


# Computer Networks Term Project

Online Quiz  
Using TCP and Multithreading

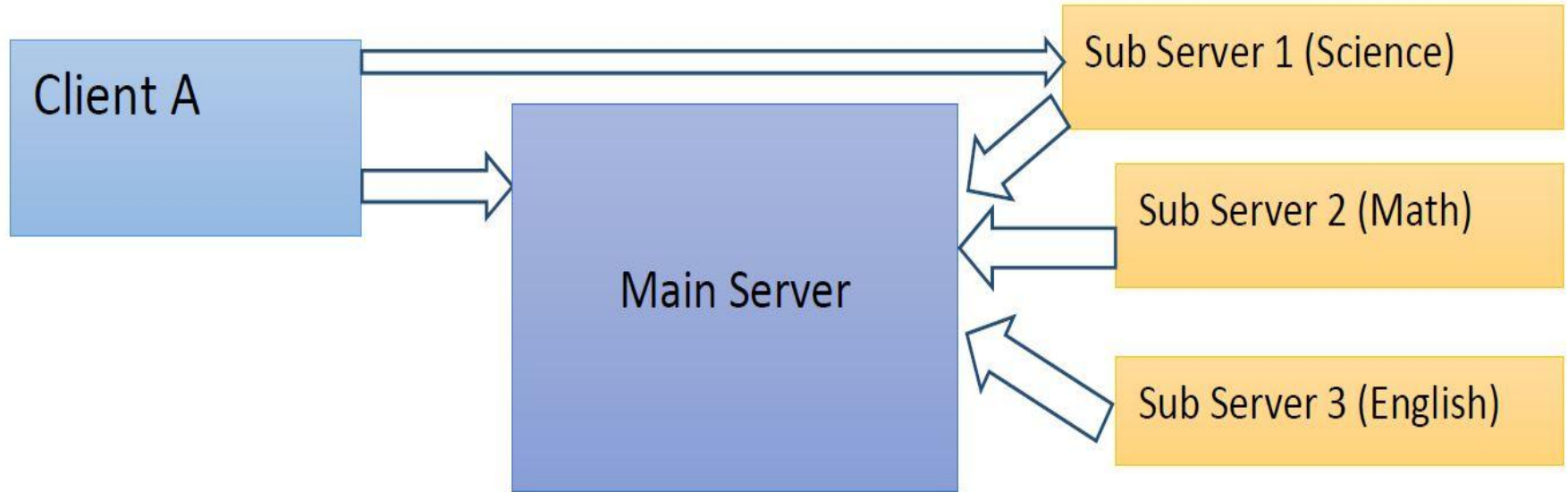
Submitted to:  
Prof. Selvakumar Subramanian  
IIIT Una



# Components:

1. A Main Server
2. 3 Sub Servers for 3 subjects
3. Clients

# Layout:



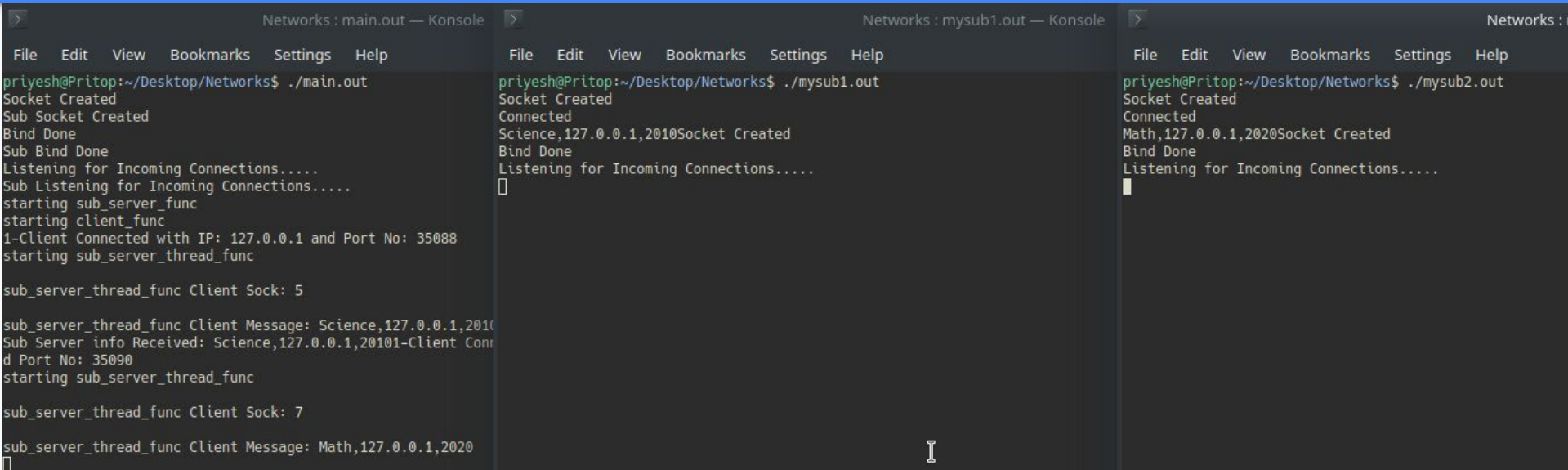
# Description:

- We do not want to overburden main server by all the incoming clients and handle test.
- Therefore, we will create three sub-servers managing each of the three tests separately.
- Main server only store information about which sub-server manages which test.

