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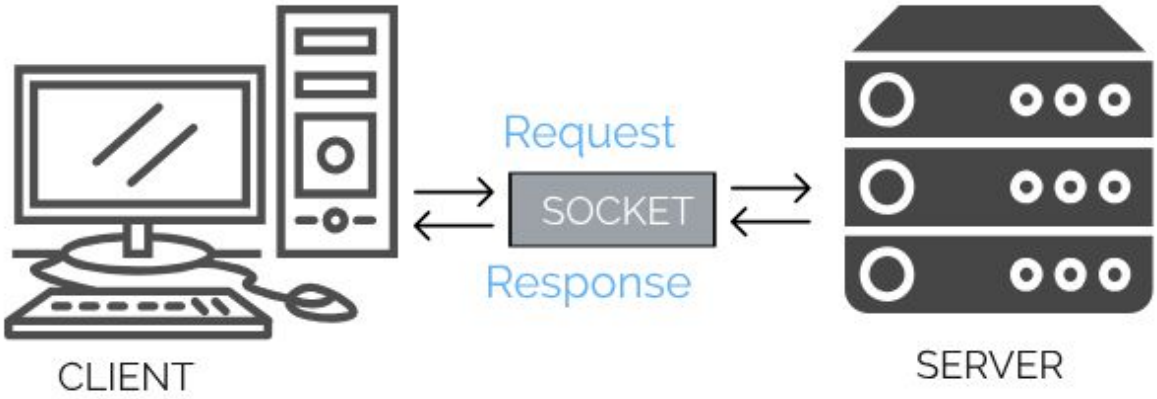
AIM

To establish connection between client and server using sockets

THEORY

Socket Programming

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 client reaches out to the server.They form the backbones of web browsing.



The exchange of information between client and server is summarized in the above diagram

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.

CODE

Server.py

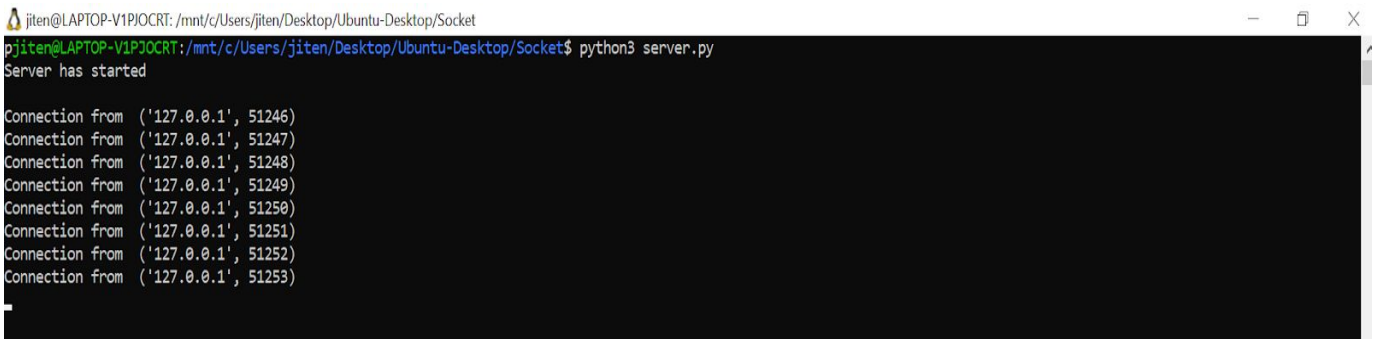
```
import socket

server_socket = socket.socket()

port = 12345

server_socket.bind(("127.0.0.1", port))

server_socket.listen(5)

print("Server has started")
print("")

while True:

    client, address = server_socket.accept()

    print("Connection from ",address)

    client.send(bytes("Connection Successful !!!", "utf-8"))

    client.close()
```

Client.py

```
import socket

client_socket = socket.socket()

port = 12345

client_socket.connect(("127.0.0.1", port))

message = client_socket.recv(1024)

print(message.decode("utf-8"))

client_socket.close()
```

OUTPUT

Server



Client

```
jiten@LAPTOP-V1PJOCRT: /mnt/c/Users/jiten/Desktop/Ubuntu-Desktop/Socket
jiten@LAPTOP-V1PJOCRT:/mnt/c/Users/jiten/Desktop/Ubuntu-Desktop/Socket$ python3 client.py
Connection Successful !!!
jiten@LAPTOP-V1PJOCRT:/mnt/c/Users/jiten/Desktop/Ubuntu-Desktop/Socket$ python3 client.py
Connection Successful !!!
jiten@LAPTOP-V1PJOCRT:/mnt/c/Users/jiten/Desktop/Ubuntu-Desktop/Socket$ python3 client.py
Connection Successful !!!
jiten@LAPTOP-V1PJOCRT:/mnt/c/Users/jiten/Desktop/Ubuntu-Desktop/Socket$ python3 client.py
Connection Successful !!!
jiten@LAPTOP-V1PJOCRT:/mnt/c/Users/jiten/Desktop/Ubuntu-Desktop/Socket$ python3 client.py
Connection Successful !!!
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Connection Successful !!!
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Connection Successful !!!
jiten@LAPTOP-V1PJOCRT:/mnt/c/Users/jiten/Desktop/Ubuntu-Desktop/Socket$ python3 client.py
Connection Successful !!!
jiten@LAPTOP-V1PJOCRT:/mnt/c/Users/jiten/Desktop/Ubuntu-Desktop/Socket$
```

Conclusion

I understood the basics of socket programming and established a simple connection between client and server using the same.

References

1] https://www.geeksforgeeks.org/socket-programming-python/