Weekly Assignment-8

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Title: Introduction to Socket Programming

Aim:

To create a server that listens to port 5003 using stream sockets and a client that connects to the server. The client sends a simple text message "Hello" to the server, and the server responds with the same message before closing the connection.

Description:

Socket programming provides an interface for interprocess communication between two processes that may be running on the same machine or on different machines within a network using the TCP/IP protocol. Sockets were introduced in the Berkeley Software Distribution (BSD) version of Unix and are categorized into client and server sockets. Each socket is associated with a socket descriptor.

In Python, a socket is created using the socket module as follows:

Where:

- *AF_INET represents an IPv4 address family.*

- *SOCK_STREAM represents a TCP connection (stream-based socket).*

A server follows these steps:

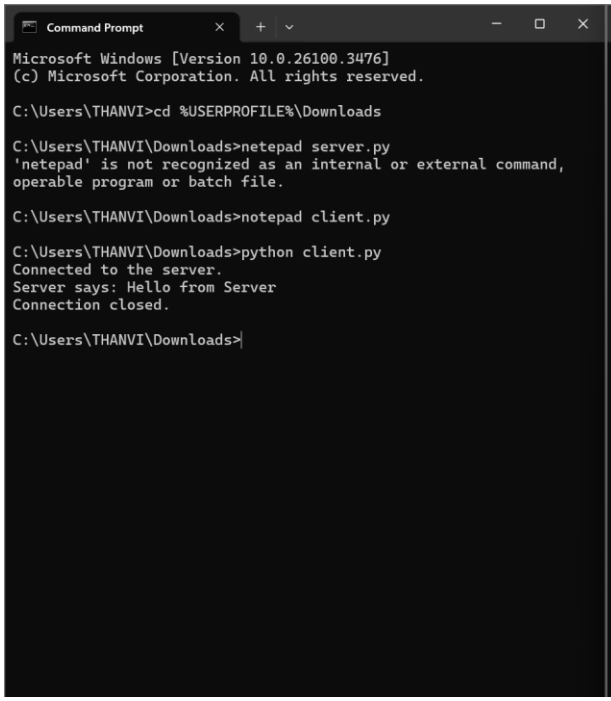
1. *Create a socket.*
2. *Bind it to an address and port.*
3. *Listen for incoming connections.*
4. *Accept a connection.*
5. *Receive and send data.*
6. *Close the socket.*

A client follows these steps:

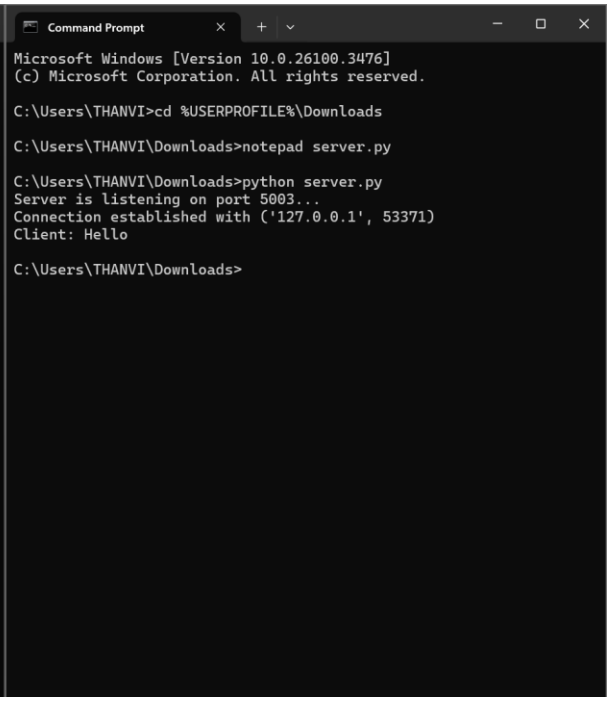
1. *Create a socket.*
2. *Connect to the server.*
3. *Send and receive data.*
4. *Close the socket.*

Procedure:

