

Name: Vinnakota Tarun Vikas

Roll number: 2001CS76

The assignment is done using 6 files:

- 1)client.py
- 2) client2.py (exact copy of client.py)
- 3)server1.py
- 4)server2.py
- 5)server3.py
- 6)server4.py

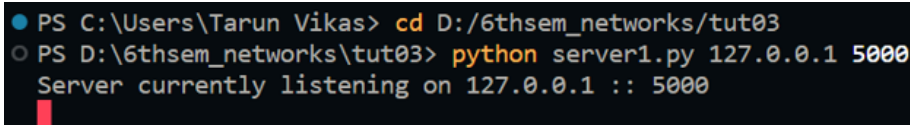
The IDE used was VScode in Windows.

Use different terminals for every python code.

(Go to terminal-> New terminal in VScode, and for a new terminal, click on '+' sign in the VScode terminal that appears at bottom)

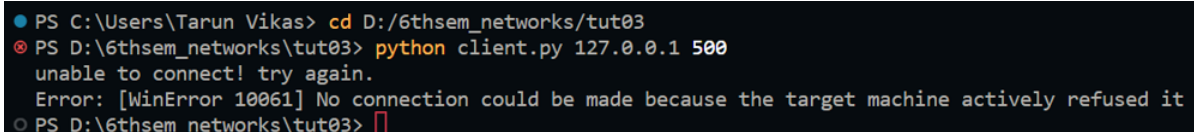
With server1.py:

a)Command to run: python server1.py IP_address Port_no (on one terminal)



```
PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python server1.py 127.0.0.1 5000
Server currently listening on 127.0.0.1 :: 5000
```

b) run client.py. See the picture below.



```
PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 500
unable to connect! try again.
Error: [WinError 10061] No connection could be made because the target machine actively refused it
PS D:\6thsem_networks\tut03>
```

As can be seen, port number is less than 1024, therefore the server refused it.

Now, normally running client.py:

```

PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 500
unable to connect! try again.
Error: [WinError 10061] No connection could be made because the target machine actively refused it
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 5000
Connected with Server 1
Enter Message : 

```

```

PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python server1.py 127.0.0.1 5000
Server currently listening on 127.0.0.1 :: 5000
client having address ('127.0.0.1', 52654) connected to server

```

(image above) server1 after accepting the connection from client.py

Now, running client2.py:

```

PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python client2.py 127.0.0.1 5000
unable to connect! try again.
Error: timed out
PS D:\6thsem_networks\tut03> 

```

As can be seen, the second client client2.py did not connect to the server at the same time as with client.py.

Now, in the 'Enter message: ' section of the terminal of client.py, type some expressions; eg:

a) $2^{5/12}$

'^' is NOT supported for integers; therefore an error message comes from the server to the client saying: Input not valid as error faced: unsupported operand type(s) for ^: 'int' and 'float' ;try giving proper input message

```

PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 500
unable to connect! try again.
Error: [WinError 10061] No connection could be made because the target machine actively refused it
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 5000
Connected with Server 1
Enter Message : 2^5/12
Received: Input not valid as error faced: unsupported operand type(s) for ^: 'int' and 'float' ;try giving proper input message
Enter Message : 

```

Now, something regular: b) $2^{**}5$

Received: 32

```
PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 500
unable to connect! try again.
Error: [WinError 10061] No connection could be made because the target machine actively refused it
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 5000
Connected with Server 1
Enter Message : 2^5/12
Received: Input not valid as error faced: unsupported operand type(s) for ^: 'int' and 'float' ;try giving proper input message
Enter Message : 2**5
Received: 32
Enter Message : 
```

On server1, extra statements comes up:

```
PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python server1.py 127.0.0.1 5000
Server currently listening on 127.0.0.1 :: 5000
client having address ('127.0.0.1', 52654) connected to server
Received: 2^5/12
received from ('127.0.0.1', 52654)
Received: 2**5
received from ('127.0.0.1', 52654)

```

Now, applying 'control+C' in the client.py terminal, it closes:

```

PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 500
unable to connect! try again.
Error: [WinError 10061] No connection could be made because the target machine actively refused it
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 5000
Connected with Server 1
Enter Message : 2^5/12
Received: Input not valid as error faced: unsupported operand type(s) for ^: 'int' and 'float' ;try giving proper input message
Enter Message : 2**5
Received: 32
Enter Message :
Bye; nice talking to the server
PS D:\6thsem_networks\tut03>

```

Close the powershell terminal corresponding to the server1.py .

Now with server2 (the way of running the python file is same as that in the case of server1):

The client with port no. 53511 is the client.py and that with the port no. 53516 is the client2.py.

Running the normal executions on both client.py and clien2.py , and the results on server2.py:

```

PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 5000
Server 2
Enter Message : 2-3
Received: -1
Enter Message : 2**3
Received: 8
Enter Message : 2^3/12
Received: Input not valid as error faced: unsupported operand type(s) for ^: 'int' and 'float' ;try giving proper input message
Enter Message :
Bye; nice talking to the server
PS D:\6thsem_networks\tut03>

```

```

● PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
⊗ PS D:\6thsem_networks\tut03> python client2.py 127.0.0.1 5000
Server 2
Enter Message : 2/3
Received: 0.6666666666666666
Enter Message : 2%3
Received: 2
Enter Message : (2*4)-3
Received: 5
○ Enter Message :
  Bye; nice talking to the server
PS D:\6thsem_networks\tut03> █

