

# CN ASSIGNMENT-3

## Client Server Socket Programming

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### Instructions to run the code:

I. For Server(s):

- On cmd, run **python serverx.py --host=host\_ip --port=port\_no**
- For serverx.py, x is 1,2,3,4
- --host and --port are optional. The default values are `socket.gethostbyname(socket.gethostname())` and 9999 respectively

II. For Client(s):

- **On cmd, run python client.py**
- The default values are `socket.gethostbyname()` and 9999 respectively.

For eg: cmd> python server1.py --host=127.0.0.1 --port=5000

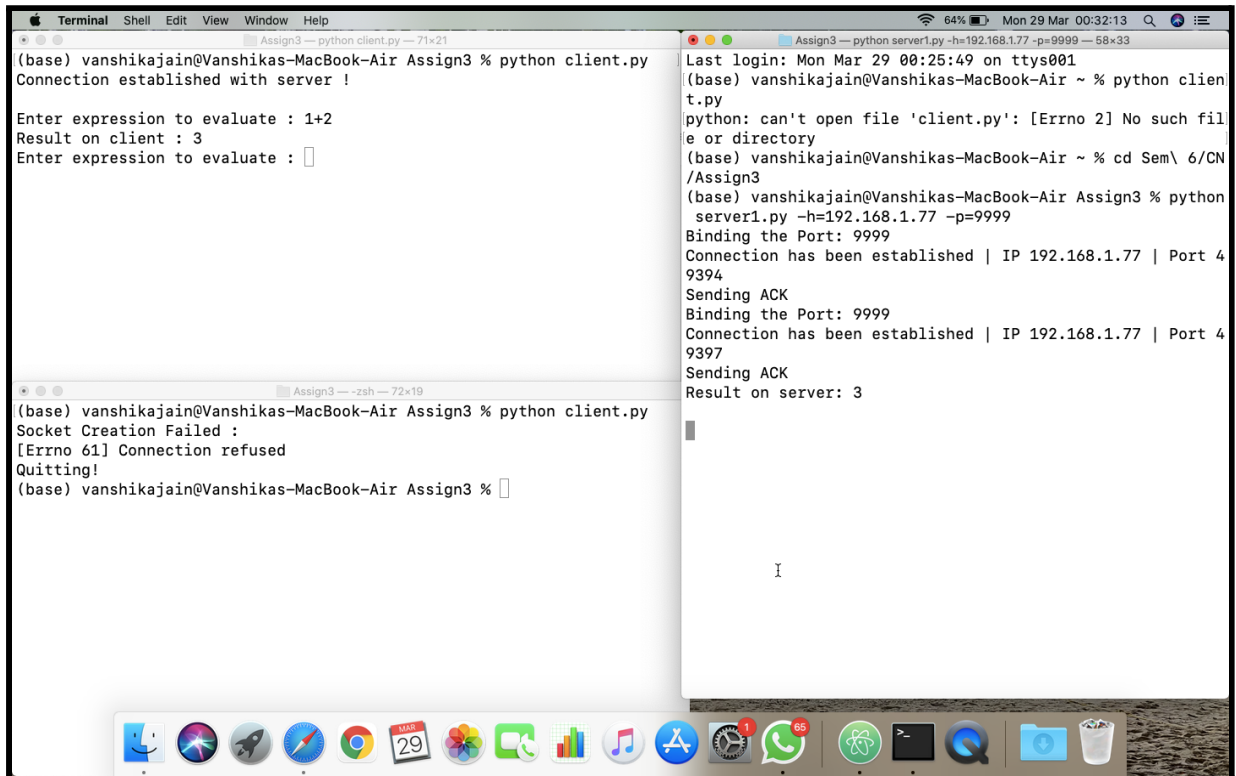
cmd2> python client.py

### Addition Features:

- Sending ack every time a connection is successful
- Secure: Cannot send any malicious instructions to the server as the messages are validated before execution using regex.