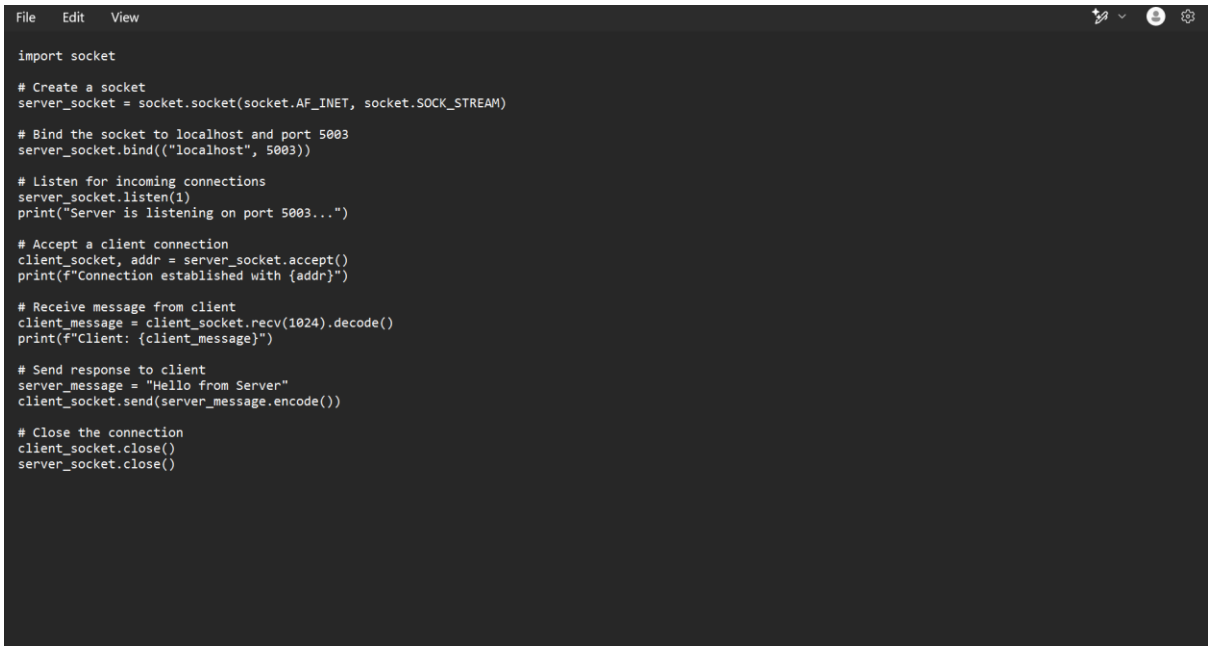
Client output:



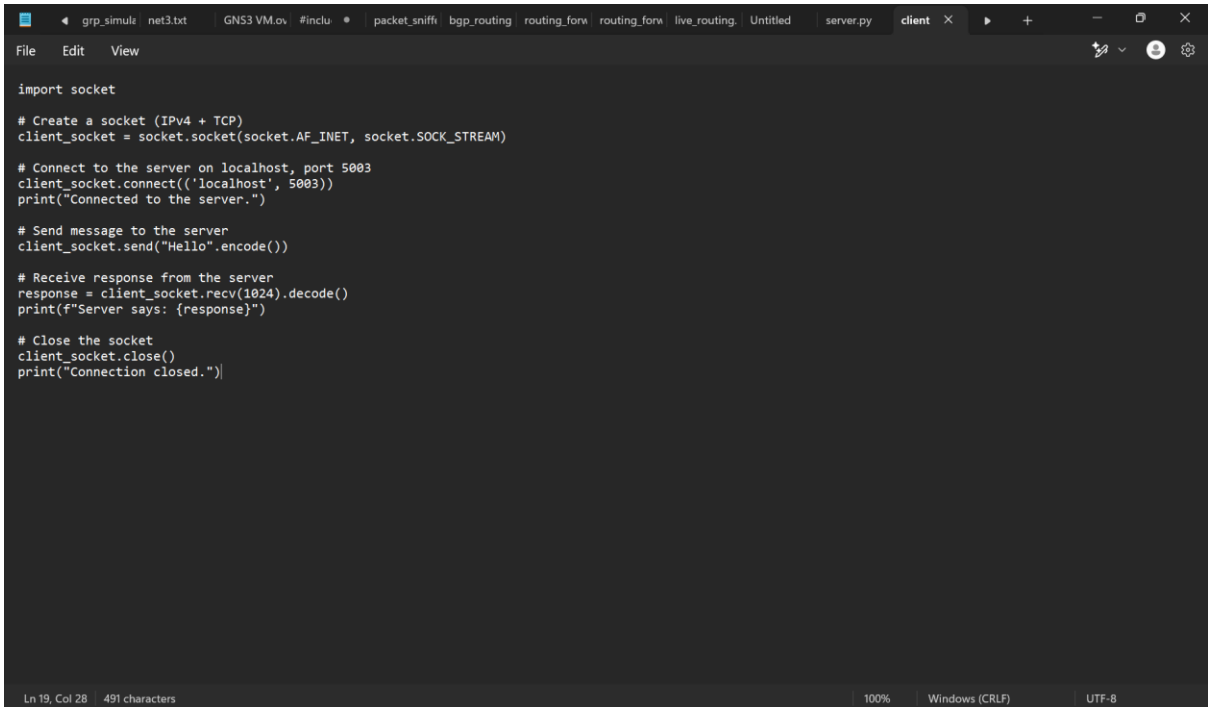
Server output:



Server code :



Client code:



Conclusion:

The server successfully listened on port 5003, accepted a connection from the client, received the "Hello" message, and responded back with the same message. The connection was then closed successfully, demonstrating basic socket communication in Python.