

CS358 2023 Assignment 3

Task : (One Client Program and four Server Program)

LINK: <https://www.youtube.com/watch?v=-vTQNNQHrPw>

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How To Run The Code?

There are following step :

1. First download all five python files - 4 servers and 1 client from
2. check yours using the python --version command.
3. I used Python 3.10.0 to run my files
4. Open Terminal. Change Terminal's current directory to the directory containing all five python files.
5. First you run one server file then after a client file.
6. Run each python file using python <filename.py> <argument 1><argument 2> command.
7. Find ip address from your cmd (ipconfig) for windows

In case of server.py, argument 1 is equal to the host name (localhost) or your ip address and argument 2 is equal to the port number (5000). In the case of client.py, argument 1 is equal to the same hostname that we provide while running server.py (localhost) and argument 2 is also equal to the same port number that we provide while running server.py (5000). Once connected, send some valid expression to get the result from the server and close the client by entering N when prompted to do so.

Note: While running server1.py, we want that only one client is connected to the server at a time. To do this, we use listen(0), but if we are using the same machine for running multiple clients, it is observed that the second client also gets connected to the server (though it is unable to send any message to the server). To prevent this, we run a fake client while running client.py.

- For running server1.py first you uncomment line no 16,17 ,18 in client.py file. Remember this fake client is only required by server1.py.
- For server2.py second first comment fake client line no : 16,17,18 in client.py and uncomment line no 33 to 37 .for taking name of client
- For server3.py and server4.py comment line no 16,to,18,and 33 to 37 in client .py file

SCREENSHOTS

SERVER1.PY

Now running first **server1.py** file and **client.py** file

Command : `python server1.py 172.16.189.242 5000`

Command : `client.py 172.16.189.242 5000`

Using fake clint

```
nd improvements! https://aka.ms/PSWindows

PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> python server1.py 172.16.189.242 50
Server is listening on port 50
Connection from ('172.16.189.242', 55493)
: connection closed!
Connection from ('172.16.189.242', 55494)
[]

served.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> python client.py 172.16.189.242 50
Connected to the server...
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7):
[]

Traceback (most recent call last):
  File "C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03\client.py", line 17, in <module>
    fake_client_socket.connect((SERVER_IP, SERVER_PORT))
ConnectionRefusedError: [WinError 10061] No connection could be made because the target machine actively refused it
PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> python client.py 172.16.189.242 50
Traceback (most recent call last):
  File "C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03\client.py", line 17, in <module>
    fake_client_socket.connect((SERVER_IP, SERVER_PORT))
ConnectionRefusedError: [WinError 10061] No connection could be made because the target machine actively refused it
PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03>
```

Without using fake client

```
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PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> python server1.py 172.16.189.242 50
socket bind to port 50
Server is listening on port 50
Connection from ('172.16.189.242', 55605)
[]

Windows PowerShell
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PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> python client.py 172.16.189.242 50
Connected to the server...
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7):
[]

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PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> python client.py 172.16.189.242 50
Connected to the server...
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7):
[]
```

CALCULATE AND TEST

2+4+5=11

4+6+6*6+7-1000= -947

6+78*(6+7*7)*6+7-10= 25743

2^7=5

9%3= 0

4|4=4

6+4/0=Error

Do you wish to continue? Y/N

N

close connection

```

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PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tu
t03> python server1.py 172.16.189.242 50
socket bind to port 50
Server is listening on port 50
Connection from ('172.16.189.242', 55659)
Received expression: 2+4+5
Received expression: 4+6+6*6+7-1000
Received expression: 6+78*(6+7*7)*6+7-10
Received expression: 2^7
Received expression: 3/5
Received expression: 3%9
Received expression: Y
Received expression: 9%3
Received expression: 4|4
Received expression: 6+4/0
: connection closed!
[]

t03> python client.py 172.16.189.242 50
Connected to the server...
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): 2+4+5
Server replied: 11
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): 4+6+6*6+7-1000
Server replied: -947
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): 6+78*(6+7*7)*6+7-10
Server replied: 25743
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): 2^7
Server replied: 5
Do you wish to continue? Y/N
Y
Server replied: 3
Do you wish to continue? Y/N
9%3
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): Y
Server replied: Error
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): 9%3
Server replied: 0
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): 4|4

