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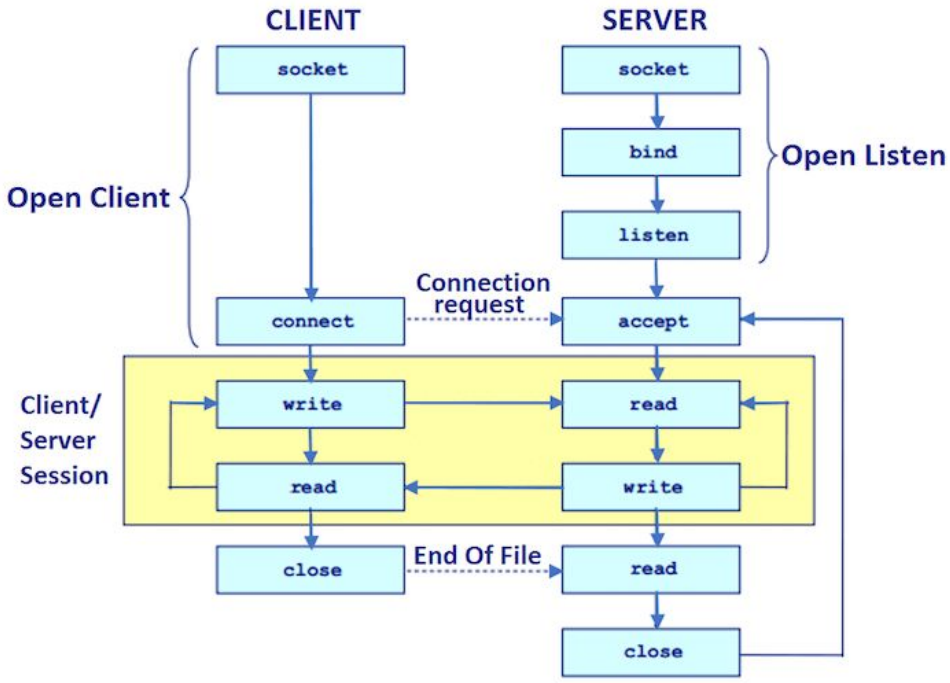
EXPERIMENT 8

AIM: To establish the connection between server and client using sockets.

THEORY:
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 are the real backbones behind web browsing.[1]



An overview of socket programming[2]

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.[1]

CODE:

server.py

```
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('Thank you for connecting', 'utf-8'))
    clientsocket.close()
```

client.py

```
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'))
```

OUTPUT:

Server

```
C:\Users\MONA\Desktop\DCCN Lab\DCCN Lab 8>python server.py
Connection established with ('192.168.56.1', 60557)
Connection established with ('192.168.56.1', 61162)
Connection established with ('192.168.56.1', 61178)
Connection established with ('192.168.56.1', 61189)
```

Client

```
C:\Users\MONA\Desktop\DCCN Lab\DCCN Lab 8>python client.py
Thank you for connecting

C:\Users\MONA\Desktop\DCCN Lab\DCCN Lab 8>python client.py
Thank you for connecting

C:\Users\MONA\Desktop\DCCN Lab\DCCN Lab 8>python client.py
Thank you for connecting

C:\Users\MONA\Desktop\DCCN Lab\DCCN Lab 8>python client.py
Thank you for connecting

C:\Users\MONA\Desktop\DCCN Lab\DCCN Lab 8>
```

CONCLUSION:

Sockets can be used to establish a simple connection between client and server and make them communicate with each other.

REFERENCES:

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