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Lab 8: Socket Programming

Aim: To implement Socket Programming and establish a connection between client and server.

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. In simpler terms there is a server and a client.

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('Hello World!', '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.py**

```
C:\Users\LENOVO\Documents\SPIT\Degree Sem 5\DCCN>python server.py
Connection established with ('192.168.1.104', 58307)
```

- **client.py**

```
C:\Users\LENOVO\Documents\SPIT\Degree Sem 5\DCCN>python client.py
Hello World!
```

Conclusion:

I understood how to successfully establish a connection between client and server using socket programming.