```

SERVER2.PY

Command : python server1.py 172.16.189.242 5000

Command : client.py 172.16.189.242 5000

ADD MORE CLIENT

$((3*4+5/5+9*0)**2-9)\%13 = 4.0$

$((4*4)>(2**3))*(((2==2)!\!=(69<69))+(17*4)) = 69$

$((2>=2)!\!=(69<=69)) = \text{False}$

$((2>=2)==(69<=69)) = \text{True}$

FOR CLOSE CONNECTION

Do you wish to continue? Y/N :N

```

50
Server is listening on port 50
Now SIYARAM KUMAR is connected
Client ('172.16.189.242', 55775) connected
Now MOHAN is connected
Client ('172.16.189.242', 55780) connected
Now ROHAN is connected
Client ('172.16.189.242', 55782) connected
Received expression: ((3*4+5/5+9*0)**2-9)%13
Received expression: (16>8)*((1!=0)*68)
Received expression: ((2>=2)!\!=(69<=69))
Received expression: ((2>=2)!\!=(69<=69))
Received expression: 3+4
:ROHAN connection closed!
Received expression: 3+4
:MOHAN connection closed!
Received expression: 4+3
:SIYARAM KUMAR connection closed!
[]

PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> python client.py 172.16.189.242 50
Connected to the server...
please Enter your name : MOHAN
Now you are conn...
Server replied: Connected to server!
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7):(16>8)*((1!=0)*68)
Server replied: 68
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): ((2>=2)!\!=(69<=69))
Server replied: True
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): 3+4
Server replied: 7
Do you wish to continue? Y/N
N
close conection
PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> []

Connected to the server...
please Enter your name : ROHAN
Now you are conn...
Server replied: Connected to server!
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): ((3*4+5/5+9*0)**2-9)%13
Server replied: 4.0
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): 3+4
Server replied: 7
Do you wish to continue? Y/N
N
close conection
PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tut03> []

```

SERVER3.PY

Command : python server3.py 172.16.189.242 5000

Command : client.py 172.16.189.242 5000

$(32 \& (1 < 5)) = 32$

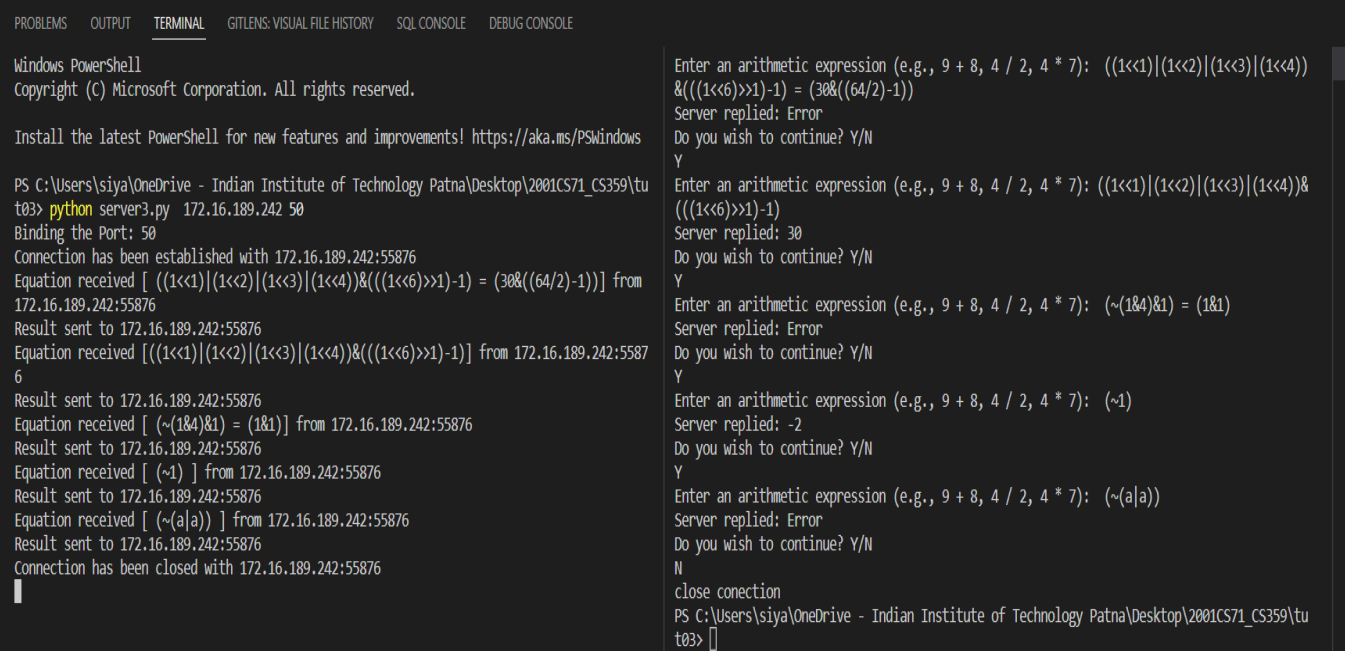
$((1 < 1) | (1 < 2) | (1 < 3) | (1 < 4)) \& (((1 < 6) > 1) - 1) = (30 \& ((64/2) - 1)) = 30$