## Outputs:

### 1. Server1.py

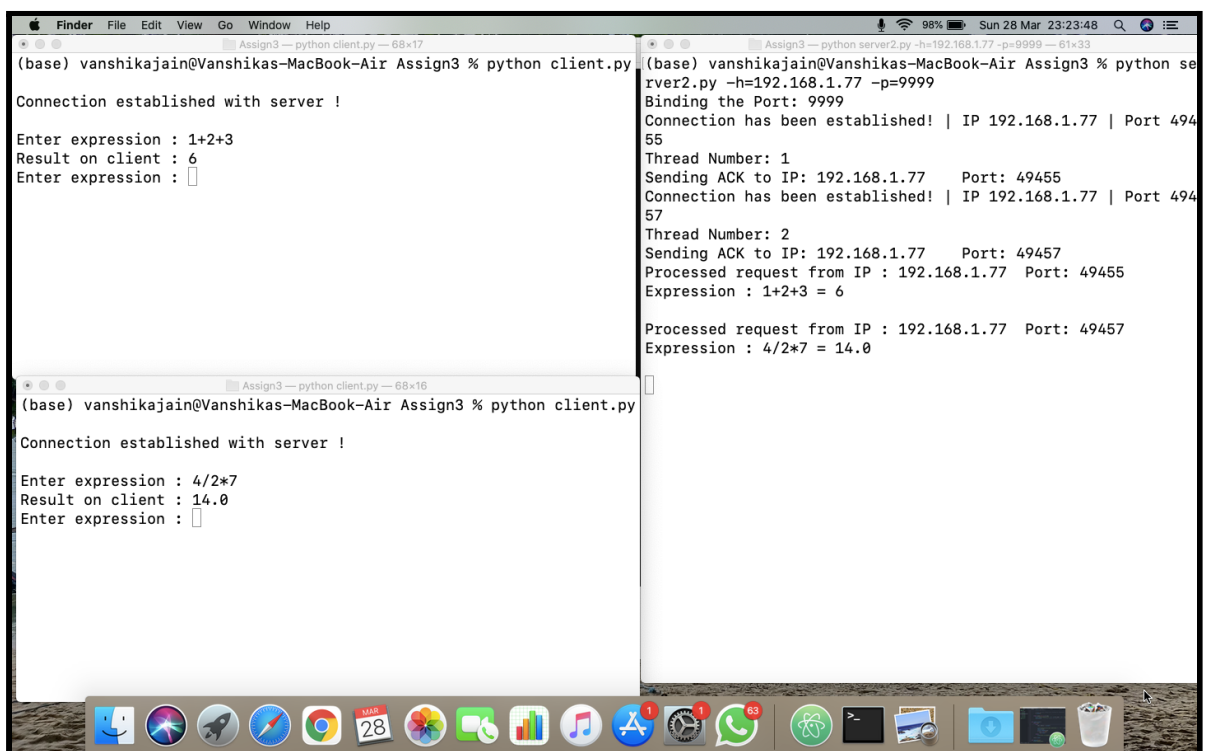


```
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression to evaluate : 1+2
Result on client : 3
Enter expression to evaluate :

Last login: Mon Mar 29 00:25:49 on ttys001
(base) vanshikajain@Vanshikas-MacBook-Air ~ % python client.py
python: can't open file 'client.py': [Errno 2] No such file or directory
(base) vanshikajain@Vanshikas-MacBook-Air ~ % cd Sem\ 6\CN\Assign3
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python server1.py -h=192.168.1.77 -p=9999
Binding the Port: 9999
Connection has been established | IP 192.168.1.77 | Port 49394
Sending ACK
Binding the Port: 9999
Connection has been established | IP 192.168.1.77 | Port 49397
Sending ACK
Result on server: 3
```

