

## Experiment 8

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### AIM

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To establish connection between server client using sockets.

### THEORY

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Sockets allow communication between two different processes on the same or different machines. To be more precise, it's a way to talk to other computers using standard Unix file descriptors. In Unix, every I/O action is done by writing or reading a file descriptor. A file descriptor is just an integer associated with an open file and it can be a network connection, a text file, a terminal, or something else.

To a programmer, a socket looks and behaves much like a low-level file descriptor. This is because commands such as `read()` and `write()` work with sockets in the same way they do with files and pipes.

Sockets were first introduced in 2.1BSD and subsequently refined into their current form with 4.2BSD. The sockets feature is now available with most current UNIX system releases.

A Unix Socket is used in a client–server application framework. A server is a process that performs some functions on request from a client. Most of the application–level protocols like FTP, SMTP, and POP3 make use of sockets to establish connection between client and server and then for exchanging data.[1]

## CODE

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### Server:

```
import socket

s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
s.bind((socket.gethostname(), 8000))
s.listen(5)

while True:
    clientsocket, address = s.accept()
    print(f'Connection established with {address}')
    clientsocket.send(bytes('Hello World!', 'utf-8'))
    clientsocket.close()
```

### Client:

```
import socket

s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
s.connect((socket.gethostname(), 8000))
```

```
msg = s.recv(1024)
print(msg.decode('utf-8'))
```

## OUTPUT

**Server:**

```
D:\>cd collegeWork

D:\collegeWork>python server.py
Connection established with ('192.168.0.110', 49275)
Connection established with ('192.168.0.110', 49276)
Connection established with ('192.168.0.110', 49278)
Connection established with ('192.168.0.110', 49279)
Connection established with ('192.168.0.110', 49280)
Connection established with ('192.168.0.110', 49281)
Connection established with ('192.168.0.110', 49282)
```

**Client:**

```
D:\>cd collegeWork  
  
D:\collegeWork>python client.py  
Hello World!  
  
D:\collegeWork>python client.py  
Hello World!  
  
D:\collegeWork>python client.py  
Hello World!  
  
D:\collegeWork>python client.py  
Hello World!  
  
D:\collegeWork>python client.py  
Hello World!
```

## CONCLUSION

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I learned about socket programming and implemented a simple python program for the same.

## REFERENCES

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[1]

[https://www.tutorialspoint.com/unix\\_sockets/what\\_is\\_socket.htm](https://www.tutorialspoint.com/unix_sockets/what_is_socket.htm)