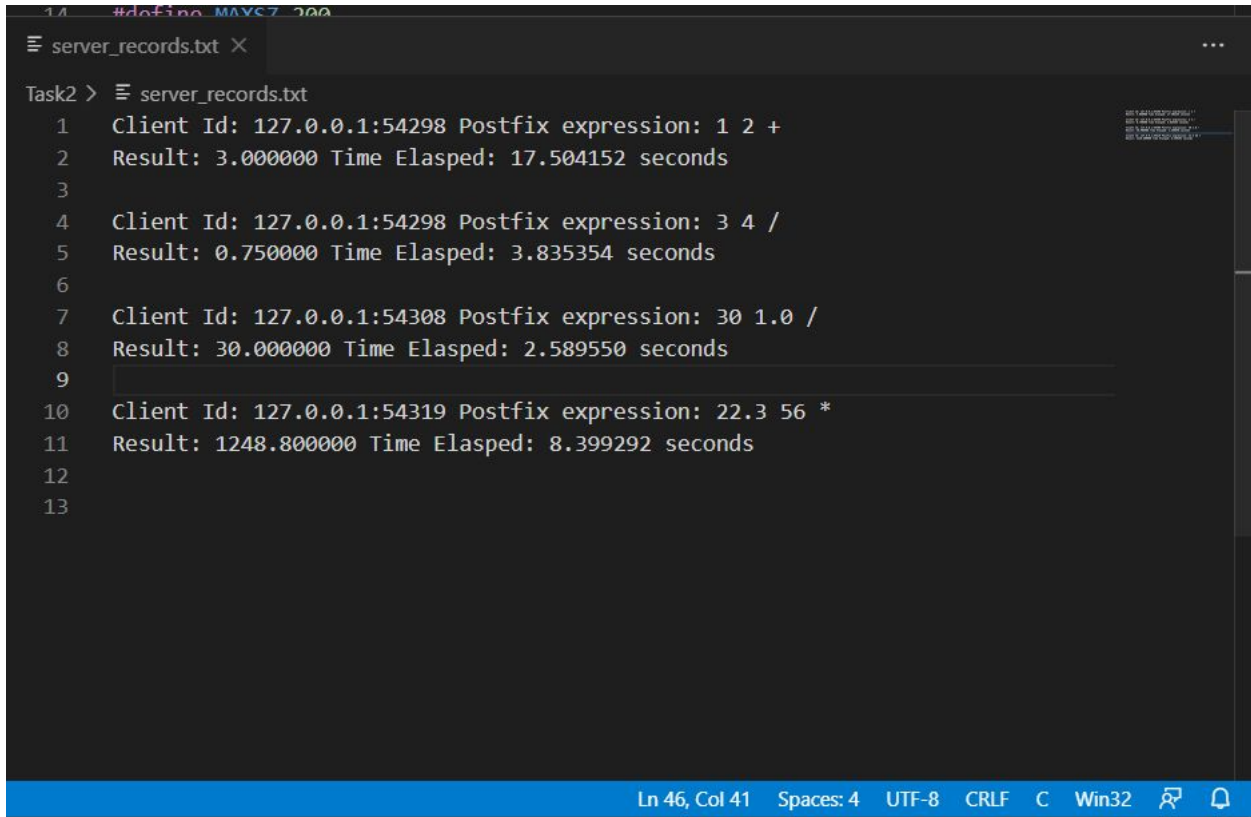
```
pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc server.c -o server
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./server

**SERVER SIDE**
Socket Created Successfully
Binding Done Successfully
Listening To Port 8000...
Successfully connected to Client 1: 127.0.0.1:54298
Postfix expression received from client: 1 2 +
Value of the expression sent to client: 3.000000
Postfix expression received from client: 3 4 /
Value of the expression sent to client: 0.750000
Successfully connected to Client 2: 127.0.0.1:54308
Postfix expression received from client: 30 1.0 /
Value of the expression sent to client: 30.000000
Successfully connected to Client 3: 127.0.0.1:54319
Postfix expression received from client: 22.3 56 *
Value of the expression sent to client: 1248.800000

pranjali@LAPTOP-G4I7EDJ8: ~/A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ cd A2/Task2
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ gcc client.c -o client
pranjali@LAPTOP-G4I7EDJ8:~/A2/Task2$ ./client

**CLIENT SIDE**
Socket Created Successfully
Successfully connected to server
Enter the postfix expression that is to be evaluated: 22.3 56 *
Value of expression received from server: 1248.800000
Enter the postfix expression that is to be evaluated:
```

6. server_records.txt file



```
14 #define MAXC7 100
server_records.txt X
Task2 > server_records.txt
1 Client Id: 127.0.0.1:54298 Postfix expression: 1 2 +
2 Result: 3.000000 Time Elapsed: 17.504152 seconds
3
4 Client Id: 127.0.0.1:54298 Postfix expression: 3 4 /
5 Result: 0.750000 Time Elapsed: 3.835354 seconds
6
7 Client Id: 127.0.0.1:54308 Postfix expression: 30 1.0 /
8 Result: 30.000000 Time Elapsed: 2.589550 seconds
9
10 Client Id: 127.0.0.1:54319 Postfix expression: 22.3 56 *
11 Result: 1248.800000 Time Elapsed: 8.399292 seconds
12
13
Ln 46, Col 41 Spaces: 4 UTF-8 CRLF C Win32
```

Total Time Elapsed = Time server waits for client to send the expression +

Time taken by server to receive the expression+

Time taken by server to evaluate the expression +

Time taken by the server to send back the value to client

***for the first request since the screenshot was taken so elapsed time is more*

***Postfix expression supports +, -, /, * operators and operands can be an integer as well as floating-point numbers*

Tested on Ubuntu Available in Windows Subsystem For Linux