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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

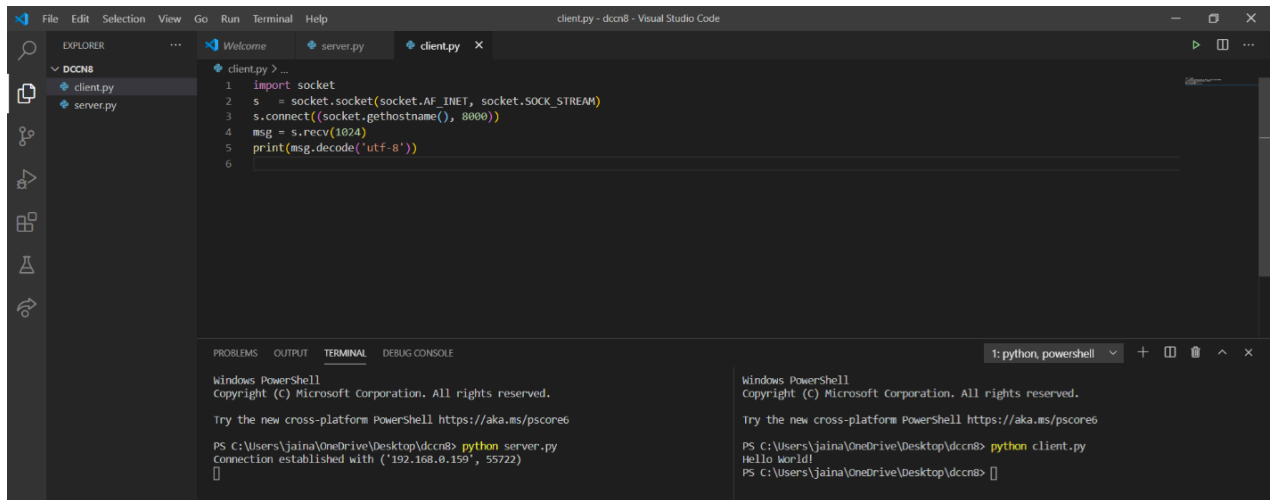
s= socket.socket(socket.AF_INET, socket.SOCK_STREAM)
s.bind((socket.gethostname(), 8000))
s.listen(5)

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:



The screenshot shows the Visual Studio Code interface with a file explorer on the left displaying 'client.py' and 'server.py' under a folder named 'DCCN8'. The main editor window shows the code for 'client.py':

```
1 import socket
2 s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
3 s.connect((socket.gethostname(), 8000))
4 msg = s.recv(1024)
5 print(msg.decode('utf-8'))
6
```

Below the editor, the TERMINAL panel is active, showing two PowerShell sessions. The left session runs 'python server.py' and outputs 'Connection established with ("192.168.0.159", 55722)'. The right session runs 'python client.py' and outputs 'Hello world!'.

CONCLUSION:

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