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Lab 8: Socket Programming

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

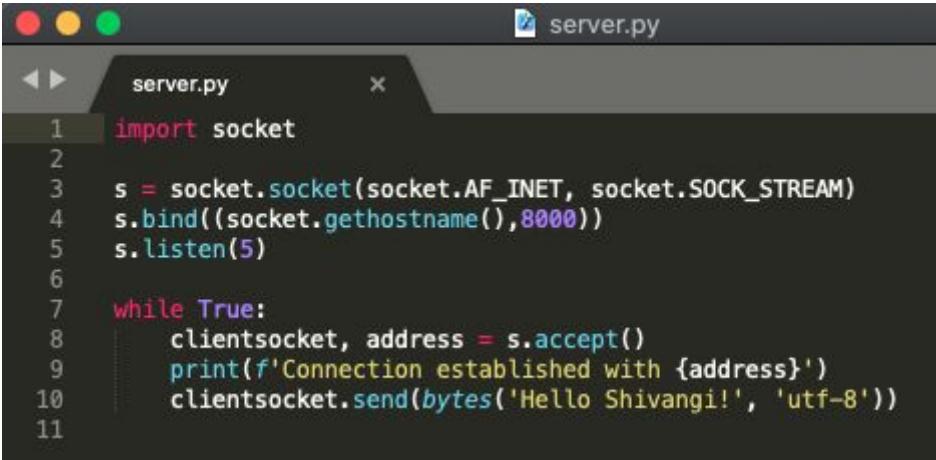
Theory:

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 another socket reaches out to the other to form a connection. Server forms the listener socket while the 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)

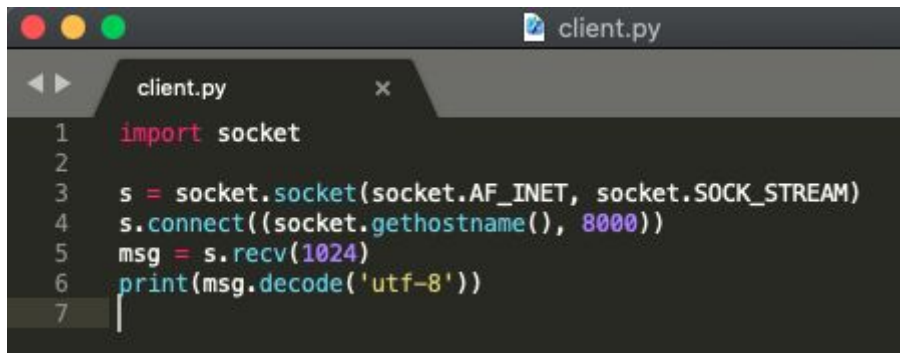
while True:
 clientsocket, address = s.accept()
 print(f'Connection established with {address}') clientsocket.send(bytes('Hello World!', 'utf-8'))



```
server.py
1 import socket
2
3 s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
4 s.bind((socket.gethostname(), 8000))
5 s.listen(5)
6
7 while True:
8     clientsocket, address = s.accept()
9     print(f'Connection established with {address}')
10    clientsocket.send(bytes('Hello Shivangi!', 'utf-8'))
11
```

- **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'))
```



```
client.py
1 import socket
2
3 s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
4 s.connect((socket.gethostname(), 8000))
5 msg = s.recv(1024)
6 print(msg.decode('utf-8'))
7
```

Output:

- **server.py**

```
[Mohini@Mohinis-MacBook-Pro Codes % python3 server.py
Connection established with ('127.0.0.1', 49988)
█
```

- **client.py**

```
[Mohini@Mohinis-MacBook-Pro Codes % python3 client.py
Hello Shivangi!
Mohini@Mohinis-MacBook-Pro Codes % █
```

Conclusion:

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