Sarika Singh

TE Comps

UID – 2018130053

Batch D

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]
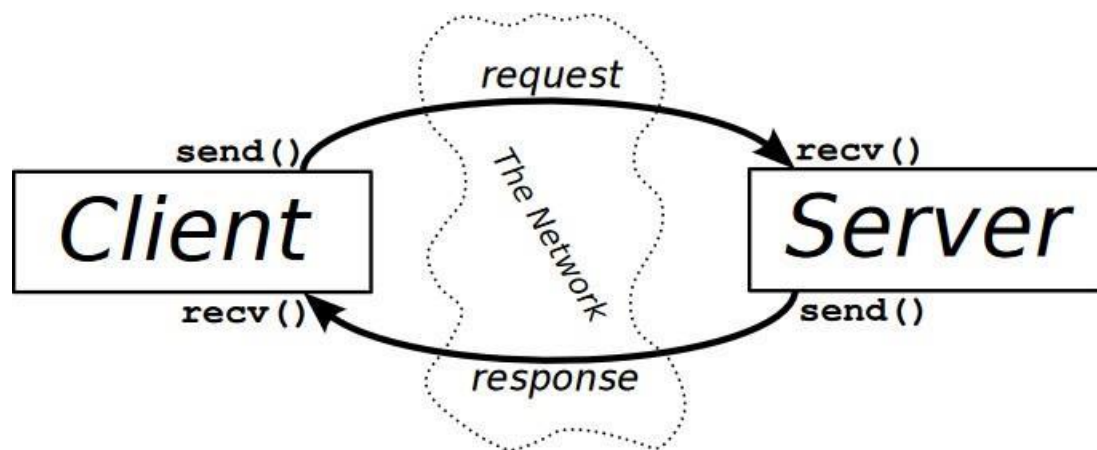

Figure 2: Client-Server Interaction.

 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.

Code –

client.py

```python
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'))
```

server.py

```python
import socket

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 DCCN LAB!', 'utf-8'))
    clientsocket.close()
```

Output -

Server active, client not started -


```
C:\Windows\System32\cmd.exe - python server.py

D:\Sarika\Sem 5\DCCN Lab\8>python server.py
```
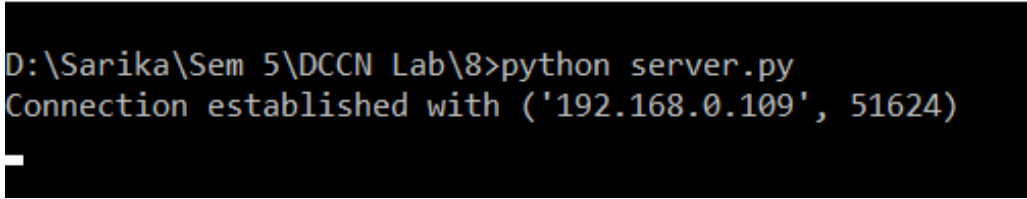
Client started -


```
C:\Windows\System32\cmd.exe

D:\Sarika\Sem 5\DCCN Lab\8>python client.py
Hello DCCN LAB!

D:\Sarika\Sem 5\DCCN Lab\8>
```

Server output after client started -

C:\Windows\System32\cmd.exe - python server.py

```
D:\Sarika\Sem 5\DCCN Lab\8>python server.py
Connection established with ('192.168.0.109', 51624)
```

Conclusion

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

References

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