Craig Hulsebus

tcpServer Code (Python)

```
import socket

def Main():
	host = '127.0.0.1'
	port = 5000

	s = socket.socket()
	s.bind((host, port))
	print "Server Online."

	s.listen(1)
	c, addr = s.accept()
	print "Connection from: " + str(addr)
	while True:
		data = s.recv(1024)
		if not data:
			break
		print "from connected user: " + str(data)
		data = str(data).upper()
		print "sending: " + str(data)
		c.send(data)
	s.close()

if __name__ == '__main__':
	Main()
```

tcpClient Code

```
import socket

def Main():
	host = '127.0.0.1'
	port = 5000

	s = socket.socket()
	s.connect((host, port))

	message = raw_input("-> ")
	while message != 'q':
		s.send(message)
		data = s.recv(1024)
		print 'Recieved from server: ' + str(data)
		message = raw_inpt("-> ")
	s.close()

if __name__ == '__main__':
	Main()
```

TCP Connection Images

1. Server is starting up.

```
[hulsebuc@athena:14]> vim udpServer.py
[hulsebuc@athena:15]> vim tcpServer.py
[hulsebuc@athena:16]> python tcpServer.py
Server Online.
```

2. Client side has connected to server.

```
[hulsebuc@athena:11]> python tcpClient.py
-> 
```

3. Server has established connection with the client.

```
[hulsebuc@athena:15]> vim tcpServer.py
[hulsebuc@athena:16]> python tcpServer.py
Server Online.
Connection from: ('127.0.0.1', 37352)
```

4. Client sends message to the server and receives a response.

```
[hulsebuc@athena:11]> python tcpClient.py
-> hello, my name is craig
Recieved from server: HELLO, MY NAME IS CRAIG
-> 
```

5. Server receives message from client and sends back a response.

```
[hulsebuc@athena:16]> python tcpServer.py
Server Online.
Connection from: ('127.0.0.1', 37352)
from connected user: hello, my name is craig
sending: HELLO, MY NAME IS CRAIG
```

Craig Hulsebus

udpServer Code (Python)

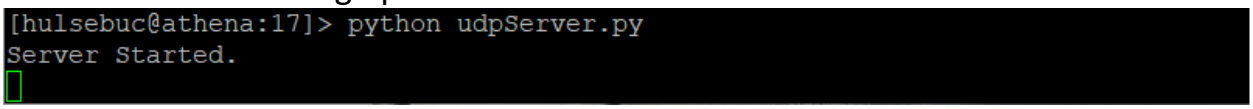
```
import socket

def Main():
	host = '127.0.0.1'
	port = 5000

	s = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
	s.bind((host,port))

	print "Server Started."
	while True:
		data, addr = s.recvfrom(1024)
		print "message from: " + str(addr)
		print "from connected user: " + str(data)
		data = str(data).upper()
		print "sending: " + str(data)
		c.sendto(data, addr)
	s.close()

if __name__ == '__main__':
	Main()
```

udpClient Code

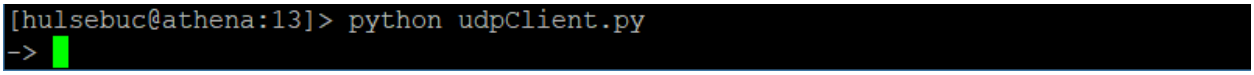
```
import socket

def Main():
	host = '127.0.0.1'
	port = 5001

	s = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
	s.bind((host,port))

	message = raw_input("-> ")
	while message != 'q':
		s.sendto(message, server)
		data, addr = s.recvfrom(1024)
		print "Recieved from server: " + str(data)
		message = raw_input("-> ")
	s.close()

if __name__ == '__main__':
	Main()
```

UDP Connection Images

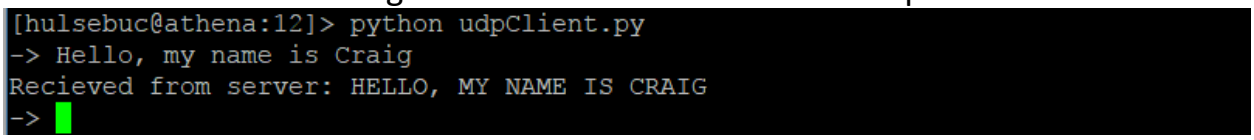
1. Server is starting up.



2. Client side has connected to server



3. Client sends message to the server and receives a response.



4. Server receives message from client and sends back a response.