

19CSE312 Distributed Systems

Lab Sheet – 3

Name : **Patel Rajkumar Panakjbhai**

Roll No : **AM.EN.USCSE20349**

Question:

Implement a Fibonacci function on a remote server.

- Call the function from client to execute the function definition on the remote machine.

Output

```
server.py
19 def main():
20     # create a socket object
21     serversocket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
22     # get local machine name
23     host = socket.gethostname()
24     port = 9999
25     # bind to the port
26     serversocket.bind((host, port))
27     # queue up to 5 requests
28     serversocket.listen(5)
29     while True:
30         # establish a connection
31         clientsocket, addr = serversocket.accept()
32         print("Got a connection from %s" % str(addr))
33         msg = 'Thank you for connecting'+ "\r\n"
34         clientsocket.send(msg.encode('ascii'))
35         while True:
36             data = clientsocket.recv(1024)
37             if not data: break
38             print("Received %s" % data)
39             n = int(data)
40             result = fib(n)
41             print("Sending %s" % result)
42             clientsocket.send(str(result).encode('ascii'))
43             clientsocket.close()
44
45 if __name__ == "__main__":
46     print("\nName : Patel Rajkumar Panakjbhai")
47     print("Roll No : AM.EN.U4CSE20349\n")
48     main()

client.py
1 # Name: Patel Rajkumar Panakjbhai
2 # Date: 23/02/2023
3 # Roll No: AM.EN.U4CSE20349
4
5 import socket
6
7 def main():
8     # create a socket object
9     s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
10    # get local machine name
11    host = socket.gethostname()
12    port = 9999
13    # connection to hostname on the port.
14    s.connect((host, port))
15    # Continuous send and receive data
16    while True:
17        # Receive no more than 1024 bytes
18        msg = s.recv(1024)
19        print(msg.decode('ascii'))
20        # Send data to server
21        s.send(input("Enter message: ").encode('ascii'))
22        # Close the connection
23        s.close()
24
25 if __name__ == '__main__':
26     print("\nName : Patel Rajkumar Panakjbhai")
27     print("Roll No : AM.EN.U4CSE20349\n")
28     main()

Terminal (server.py)
(base) aj@RAJs-MacBook-Air Destro % python -u "/Users/aj/Desktop/S6/Destro/week-4/s
erver.py"
Name : Patel Rajkumar Panakjbhai
Roll No : AM.EN.U4CSE20349
Got a connection from ('127.0.0.1', 50371)
Received b'5'
Sending 5
Received b'7'
Sending 13
[]

Terminal (client.py)
(base) aj@RAJs-MacBook-Air ~ % python -u "/Users/aj/Desktop/S6/Destro/week-4/cli
ent.py"
Name : Patel Rajkumar Panakjbhai
Roll No : AM.EN.U4CSE20349
Thank you for connecting
Enter message: 5
5
Enter message: 7
7
Enter message: 13
13
Enter message: 
```

