

## CEL 51, DCCN, Monsoon 2020

### Lab 8: Socket Programming

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**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 other socket reaches out to the other to form a connection. Server forms the listener socket while client reaches out to the server. They are the real backbones behind web browsing. In simpler terms there is a server and a client.

Methods	Description
<code>socket.socket()</code>	used to create sockets (required on both server as well as client ends to create sockets)
<code>socket.accept()</code>	used to accept a connection. It returns a pair of values (conn, address) where conn is a new socket object for sending or receiving data and address is the address of the socket present at the other end of the connection
<code>socket.bind()</code>	used to bind to the address that is specified as a parameter
<code>socket.close()</code>	used to mark the socket as closed
<code>socket.connect()</code>	used to connect to a remote address specified as the parameter
<code>socket.listen()</code>	enables the server to accept connections

#### CODE:

- **server.py**

```
import socket

s = socket.socket()
print("Socket successfully created")
port = 12346

s.bind(('', port))
print ("socket binded to %s" %(port))

s.listen(5)
print ("socket is listening")

while True:

    c, addr = s.accept()
    print('Got connection from', addr)
    c.sendall(b'Thank you for connecting')
    c.close()
```

- **client.py**

```
import socket

s = socket.socket()
port = 12346

s.connect(('127.0.0.1', port))
print(s.recv(1024))
s.close()
```

## OUTPUT:

- **server.py**

```
C:\Users\darsh\Desktop>python server.py
Socket successfully created
Traceback (most recent call last):
  File "server.py", line 7, in <module>
    s.bind('', port)
  OSError: [WinError 10048] Only one usage of each socket address (protocol/network address/port) is normally permitted

C:\Users\darsh\Desktop>python server.py
Socket successfully created
socket binded to 12346
socket is listening
Got connection from ('127.0.0.1', 6040)
```

- **client.py**

```
C:\Users\darsh\Desktop>python client.py
b'Thank you for connecting'

C:\Users\darsh\Desktop>
```

## CONCLUSION:

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