```

Server2 (2 pics): Client.py has the port number 53738 and for client2.py the port number is 53739. The order in which the inputs were given from both the clients can be clearly seen in the output of the server2.py terminal:

```

● PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
○ PS D:\6thsem_networks\tut03> python server2.py 127.0.0.1 5000
Server listening on 127.0.0.1 :: 5000
Connected with client ('127.0.0.1', 53738)
Connected with client ('127.0.0.1', 53739)
Received: 2-3
from ('127.0.0.1', 53738)
received from ('127.0.0.1', 53738)
Received: 2**3
from ('127.0.0.1', 53738)
received from ('127.0.0.1', 53738)
Received: 2^3/12
from ('127.0.0.1', 53738)
received from ('127.0.0.1', 53738)
Received: 2/3
from ('127.0.0.1', 53739)
received from ('127.0.0.1', 53739)

```

```

from ('127.0.0.1', 53739)
received from ('127.0.0.1', 53739)
Received: 2%3
from ('127.0.0.1', 53739)
received from ('127.0.0.1', 53739)
Received: (2*4)-3
from ('127.0.0.1', 53739)
received from ('127.0.0.1', 53739)
Received:
from ('127.0.0.1', 53738)
Disconnected with client ('127.0.0.1', 53738)
Received:
from ('127.0.0.1', 53739)
Disconnected with client ('127.0.0.1', 53739)

```

Using the (control+C) as the message for both client.py and client2.py will close them.

Close manually the terminal of server2.py to stop the server2.

Now, for server3 (run the same way as that of server2):

```

● PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
⊗ PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 5000
Server 3
Enter Message : 2-3
Received: -1
Enter Message : 2**3
Received: 8
Enter Message : 2/3
Received: 0.6666666666666666
Enter Message :
Bye; nice talking to the server
○ PS D:\6thsem_networks\tut03> 

```

```
PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
PS D:\6thsem_networks\tut03> python client2.py 127.0.0.1 5000
Server 3
Enter Message : (2*5)-5
Received: 5
Enter Message : 2^5/12
Received: Input not valid as error faced: unsupported operand type(s) for ^: 'int' and 'float' ;try giving proper input message
Enter Message : 2%3
Received: 2
Enter Message :
Bye; nice talking to the server
PS D:\6thsem_networks\tut03>
```

The order in which the inputs were given from both the clients can be clearly seen in the output of the server3.py terminal:(Note the port no. of client.py is 53872 and that of client2.py is 53888)

```

● PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
○ PS D:\6thsem_networks\tut03> python server3.py 127.0.0.1 5000
Server listening on 127.0.0.1 :: 5000
Client ( ('127.0.0.1', 53872) ) connected
Client ( ('127.0.0.1', 53888) ) connected
Received: 2-3
from ('127.0.0.1', 53872)
received from ('127.0.0.1', 53872)
Received: 2**3
from ('127.0.0.1', 53872)
received from ('127.0.0.1', 53872)
Received: (2*5)-5
from ('127.0.0.1', 53888)
received from ('127.0.0.1', 53888)
Received: 2^5/12
from ('127.0.0.1', 53888)
received from ('127.0.0.1', 53888)

```

```

Received: 2/3
from ('127.0.0.1', 53872)
received from ('127.0.0.1', 53872)
Received: 2%3
from ('127.0.0.1', 53888)
received from ('127.0.0.1', 53888)
Received:
from ('127.0.0.1', 53872)
Client ( ('127.0.0.1', 53872) ) Disconnected
Received:
from ('127.0.0.1', 53888)
Client ( ('127.0.0.1', 53888) ) Disconnected

```

Using the (control+C) as the message for both client.py and client2.py will close them.

Close manually the terminal of server3.py to stop the server3.

Last, but not the least , the server4 (run the same way as that of server3) :


```

● PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
⊗ PS D:\6thsem_networks\tut03> python client.py 127.0.0.1 5000
Server 4
Enter Message : 2-3
Received: 2-3
Enter Message : 2*4
Received: 2*4
Enter Message : 23+4
Received: 23+4
○ Enter Message :
  Bye; nice talking to the server
PS D:\6thsem_networks\tut03> 

```

```

● PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
⊗ PS D:\6thsem_networks\tut03> python client2.py 127.0.0.1 5000
Server 4
Enter Message : 2-7
Received: 2-7
Enter Message : 2/3
Received: 2/3
Enter Message : 2^3/12
Received: 2^3/12
Enter Message : 234-567
Received: 234-567
Enter Message :
  Bye; nice talking to the server
○ PS D:\6thsem_networks\tut03> 

```

The order in which the inputs were given from both the clients can be clearly seen in the output of the server4.py terminal:(Note the port no. of client.py is 54152 and that of client2.py is 54157)

```
● PS C:\Users\Tarun Vikas> cd D:/6thsem_networks/tut03
○ PS D:\6thsem_networks\tut03> python server4.py 127.0.0.1 5000
Server listening on 127.0.0.1 :: 5000
Client ('127.0.0.1', 54152) connected
Client ('127.0.0.1', 54157) connected
Received: 2-3
from ('127.0.0.1', 54152)
Received: 2*4
from ('127.0.0.1', 54152)
Received: 2-7
from ('127.0.0.1', 54157)
Received: 2/3
from ('127.0.0.1', 54157)
Received: 2^3/12
from ('127.0.0.1', 54157)
Received: 23+4
from ('127.0.0.1', 54152)
```

```
Received: 234-567
from ('127.0.0.1', 54157)
Received:
from ('127.0.0.1', 54152)
Client ('127.0.0.1', 54152) Disconnected
Received:
from ('127.0.0.1', 54157)
Client ('127.0.0.1', 54157) Disconnected
█
```