### 2. Server2.py



```
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

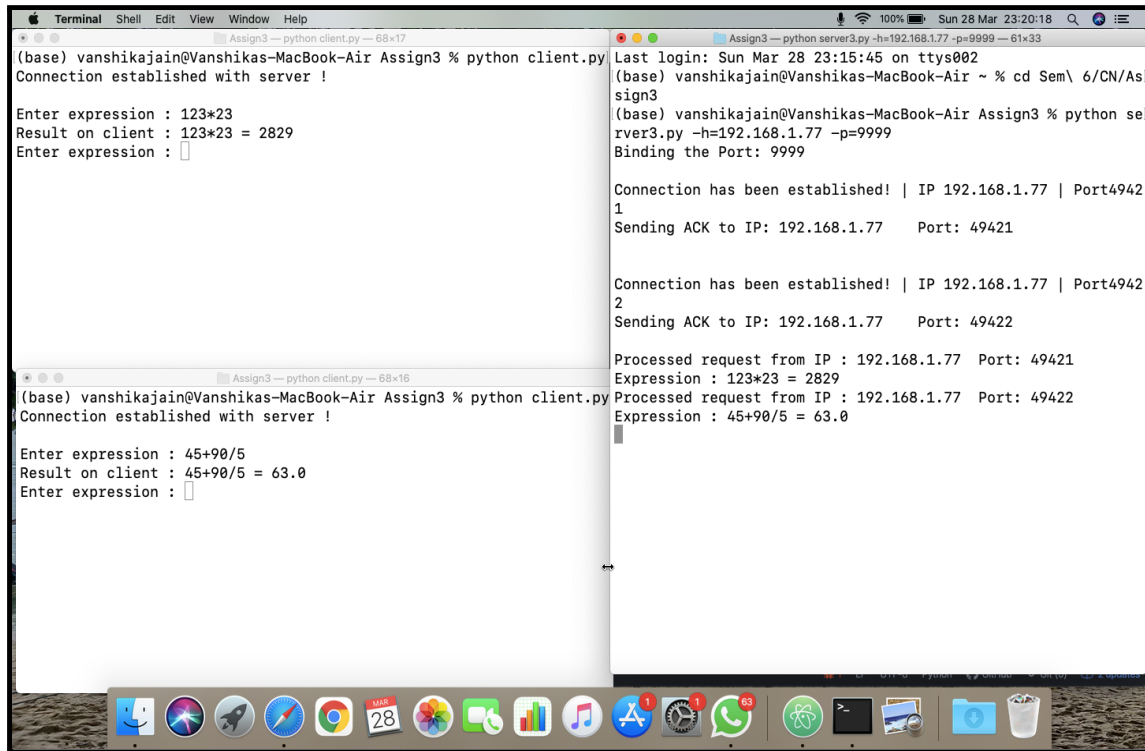
Enter expression : 1+2+3
Result on client : 6
Enter expression :

(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression : 4/2*7
Result on client : 14.0
Enter expression :

Last login: Sun Mar 28 23:23:48 on ttys001
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python server2.py -h=192.168.1.77 -p=9999
Binding the Port: 9999
Connection has been established! | IP 192.168.1.77 | Port 49455
Thread Number: 1
Sending ACK to IP: 192.168.1.77 Port: 49455
Connection has been established! | IP 192.168.1.77 | Port 49457
Thread Number: 2
Sending ACK to IP: 192.168.1.77 Port: 49457
Processed request from IP : 192.168.1.77 Port: 49455
Expression : 1+2+3 = 6
Processed request from IP : 192.168.1.77 Port: 49457
Expression : 4/2*7 = 14.0
```

