

Assignment - 04

- 1) Write a program to find the IP address of the system.

```
import socket
print("Host Name:", socket.gethostname(), "\nIp Address:", socket.gethostbyname(socket.gethostname()))
```

- 2) Write a socket program for implementation of echo.

Server side code:

```
import socket
s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
s.bind(("127.0.0.1", 9090))
s.listen()
(c, cip) = s.accept()
c.send(c.recv(1024))
s.close()
```

Client side code:

```
import socket
c = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
c.connect(("127.0.0.1", 9090))
data = input()
c.send(data.encode())
dataFromServer = c.recv(1024)
print(dataFromServer.decode())
c.close()
```

- 3) Write a client-server application for chat using TCP.

Server side code:

```
import socket
s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
s.bind(("127.0.0.1", 9090))
s.listen()
while True:
    (c, cip) = s.accept()
    data = c.recv(1024).decode()
    print("Client:", data)
    data = input("Enter Text: ")
    c.send(data.encode())
```

Client side code:

```
import socket
c = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
c.connect(("127.0.0.1", 9090))
while True:
    data = input("Enter Text: ")
    c.send(data.encode())
    data = c.recv(1024).decode()
    print("Server:", data)
```

- 4) Write a program using client server socket programming: Client needs to authenticate itself by entering a server defined string as a password (like OTP) and then to say Hi to server. Server replies with a Hello. Press any key to exit.

Server side code:

```
import socket
s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
s.bind(("127.0.0.1", 9090))
s.listen()
(c, cip) = s.accept()
c.send("Enter OTP:".encode())
otp = c.recv(1024).decode()
if otp == '8894':
    c.send("You are Authenticated".encode())
    data = c.recv(1024).decode()
    print("Client:", data)
    data = input("Enter Text: ")
    c.send(data.encode())
else:
    c.send("You are Authenticated".encode())
s.close()
```

Client side code:

```
import socket
c = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
c.connect(("127.0.0.1", 9090))
data = c.recv(1024).decode()
print(data, end=" ")
otp = input()
c.send(otp.encode())
data = c.recv(1024).decode()
print(data)
```

```
if data == "You are Authenticated":
    data = input("Enter Text: ")
    c.send(data.encode())
    data = c.recv(1024).decode()
    print("Server:", data)
else:
    c.close()
```