P31. Install and compile the Python programs TCPClient and UDPClient on one host and TCPServer and DPServer on another host.

a. Suppose you run TCPClient before you run TCPServer. What happens? Why?

b. Suppose you run UDPClient before you run UDPServer. What happens? Why?

c. What happens if you use different port numbers for the client and server sides?

**Answer:** Below screen shot shows the execution of both TCP and UDP client server programs executed on Python33.

|  |
| --- |
| TCP Client Server programs: |
| Description: C:\Users\makha_000\Desktop\Course Structure\Network Engineering\Week6\TCPPythonProgram.png |
| UDP Client Server programs: |
| Description: C:\Users\makha_000\Desktop\Course Structure\Network Engineering\Week6\UDPPythonProgram.png |

a) **Answer:** If a TCPClient program is first executed without running TCPServer program then the client will attempt to make a TCP connection with a non-existent server process. A TCP connection will not be made as there are no active Servers. So a TCPClient program will not run until the TCPServer is running.

b) **Answer:** If a UDPClient program is first executed without running UDPServer program then the client program will run fine and will ask for an input. After that if the UDPServer program is executed and then an input is provided to the UDPClient program then there will be no issue and the Client program will run fine and will give correct output.

c) **Answer:** If the client server programs are executed with different port numbers, then the client will attempt to establish a connection with the wrong process or a non-existent process and errors will occur.

P32. Suppose that in UDPClient.py, after we create the socket, we add the line: clientSocket.bind((‘’, 5432)). Will it become necessary to change UDPServer.py? What are the port numbers for the sockets in UDPClient and UDPServer? What were they before making this change?

**Answer:** It’s not necessary to change the UDPServer program as ServerSocket.bind(‘’,serverPort)) assigns the socket to a port number. The socket can accommodate any port number. The port number would be assigned to match the client’s port number. The program would still work fine. The port numbers for the sockets in UDPClient and UDPServer will then be following:

Before calling clientSocket.bind(‘’,5432), they were:

UDPClient= not specified

UDPServer= 2048

After calling clientSocket.bind(‘’,5432), they will be:

UDPClient= 5432

UDPServer= 2048