# Working:

1. Each sub-server will connect to main server, main server will make database about the sub-server info.
2. When a client connects to main server and makes request , main server will search the database for appropriate sub-server and pass the info stored to the client.
3. Using this info client will reconnect to the sub-server using TCP connection
4. The client will then perform the test.
5. The sub-server will then send the result to client and also to main server for record of that client.

# Project Screenshots:



The image displays three terminal windows side-by-side, each showing the execution of a different program. All three windows are titled 'Networks : ... — Konsole' and have a menu bar with 'File', 'Edit', 'View', 'Bookmarks', 'Settings', and 'Help'. The first window, titled 'main.out', shows the execution of './main.out' and displays output for a main server that listens on port 35088 and receives a connection from 127.0.0.1. The second window, titled 'mysub1.out', shows the execution of './mysub1.out' and displays output for a sub-server that listens on port 35090 and receives a connection from 127.0.0.1. The third window, titled 'mysub2.out', shows the execution of './mysub2.out' and displays output for another sub-server that listens on port 35020 and receives a connection from 127.0.0.1.

```
Networks : main.out — Konsole
File Edit View Bookmarks Settings Help
priyesh@Pritop:~/Desktop/Networks$ ./main.out
Socket Created
Sub Socket Created
Bind Done
Sub Bind Done
Listening for Incoming Connections.....
Sub Listening for Incoming Connections.....
starting sub_server_func
starting client_func
1-Client Connected with IP: 127.0.0.1 and Port No: 35088
starting sub_server_thread_func

sub_server_thread_func Client Sock: 5

sub_server_thread_func Client Message: Science,127.0.0.1,2010
Sub Server info Received: Science,127.0.0.1,2010
1-Client Connected with IP: 127.0.0.1 and Port No: 35090
starting sub_server_thread_func

sub_server_thread_func Client Sock: 7

sub_server_thread_func Client Message: Math,127.0.0.1,2020
[]

Networks : mysub1.out — Konsole
File Edit View Bookmarks Settings Help
priyesh@Pritop:~/Desktop/Networks$ ./mysub1.out
Socket Created
Connected
Science,127.0.0.1,2010
Socket Created
Bind Done
Listening for Incoming Connections.....
[]

Networks : mysub2.out — Konsole
File Edit View Bookmarks Settings Help
priyesh@Pritop:~/Desktop/Networks$ ./mysub2.out
Socket Created
Connected
Math,127.0.0.1,2020
Socket Created
Bind Done
Listening for Incoming Connections.....
[]
```

Starting main server and two sub servers

```
sub_server_info.txt
1 Science,127.0.0.1,2010
2 Math,127.0.0.1,2020
3 Science,127.0.0.1,2010
4 Math,127.0.0.1,2020
5 Math,127.0.0.1,2020
6 Math,127.0.0.1,2020
7 Math,127.0.0.1,2020
8 Science,127.0.0.1,2010
9 Math,127.0.0.1,2020
10 Science,127.0.0.1,2010
11 Math,127.0.0.1,2020
12 |
```

The main server will store the ip addresses of each sub-server so that when a client connects with a request it can redirect it to corresponding sub-server.

```
priyesh@Pritop:~/Desktop/Networks$ ./client.out
```

```
Socket Created
```

```
Connected
```

```
Server Message:
```

```
Please Enter your Test option
```

```
Science
```

```
Math
```

```
Enter Message: Math
```

```
Server info Message: Math,127.0.0.1,2020
```

```
Name:Math
```

```
IP:127.0.0.1
```

```
port: 2020
```

```
Socket Created
```

```
Connected to Sub Server
```

```
Sub Server Message:
```

```
Enter your test type:
```

```
Geometry
```

```
Algebra
```

```
IQ
```

```
Enter Message: IQ
```

Client will first connect to main-server , based on the subject the main server will send the ip address and port no. of the sub-server containing quiz about subject . The client will then connect to the sub-server and quiz will begin.



Sub Server Message:

Qus1

Which number should come next in the pattern? 37, 34, 31, 28

a)30 b)32 c)25 d)45

Enter Ans: a

Sub Server Message:

Qus2

1, 3, 5, 7, 8, 9, 11 - which one doesn't belong to this series?

a)11 b)8 c)9 d)1

Enter Ans: b

Sub Server Message:

Qus3

Which one of the five is least like the other four?

a)Dog b)Mouse c)Snake d)Cat

Enter Ans: c

Sub Server Message:

Qus4

If all Bloops are Razzies and all Razzies are Lazzies, then all Bloops are definitely Lazzies?

a)False b)True

Enter Ans: a

Sub Server Message:

Qus5

Mary, who is 16 years old, is four times as old as her brother. How old will Mary be when she is twice as old as her brothers?

a)14 b)20 c)24 d)26

Enter Ans: b

Sub Server Message: 127.0.0.1,37762,Math,IQ,2

At the end the result will be calculated and one of it's copy will be sent to main-server(it will be stored in a text file)

# Thank you

Submitted by:  
Priyesh Kumar (IIITU17124)  
Sanchit Gupta (IIITU17147)