### 3. Server3.py



```
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression : 123*23
Result on client : 123*23 = 2829
Enter expression :

Assign3 - python client.py -- 68x17

(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression : 45+90/5
Result on client : 45+90/5 = 63.0
Enter expression :

Assign3 - python client.py -- 68x16

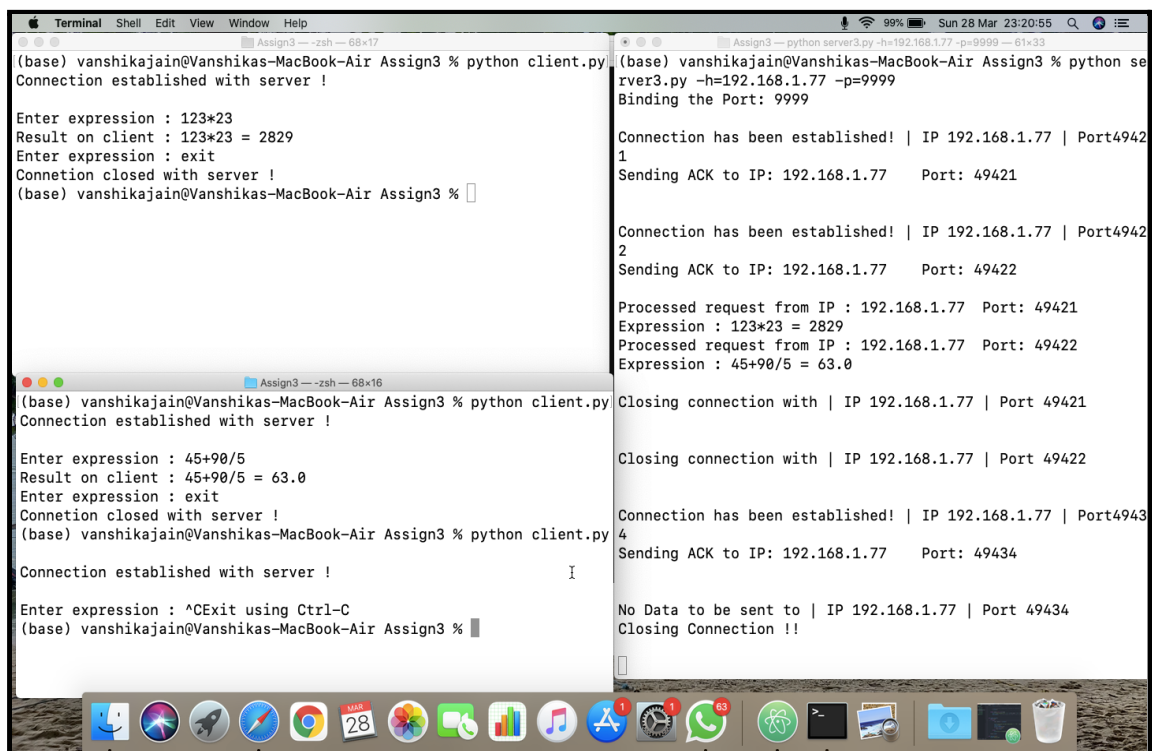
Last login: Sun Mar 28 23:15:45 on ttys002
(base) vanshikajain@Vanshikas-MacBook-Air ~ % cd Sem\ 6/CN/Assign3
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python server3.py -h=192.168.1.77 -p=9999
Binding the Port: 9999

Connection has been established! | IP 192.168.1.77 | Port49421
Sending ACK to IP: 192.168.1.77 Port: 49421

Connection has been established! | IP 192.168.1.77 | Port49422
Sending ACK to IP: 192.168.1.77 Port: 49422

Processed request from IP : 192.168.1.77 Port: 49421
Expression : 123*23 = 2829
Processed request from IP : 192.168.1.77 Port: 49422
Expression : 45+90/5 = 63.0
```

→ Exiting client with Ctrl-C



```
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression : 123*23
Result on client : 123*23 = 2829
Enter expression : exit
Connetion closed with server !
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 %

Assign3 - zsh -- 68x17

(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression : 45+90/5
Result on client : 45+90/5 = 63.0
Enter expression : exit
Connetion closed with server !
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression : ^C
Exit using Ctrl-C
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 %

Assign3 - zsh -- 68x16

Last login: Sun Mar 28 23:20:18 on ttys002
(base) vanshikajain@Vanshikas-MacBook-Air ~ % cd Sem\ 6/CN/Assign3
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python server3.py -h=192.168.1.77 -p=9999
Binding the Port: 9999

Connection has been established! | IP 192.168.1.77 | Port49421
Sending ACK to IP: 192.168.1.77 Port: 49421

Connection has been established! | IP 192.168.1.77 | Port49422
Sending ACK to IP: 192.168.1.77 Port: 49422

Processed request from IP : 192.168.1.77 Port: 49421
Expression : 123*23 = 2829
Processed request from IP : 192.168.1.77 Port: 49422
Expression : 45+90/5 = 63.0

Closing connection with | IP 192.168.1.77 | Port 49421

Closing connection with | IP 192.168.1.77 | Port 49422

Connection has been established! | IP 192.168.1.77 | Port49434
Sending ACK to IP: 192.168.1.77 Port: 49434

No Data to be sent to | IP 192.168.1.77 | Port 49434
Closing Connection !!
```

