CS358: Computer Networks Lab
Tutorial 3

Instructions:

For serverX.py

→ Choose one out of four servers
→ Run the python code of the server in the terminal **without** any args

Ex:- $ python server1.py

→ User have to enter IP address and port number
→ Now server will use above information for further processes.

For client.py

→ Choose the client python file
→ Run the python code of the server in the terminal **without** any args

Ex:- $ python client.py

→ User have to enter IP address and port number
→ Now client will use above information for further processes.

Instructions:

For serverX.py

→ server will show each step of socket forming, socket binding, listening
→ Address and port of connection will be printed whenever forms connection with a new client
→ Prints the message received over the connection
→ press ‘ctrl+c’ in the terminal to stop the server

For client.py

→ client will show steps like socket forming
→ before entering message for the server, ‘do you want to continue?’ question will appear
→ server’s reply will be printed after each message
→ to stop, user can write ‘n’ to discontinue.

Screenshots:

For client.py

Client

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python client.py
Enter host IP: 127.0.0.1
Enter port: 4000
Socket created
Want to continue?(y/n) y
-> 9-6-400
Recieved over the connection: -397
Want to continue?(y/n) y
-> abb
Recieved over the connection: Please write an expression
Want to continue?(y/n) y
-> 8/0
Recieved over the connection: Do not divide with 0
Want to continue?(y/n) y
-> 8*7-9+
Recieved over the connection: Invalid syntax
Want to continue?(y/n) y
-> 8**2
Recieved over the connection: 64
Want to continue?(y/n) n
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$
```

Screenshots:

For server1.py with single client

Server 1

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python server1.py
Enter host IP: 127.0.0.1
Enter port: 3000
Socket created
Socket binded with ip: 127.0.0.1 port: 3000
Socket is listening
connection from: 127.0.0.1 port: 56654
recieved over the connection: 4-5
recieved over the connection: 8*8
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$
```

