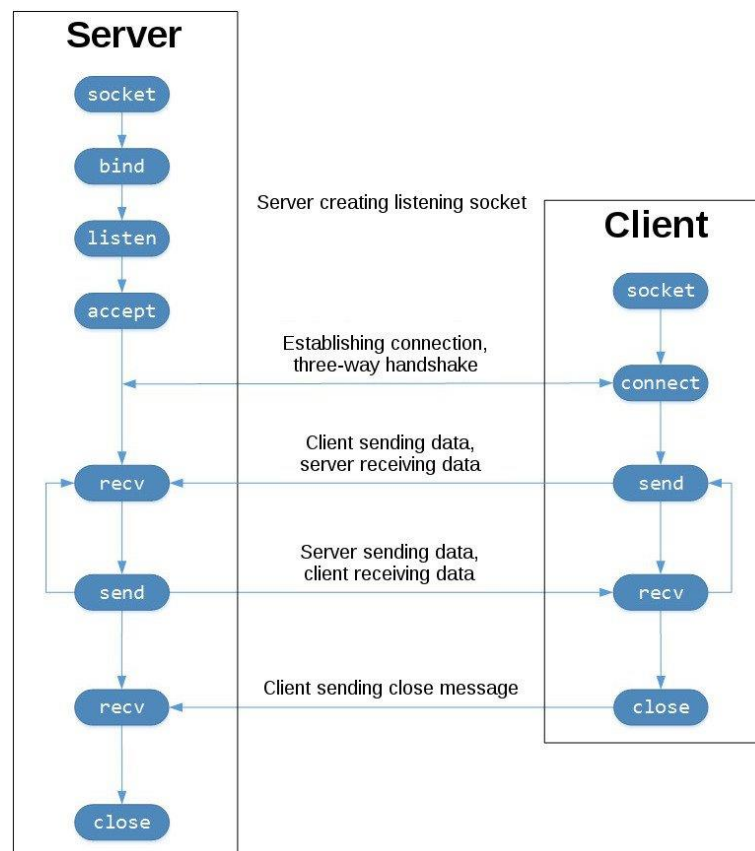Nikita Chitre
TE Comps
Batch A
UID:- 2018130006
Roll no:- 08
Date: 07-11-20

Aim:- To establish client server communication using socket programming.

Theory:-

- ➢ Sockets and the socket API are used to send messages across a network.
- ➢ They provide a form of inter-process communication (IPC).
- ➢ The network can be a logical, local network to the computer, or one that's physically connected to an external network, with its own connections to other networks.
- ➢ 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. [1]

TCP Socket Flow

Python Code [2]:-
Server program: server.py

```python
import socket

# creation of socket object
s = socket.socket()
print("Socket successfully created")

# reserving a port on the computer
port = 12345

# binding ip address and port
# empty string means server will listen to requests coming from other computer
s on the network
s.bind(('', port))
print("socket binded to %s" %(port) )

# puting the socket into listening mode
s.listen(5)
print("socket is listening")

while True:

    # Establishing a  connection with client.
    c, addr = s.accept()
    print('Got connection from', addr )

    # sending a thank you message to the client.
    c.send(b'Thank you for connecting')
```

Client Program:- client.py

```python
import socket

# Creating a socket object
s = socket.socket()

# Defining the port on which we want to connect
port = 12345

# connecting to the server on local computer
s.connect(('127.0.0.1', port))

# receiving data from the server
print(s.recv(1024) )
# closing the connection
s.close()
```

Output :-

```
C:\Users\Nikita>cd C:\Users\Nikita\OneDrive\Documents-DESKTOP-G5NACDG-DESKTOP-G5NACDG\Nikita doc\DCCN

C:\Users\Nikita\OneDrive\Documents-DESKTOP-G5NACDG-DESKTOP-G5NACDG\Nikita doc\DCCN>python server.py
Socket successfully created
socket binded to 12345
socket is listening
Got connection from ('127.0.0.1', 57590)

```

```
C:\Users\Nikita>cd C:\Users\Nikita\OneDrive\Documents-DESKTOP-G5NACDG-DESKTOP-G5NACDG\Nikita doc\DCCN

C:\Users\Nikita\OneDrive\Documents-DESKTOP-G5NACDG-DESKTOP-G5NACDG\Nikita doc\DCCN>python client.py
b'Thank you for connecting'

C:\Users\Nikita\OneDrive\Documents-DESKTOP-G5NACDG-DESKTOP-G5NACDG\Nikita doc\DCCN>
```

Conclusion:-

I understood the concept of socket programming and established a communication between client and server.

References:-

1) https://realpython.com/python-sockets/
2) https://www.geeksforgeeks.org/socket-programming-python/