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Lab 8: Client-Server Configurations

Socket programming in python

Python provides two levels of access to network services. At a low level, you can access the basic socket support in the underlying operating system, which allows you to implement clients and servers for both connection-oriented and connectionless protocols.

Python also has libraries that provide higher-level access to specific application-level network protocols, such as FTP, HTTP, and so on.

This chapter gives you understanding on most famous concept in Networking - Socket Programming.

Sockets are the endpoints of a bidirectional communications channel. Sockets may communicate within a process, b etween processes on the same machine, or between processes on different continents.

Sockets may be implemented over a number of different channel types: Unix domain sockets, TCP, UDP, and so on. The *socket* library provides specific classes for handling the common transports as well as a generic interface for handling the rest.

Client

To write Internet servers, we use the **socket** function available in socket module to create a socket object. A socket object is then used to call other functions to setup a socket server.

Now call **connet(hostname, port)** function to specify a *port* for your service on the given host.

Server

Let us write a very simple client program which opens a connection to a given port 8000 and given host. This is very simple to create a socket client using Python's *socket* module function.

The **socket.connect(hosname, port)** opens a TCP connection to *hostname* on the *port*. Once you have a socket open, you can read from it like any IO object. When done, remember to close it, as you would close a file.

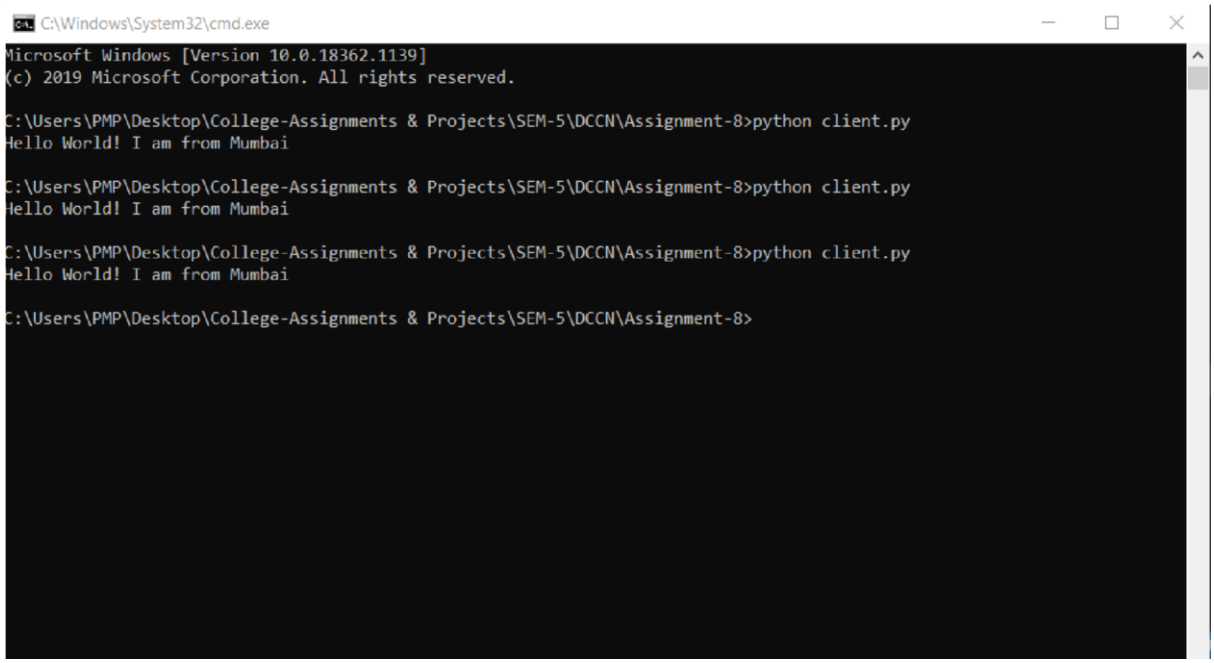
Code for server

```
import socket
 skt = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
skt.bind((socket.gethostname(), 8000)) skt.listen(5)
 while True:
    clientsocket, address = skt.accept()
    print(f'Connection successfully established with the address {address}')
clientsocket.send(bytes('Hello World! I am from Mumbai', 'utf-8'))
clientsocket.close()
```

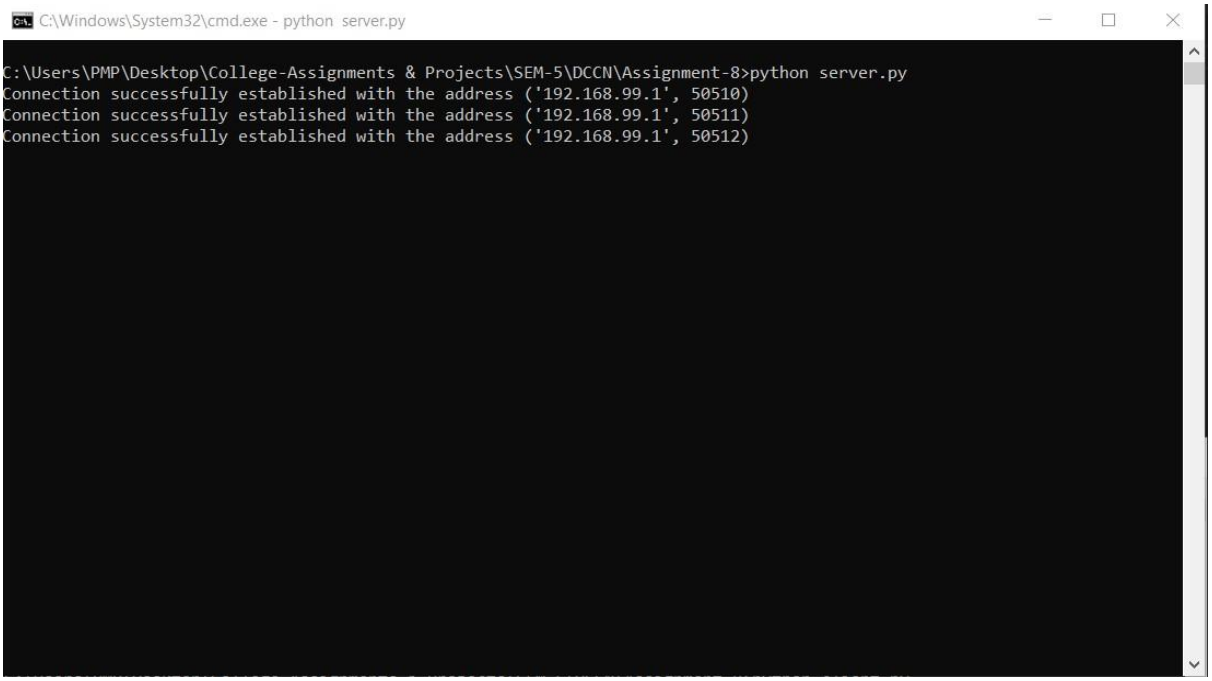
Code for client

```
import socket
 skt = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
skt.connect((socket.gethostname(), 8000)) msg =
skt.recv(1024)
print(msg.decode('utf-8'))
```

Client cmd



Sever cmd



Conclusion –

After completing the above experiment, I have understood that how a client and server works and how do they communicate.