## → Exiting server with Ctrl-C

```
(base) vanshikajain@Vanshikas-MacBook-Air ~ % cd Sem\ 6/CN/Assign3
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python server3.py -h=192.168.1.77 -p=9999
Binding the Port: 9999

Connection has been established! | IP 192.168.1.77 | Port:49421
Sending ACK to IP: 192.168.1.77 Port: 49421

Connection has been established! | IP 192.168.1.77 | Port:49422
Sending ACK to IP: 192.168.1.77 Port: 49422

Processed request from IP : 192.168.1.77 Port: 49421
Expression : 123*23 = 2829
Processed request from IP : 192.168.1.77 Port: 49422
Expression : 45+90/5 = 63.0

Closing connection with | IP 192.168.1.77 | Port 49421

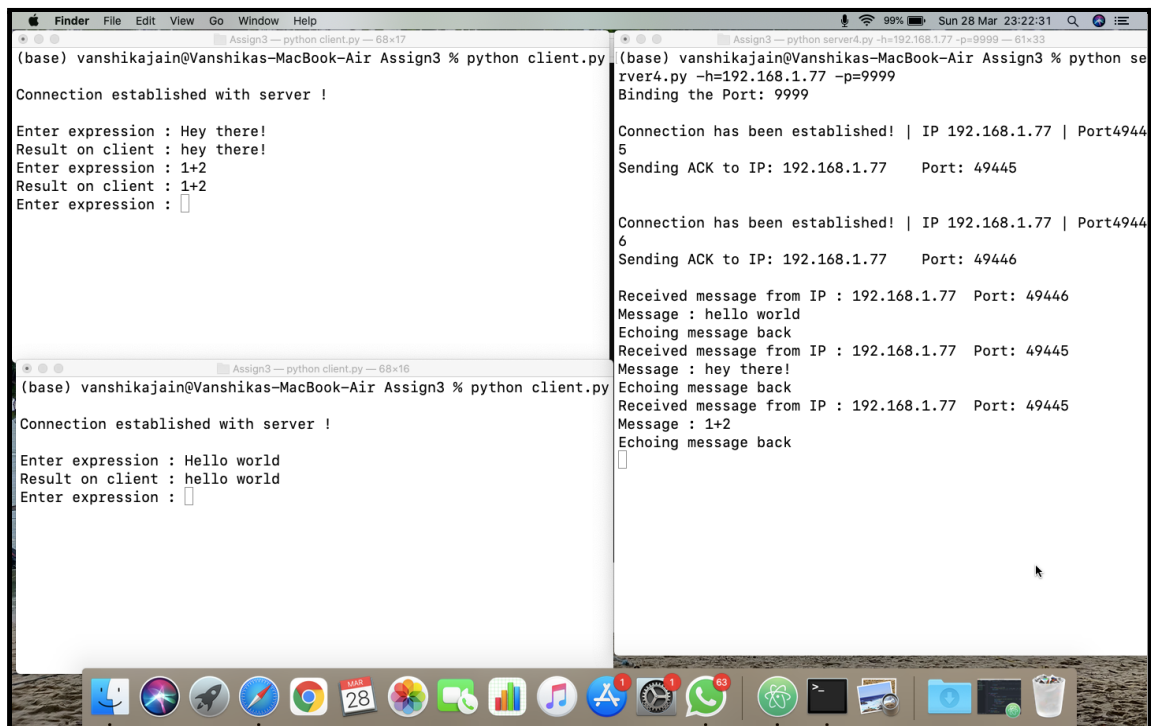
Closing connection with | IP 192.168.1.77 | Port 49422

Connection has been established! | IP 192.168.1.77 | Port:49434
Sending ACK to IP: 192.168.1.77 Port: 49434

No Data to be sent to | IP 192.168.1.77 | Port 49434
Closing Connection !!

^CTraceback (most recent call last):
  File "server3.py", line 157, in <module>
    main()
  File "server3.py", line 154, in main
    socket_accept()
  File "server3.py", line 54, in socket_accept
    readable, writable, exceptional = select.select(inputs,outputs,inputs)
KeyboardInterrupt
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 %
```

## 4. Server4.py



```
(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression : Hey there!
Result on client : hey there!
Enter expression : 1+2
Result on client : 1+2
Enter expression :

(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python client.py
Connection established with server !

Enter expression : Hello world
Result on client : hello world
Enter expression :

(base) vanshikajain@Vanshikas-MacBook-Air Assign3 % python server4.py -h=192.168.1.77 -p=9999
Binding the Port: 9999

Connection has been established! | IP 192.168.1.77 | Port:49445
Sending ACK to IP: 192.168.1.77 Port: 49445

Connection has been established! | IP 192.168.1.77 | Port:49446
Sending ACK to IP: 192.168.1.77 Port: 49446

Received message from IP : 192.168.1.77 Port: 49446
Message : hello world
Echoing message back
Received message from IP : 192.168.1.77 Port: 49445
Message : hey there!
Echoing message back
Received message from IP : 192.168.1.77 Port: 49445
Message : 1+2
Echoing message back
```