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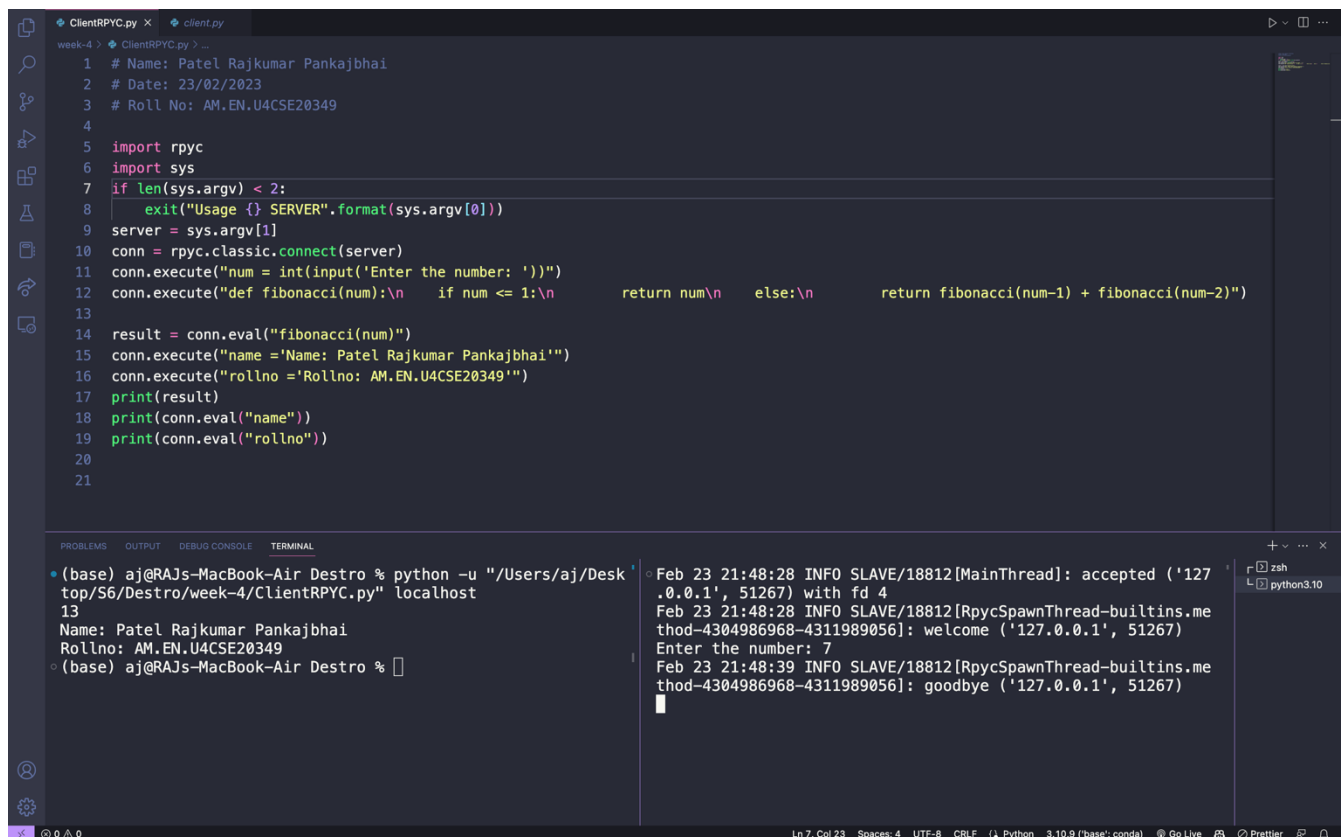
Name : **Patel Rajkumar Panakjbhai**

Roll No : **AM.EN.USCSE20349**

ii) You may try using call *execute* on the **connection** object also.

In both parts add printf statement to print your name and roll number.

Output :



The screenshot shows a code editor with a file named `ClientRPyC.py`. The script defines a client that connects to a server and executes a Fibonacci function. The terminal output shows the execution of the script, which prints the name and roll number of the user.

```
1 # Name: Patel Rajkumar Pankajbhai
2 # Date: 23/02/2023
3 # Roll No: AM.EN.U4CSE20349
4
5 import rpyc
6 import sys
7 if len(sys.argv) < 2:
8     exit("Usage {} SERVER".format(sys.argv[0]))
9 server = sys.argv[1]
10 conn = rpyc.classic.connect(server)
11 conn.execute("num = int(input('Enter the number: '))")
12 conn.execute("def fibonacci(num):\n    if num <= 1:\n        return num\n    else:\n        return fibonacci(num-1) + fibonacci(num-2)")
13
14 result = conn.eval("fibonacci(num)")
15 conn.execute("name = 'Name: Patel Rajkumar Pankajbhai'")
16 conn.execute("rollno = 'Rollno: AM.EN.U4CSE20349'")
17 print(result)
18 print(conn.eval("name"))
19 print(conn.eval("rollno"))
20
21
```

The terminal output shows the execution of the script:

```
(base) aj@RAJs-MacBook-Air Destro % python -u "/Users/aj/Desktop/S6/Destro/week-4/ClientRPyC.py" localhost
13
Name: Patel Rajkumar Pankajbhai
Rollno: AM.EN.U4CSE20349
0.0
Feb 23 21:48:28 INFO SLAVE/18812[MainThread]: accepted ('127.0.0.1', 51267) with fd 4
Feb 23 21:48:28 INFO SLAVE/18812[RpycSpawnThread-builtins.method-4304986968-4311989056]: welcome ('127.0.0.1', 51267)
Enter the number: 7
Feb 23 21:48:39 INFO SLAVE/18812[RpycSpawnThread-builtins.method-4304986968-4311989056]: goodbye ('127.0.0.1', 51267)
```

Submission:

- The **client** and **server** source files.
- Snapshot of the result. Capture the **entire terminal** window in the screenshot. The screenshots can be put in one document.

Please avoid **zip**, **tar**, **tar.gz** etc