NAME: Yash Shah
CLASS: TE COMPS
BATCH: D
ROLL NO: 55
UID: 2018130049

Experiment 8

AIM

To establish connection between server client using sockets.

THEORY

What is socket programming?

Socket programming is a way of connecting two nodes on a network to communicate with each other. One socket (node) listens on a particular port at an IP, while other socket reaches out to the other to form a connection. Server forms the listener socket while client reaches out to the server. They form the backbones of web browsing.[1]

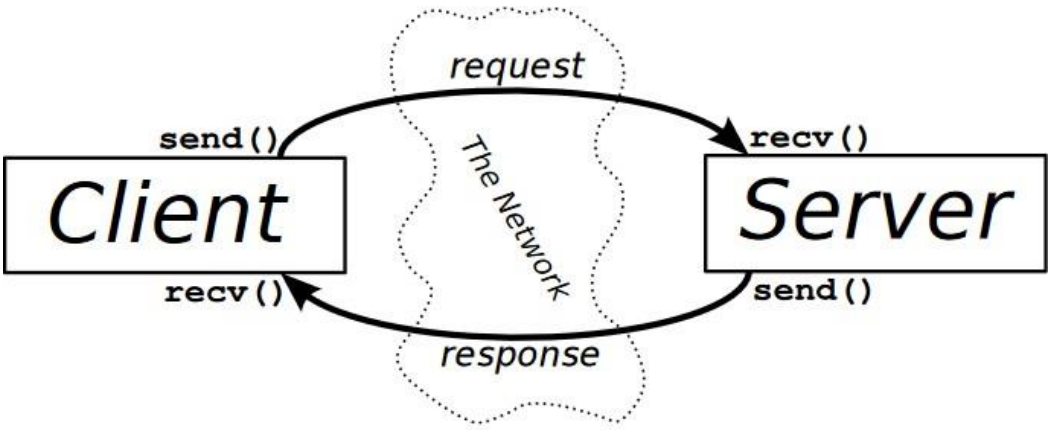


Figure 2: Client-Server Interaction.

The exchange of information between client and server is summarized in the above diagram.

A server has a bind() method which binds it to a specific ip and port so that it can listen to incoming requests on that ip and port. A server has a listen() method which puts the server into listen mode. This allows the server to listen to incoming connections. And last a server has an accept() and close() method. The accept method initiates a connection with the client and the close method closes the connection with the client.

A client has a connect() method which opens a TCP connection to the hostname on the port. Client also has a recv() method which receives the message.

CODE

Server:

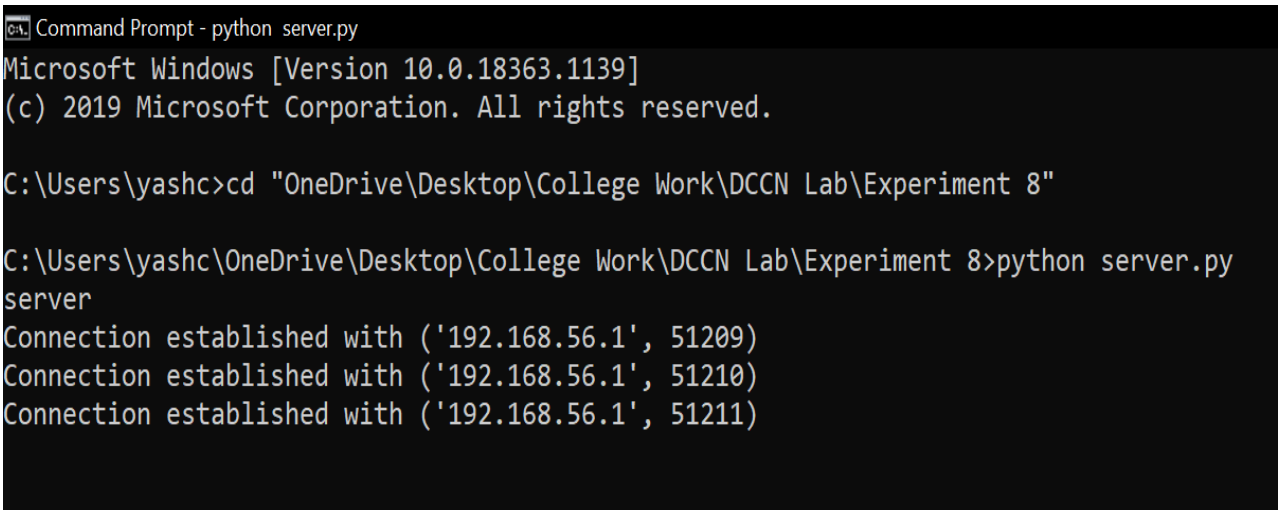
```
import socket

print(“server”)
s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
s.bind((socket.gethostname(), 8000))
s.listen(5)

while True:
    clientsocket, address = s.accept()
    print(f'Connection established with {address}')
    clientsocket.send(bytes('Hello World!', 'utf-8'))
    clientsocket.close()
```

Client:

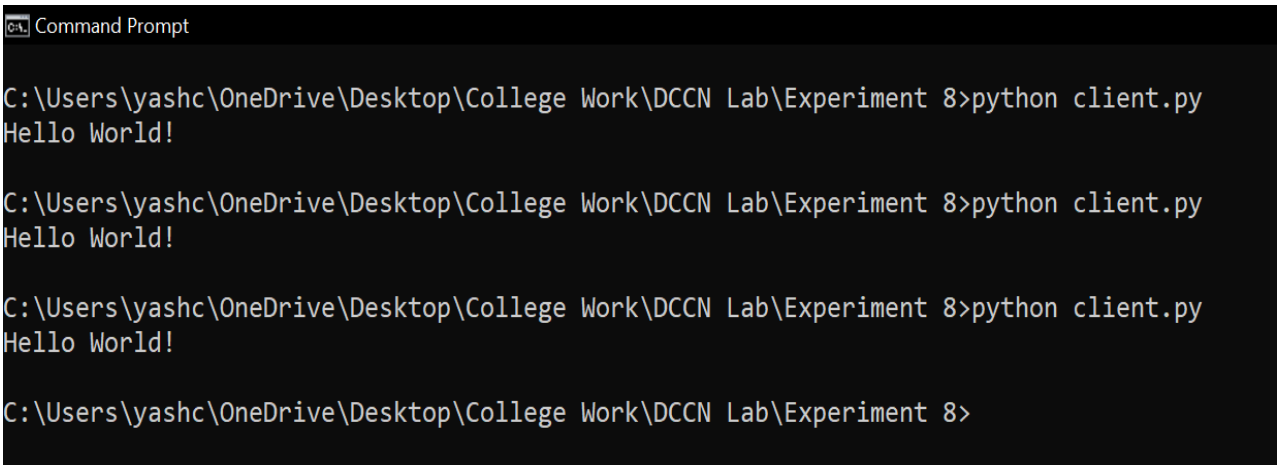
```
import socket

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

OUTPUT

Server:



Client:



CONCLUSION

I understood the basics of socket programming and established a simple connection between client and server using the same.

REFERENCES

[1] https://www.geeksforgeeks.org/socket-programming-python/