Client 1

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python client.py
Enter host IP: 127.0.0.1
Enter port: 3000
Socket created
Want to continue?(y/n) y
-> 4-5
Recieved over the connection: -1
Want to continue?(y/n) y
-> 8*8
Recieved over the connection: 64
Want to continue?(y/n) n
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$
```

Screenshots:

For server1.py with single client

Client 2 trying to connect while Server 1 is connected to Client 1

Screenshots:

For server2.py with multi clients

Server 2

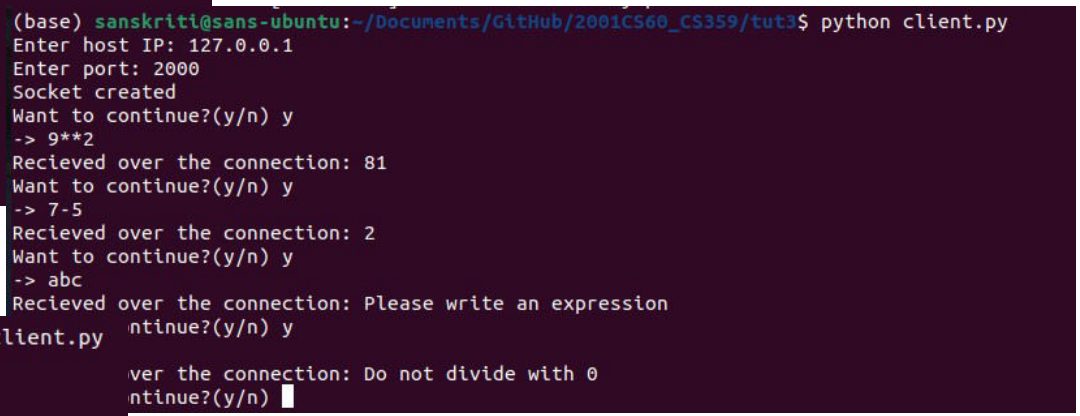
```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python server2.py
Enter host IP: 127.0.0.1
Enter port: 2000
Socket created
Socket binded with ip: 127.0.0.1 port: 2000
Socket is listening
connection from: 127.0.0.1 port: 41518
connection from: 127.0.0.1 port: 41518
Socket is listening
recieved over the connection: 5-7
connection from: 127.0.0.1 port: 40794
connection from: 127.0.0.1 port: 40794
Socket is listening
recieved over the connection: 9**2
recieved over the connection: 7-5
recieved over the connection: abc
recieved over the connection: 7/0
connection from: 127.0.0.1 port: 48174
connection from: 127.0.0.1 port: 48174
Socket is listening
recieved over the connection: 7-8-9+22
recieved over the connection: 6-9-
recieved over the connection: 99-88
```

Screenshots:

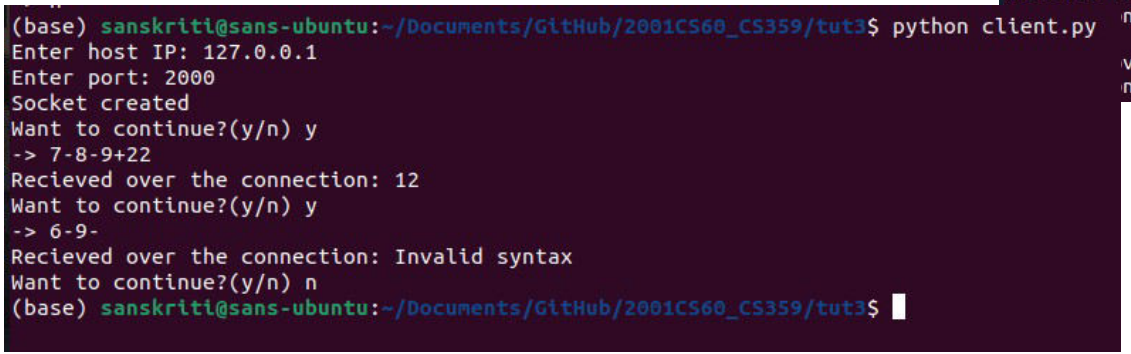
For server2.py with multi clients

Server 2, Client 1

Server 2, Client 2



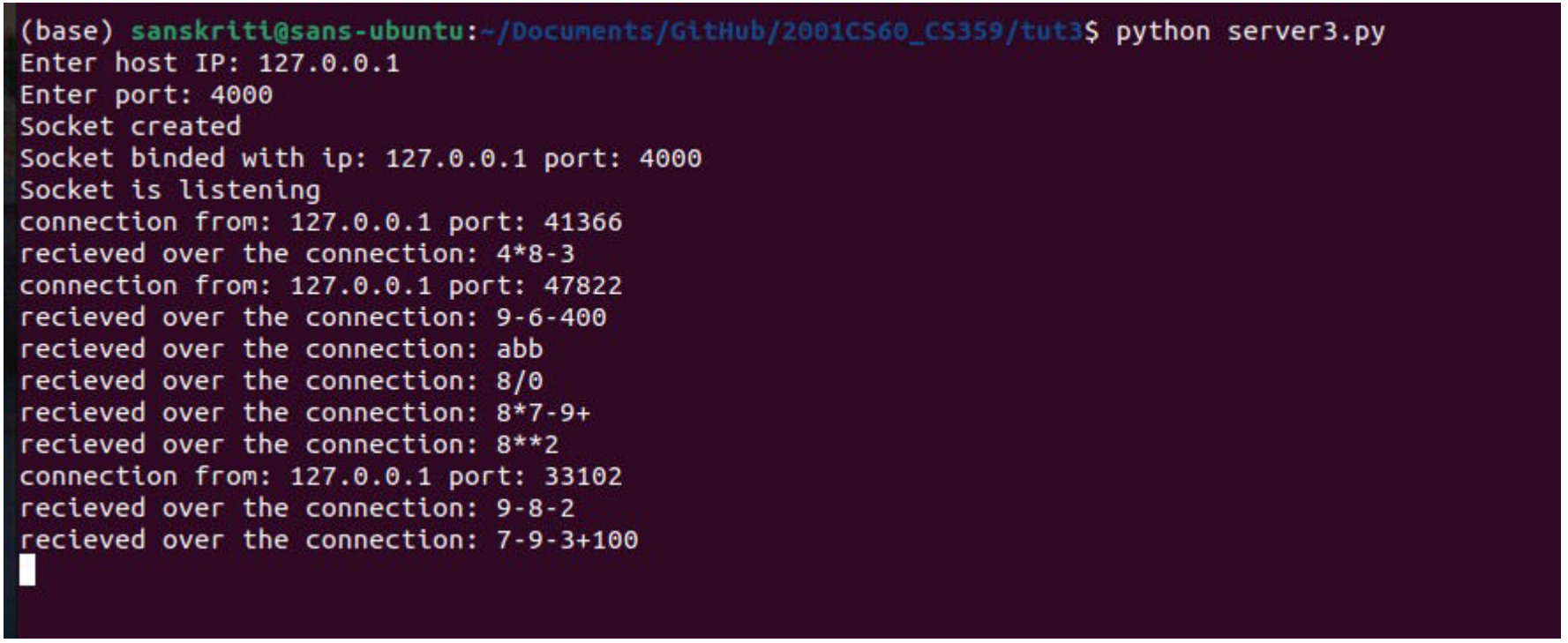
Server 2, Client 3



Screenshots:

For server3.py with multi clients

Server 3



Screenshots:

For server3.py with multi clients

Server 3, Client 1

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python client.py
Enter host IP: 127.0.0.1
Enter port: 4000
Socket created
Want to continue?(y/n) y
-> 9-6-400
Recieved over the connection: -397
Want to continue?(y/n) y
-> abb
Recieved over the connection: Please write an expression
Want to continue?(y/n) y
-> 8/0
Recieved over the connection: Do not divide with 0
Want to continue?(y/n) y
-> 8*7-9+
Recieved over the connection: Invalid syntax
Want to continue?(y/n) y
-> 8**2
Recieved over the connection: 64
Want to continue?(y/n) n
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$
```

