Socket Programing # 1

Goal: Practice makes perfect! Socket programming assignments are to help you review and apply your conceptual knowledge from this class.

TCP – server.py code and output.
Here is my screenshot of the server side of TCP which prints 'The server is ready to receive' when you run the python script.

~ — ssh chutend@athena.ecs.csus.edu

```
 1 from socket import *
 2 serverPort = 12779
 3 serverSocket = socket(AF_INET,SOCK_STREAM)
 4 serverSocket.bind(('',serverPort))
 5 serverSocket.listen(1)
 6 print 'The server is ready to receive'
 7 while True:
 8         connectionSocket, addr = serverSocket.accept()
 9         sentence = connectionSocket.recv(1024)
10         capitalizedSentence = sentence.upper()
11         connectionSocket.send(capitalizedSentence)
12         connectionSocket.close()
~
~
```

~ — ssh chutend@athena.ecs.csus.edu

```
[[chutend@athena:121]> pwd
/gaia/class/student/chutend/csc138/code/hw1/tcp
[[chutend@athena:122]> ls
client.py  server.py
[[chutend@athena:123]> python server.py
The server is ready to receive
```

TCP – client.py code and output

Here in the screenshot, we can see the TCP client using 'athena.ecs.csus.edu' as the server and my port number being 12779. This python script prompt user for an input string(which should be in lowercase) and return the input string in uppercase form.

~ — ssh chutend@athena.ecs.csus.edu

```
 1 from socket import *
 2 serverName = 'athena.ecs.csus.edu'
 3 serverPort = 12779
 4 clientSocket = socket(AF_INET, SOCK_STREAM)
 5 clientSocket.connect((serverName,serverPort))
 6 sentence = raw_input('Input lowercase sentence:')
 7 clientSocket.send(sentence)
 8 modifiedSentence = clientSocket.recv(1024)
 9 print 'From Server:', modifiedSentence
10 clientSocket.close()
~
~
```

~ — ssh chutend@athena.ecs.csus.edu

```
[[chutend@athena:63]> pwd
/gaia/class/student/chutend/csc138/code/hw1/tcp
[[chutend@athena:64]> ls
client.py  server.py
[[chutend@athena:65]> python client.py
[Input lowercase sentence:hello world!
From Server: HELLO WORLD!
 [chutend@athena:66]>
```

UDP – server.py code and output

Attached here is a screenshot of sever python script of UDP which prints the message 'The server is ready to receive' when the python script is run as shown in the second screenshot below.

~ — ssh chutend@athena.ecs.csus.edu

```
 1 from socket import *
 2 serverPort = 12897
 3 serverSocket = socket(AF_INET, SOCK_DGRAM)
 4 serverSocket.bind(('', serverPort))
 5 print 'The server is ready to receive'
 6 while True:
 7         message, clientAddress = serverSocket.recvfrom(2048)
 8         modifiedMessage = message.upper()
 9         serverSocket.sendto(modifiedMessage, clientAddress)
~
~
```

```
~ — ssh chutend@athena.ecs.csus.edu
[[chutend@athena:83]> pwd
/gaia/class/student/chutend/csc138/code/hw1/udp
[[chutend@athena:84]> ls
client.py  server.py
[[chutend@athena:85]> python server.py
The server is ready to receive
```

UDP – client.py code and output

Here is the screenshot of the UDP client python code which prompts the user to input a string in lowercase letter and then returns the input string back to the console in all uppercase letter(as shown in the second screenshot).

```
~ — ssh chutend@athena.ecs.csus.edu
 1 from socket import *
 2 serverName = 'athena.ecs.csus.edu'
 3 serverPort = 12897
 4 clientSocket = socket(AF_INET, SOCK_DGRAM)
 5 message = raw_input('Input lowercase sentence:')
 6
 7 clientSocket.sendto(message.encode(),(serverName, serverPort))
 8 modifiedMessage, serverAddress = clientSocket.recvfrom(2048)
 9
10 print modifiedMessage.decode()
11 clientSocket.close()
12
~
~
```

```
~ — ssh chutend@athena.ecs.csus.edu
[chutend@athena:42]> pwd
/gaia/class/student/chutend/csc138/code/hw1/udp
[chutend@athena:43]> ls
client.py  server.py
[chutend@athena:44]> python client.py
Input lowercase sentence:this is a practice sentence.
THIS IS A PRACTICE SENTENCE.
[chutend@athena:45]>
```