Client Server Communication using UDP as Transport Layer Protocol

Rwithik Manoj, Roll No. 53

Aim

To implement Client-Server communication using Socket Programming and UDP as transport layer protocol.

Theory

UDP (User Datagram Protocol) is an alternative communications protocol to Transmission Control Protocol (TCP) used primarily for establishing low-latency and loss-tolerating connections between applications on the internet. UDP enables process-to-process communication. UDP sends messages, called datagrams, and is considered a best-effort mode of communications. It is considered a connectionless protocol because it doesn't require a virtual circuit to be established before any data transfer occurs.

Server & Client - Since the UDP is a connectionless protocol, they do not require a connection to get established prior to data transmission or reception. Hence data can be sent between them directly.

Code

Server Code:

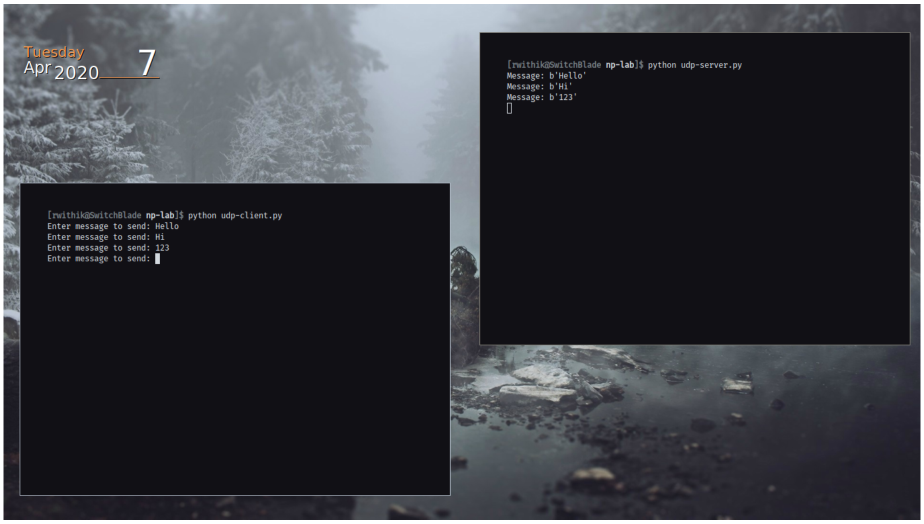
```
import socket

serverSock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
serverSock.bind(("127.0.0.1", 6789))

while True:
    data, addr = serverSock.recvfrom(1024)
    print("Message:", data)
```

Client Code:

```
import socket
```

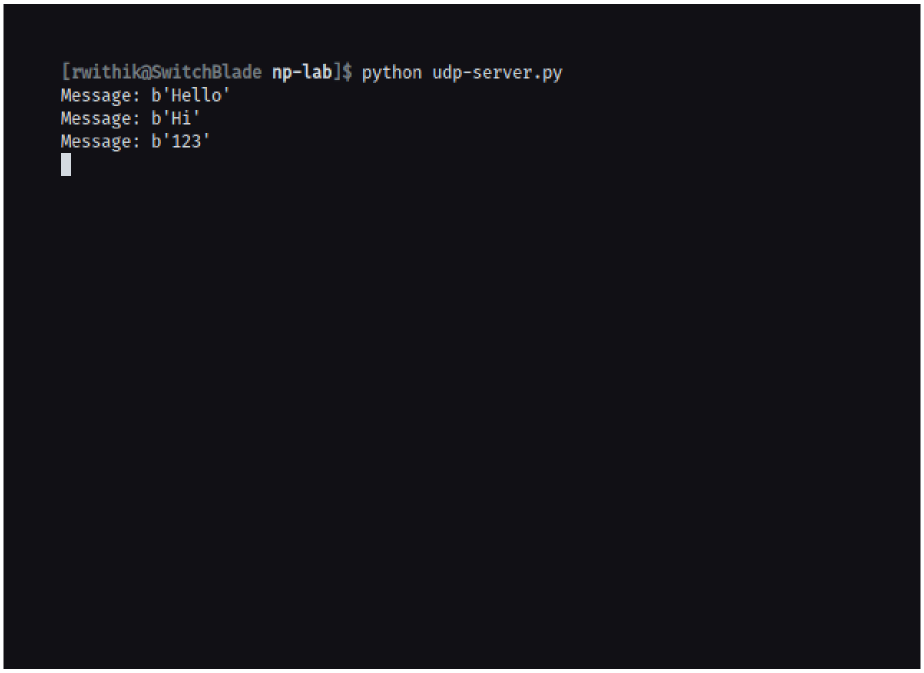
```
UDP_IP_ADDRESS = "127.0.0.1"
UDP_PORT_NO = 6789
message = "Hello, Server"

clientSock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
while True:
    message = input("Enter message to send: ")
    clientSock.sendto(message.encode(), (UDP_IP_ADDRESS, UDP_PORT_NO))
```

Output

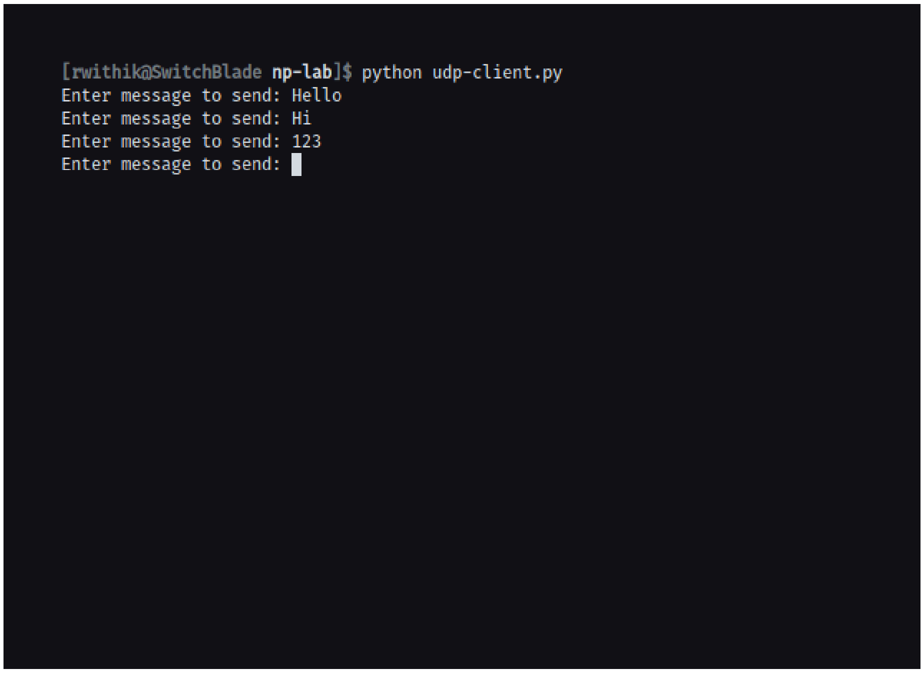


```
[rwithik@SwitchBlade np-lab]$ python udp-server.py
Message: b'Hello'
Message: b'Hi'
Message: b'123'
▯
```

```
[rwithik@SwitchBlade np-lab]$ python udp-client.py
Enter message to send: Hello
Enter message to send: Hi
Enter message to send: 123
Enter message to send: █
```



```
[rwithik@SwitchBlade np-lab]$ python udp-server.py
Message: b'Hello'
Message: b'Hi'
Message: b'123'
```



```
[rwithik@SwitchBlade np-lab]$ python udp-client.py
Enter message to send: Hello
Enter message to send: Hi
Enter message to send: 123
Enter message to send: 
```