Server 3, Client 2

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python client.py
Enter host IP: 127.0.0.1
Enter port: 4000
Socket created
Want to continue?(y/n) y
-> 4*8-3
Recieved over the connection: 29
Want to continue?(y/n) y
->
```

Server 3, Client 3

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python client.py
Enter host IP: 127.0.0.1
Enter port: 2000
Socket created
Want to continue?(y/n) y
-> 7-8-9+22
Recieved over the connection: 12
Want to continue?(y/n) y
-> 6-9-
Recieved over the connection: Invalid syntax
Want to continue?(y/n) n
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$
```

Screenshots:

For server4.py with multi clients

Server 4

Screenshots:

For server4.py with multi clients

Server 4, Client 1

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python client.py
Enter host IP: 127.0.0.1
Enter port: 2000
Socket created
Want to continue?(y/n) y
-> echo
Recieved over the connection: echo
Want to continue?(y/n) y
-> yeah
Recieved over the connection: yeah
Want to continue?(y/n) y
-> america
Recieved over the connection: america
Want to continue?(y/n) n
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS35
```

Server 4, Client 2

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python client.py
Enter host IP: 127.0.0.1
Enter port: 2000
Socket created
Want to continue?(y/n) y
-> 128-99
Recieved over the connection: 128-99
Want to continue?(y/n) n
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$
```

Server 4, Client 3

```
(base) sanskriti@sans-ubuntu:~/Documents/GitHub/2001CS60_CS359/tut3$ python client.py
Enter host IP: 127.0.0.1
Enter port: 2000
Socket created
Want to continue?(y/n) y
-> unicorn
Recieved over the connection: unicorn
Want to continue?(y/n) y
-> angel
Recieved over the connection: angel
Want to continue?(y/n)
```

Features:

For client.py

→ Warning if socket is not formed

For server[1|2|3].py

→ Warning if socket is not formed
→ Warning if socket is not binded to the port and IP
→ Warning if port is already in use
→ Warning for invalid syntax / invalid expression / division by 0

For server1.py

→ Can only connect to one client

Features:

For server4.py

→ Warning if socket is not formed
→ Warning if socket is not binded to the port and IP
→ Warning if port is already in use
→ Gives the same data the user gave as it is (echo)

Video link:

link