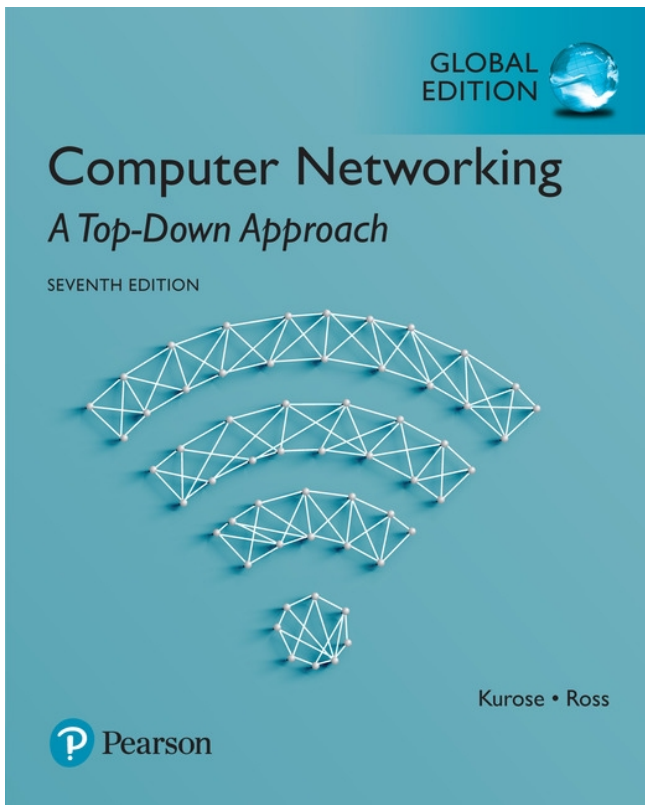


**Goal:** The following code implements a client-server applications using TCP. Analyse the source code and run the application. Insert comments in code.



Support book:

*Computer Networking: A  
Top Down Approach*  
7<sup>th</sup> Edition, Global Edition  
Jim Kurose, Keith Ross  
Pearson  
April 2016

# Socket programming *with TCP*

## TCP: is connection-oriented

- Need for handshake and connection establishment
- One end of the TCP connection is attached to the client socket (IP address+port) and the other end is attached to a server socket
- One side just drops data into the connection via its socket

## TCP: data is reliably transmitted

### application viewpoint

TCP provides reliable transfer of data stream between client and server

# Example: TCP client

```
from socket import *
serverName = 'servername'
serverPort = 12000
clientSocket = socket(AF_INET, SOCK_STREAM)
clientSocket.connect((serverName,serverPort))
sentence = raw_input('Input lowercase sentence:')
clientSocket.send(sentence)
modifiedSentence = clientSocket.recv(1024)
print 'From Server:', modifiedSentence
clientSocket.close()
```

# Example: TCP server

```
from socket import *
serverPort = 12000
serverSocket = socket(AF_INET,SOCK_STREAM)
serverSocket.bind(('',serverPort))
serverSocket.listen(1)
print 'The server is ready to receive'
while 1:
    connectionSocket, addr = serverSocket.accept()
    sentence = connectionSocket.recv(1024)
    capitalizedSentence = sentence.upper()
    connectionSocket.send(capitalizedSentence)
    connectionSocket.close()
```