$\sim(1 \& 4) \& 1 = (1 \& 1) = 1$

$\sim(a|a) = \text{Error}$

$(\sim 1) = -2$

$(\sim 4) = -5$



```
PROBLEMS OUTPUT TERMINAL GITLENS: VISUAL FILE HISTORY SQL CONSOLE DEBUG CONSOLE

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PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tu
t03> python server3.py 172.16.189.242 50
Binding the Port: 50
Connection has been established with 172.16.189.242:55876
Equation received [ ((1<1)|(1<2)|(1<3)|(1<4))&(((1<6)>>1)-1) = (30&((64/2)-1))] from
172.16.189.242:55876
Result sent to 172.16.189.242:55876
Equation received [(((1<1)|(1<2)|(1<3)|(1<4))&(((1<6)>>1)-1))] from 172.16.189.242:5587
6
Result sent to 172.16.189.242:55876
Equation received [ (~ (1&4)&1) = (1&1)] from 172.16.189.242:55876
Result sent to 172.16.189.242:55876
Equation received [ (~1) ] from 172.16.189.242:55876
Result sent to 172.16.189.242:55876
Equation received [ ~(a|a) ] from 172.16.189.242:55876
Result sent to 172.16.189.242:55876
Connection has been closed with 172.16.189.242:55876

Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): ((1<1)|(1<2)|(1<3)|(1<4))
&(((1<6)>>1)-1) = (30&((64/2)-1))
Server replied: Error
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): ((1<1)|(1<2)|(1<3)|(1<4))&
(((1<6)>>1)-1)
Server replied: 30
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): (~ (1&4)&1) = (1&1)
Server replied: Error
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): (~1)
Server replied: -2
Do you wish to continue? Y/N
Y
Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): ~(a|a)
Server replied: Error
Do you wish to continue? Y/N
N
close conection
PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359\tu
t03>
```

SERVER4.PY

Command : python server4.py 172.16.189.242 5000

Command : client.py 172.16.189.242 5000

Connect more client

And disconnect

PROBLEMS	OUTPUT	TERMINAL	GITLENS: VISUAL FILE HISTORY	SQL CONSOLE	DEBUG CONSOLE
<pre>9\tut03> python server4.py 172.16.189.242 50 Binding the Port: 50 Connection has been established with 172.16.189.242:55949 Connection has been established with 172.16.189.242:55950 Connection has been established with 172.16.189.242:55952 Message received [HELLOW I AM SIYARAM KUMAR] from 172.16.189.242:55949 Message sent to 172.16.189.242:55949 Message received [you are hero] from 172.16.189.242:55949 Message sent to 172.16.189.242:55949 Message received [some one get full marks] from 172.16.189.242:55950 Message sent to 172.16.189.242:55950 Message received [everybody get full marks] from 172.16.189.242:55952 Message sent to 172.16.189.242:55952 Message received [Y] from 172.16.189.242:55952 Message sent to 172.16.189.242:55952 Connection has been closed with 172.16.189.242:55952</pre>					
<pre>Windows PowerShell Copyright (C) Microsoft Corporation. All rights reserved. Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359> python client.py 172.16.189.242 50 Connected to the server... Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7):HELLOW I AM SIYARAM KUMAR Server replied: HELLOW I AM SIYARAM KUMAR Do you wish to continue? Y/N Y Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): you are hero Server replied: you are hero Do you wish to continue? Y/N N close conection PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359> tut03> </pre>					
<pre>Windows PowerShell Copyright (C) Microsoft Corporation. All rights reserved. Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359> python client.py 172.16.189.242 50 Connected to the server... Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): everybody get full marks Server replied: everybody get full marks Do you wish to continue? Y/N Y Enter an arithmetic expression (e.g., 9 + 8, 4 / 2, 4 * 7): Y Server replied: Y Do you wish to continue? Y/N N close conection PS C:\Users\siya\OneDrive - Indian Institute of Technology Patna\Desktop\2001CS71_CS359> tut03> </pre>					