Using a socket to GET a file

Instructions to run:
  Used Python 3
  Navigate to directory with file
  Input "./connect_socket.py" into the terminal and hit enter

```python
from socket import *

# Get Request For File
getRequest= "GET /wireshark-labs/INTRO-wireshark-file1.html HTTP/1.1\r\nHost:gaia.cs.umass.edu\r\n\r\n"

# Remote Host with cannonical name and port number
remoteHost = 'gaia.cs.umass.edu'
remotePort = 80

# creating client socket. 1st param is the address type, 2nd param is defining the socket as TCP
clientSocket = socket(AF_INET, SOCK_STREAM)

# Initial Handshake with remote server to establish new port for client
clientSocket.connect((remoteHost, remotePort))

# encode - changes from string type to byte type
# sending http file request
clientSocket.send(getRequest.encode())

# recieving data from server, 1st param is the number of bytes to recieve
serverFile = clientSocket.recv(2048)

print(serverFile.decode())
# Telling Server to close TCP connectioon
clientSocket.close()
```

```
PROBLEMS 136    OUTPUT    TERMINAL    DEBUG CONSOLE

Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.13 mod_perl/2.0.11 Perl/v5.16.3
Last-Modified: Wed, 13 Jan 2021 06:59:01 GMT
ETag: "51-5b8c2ac925385"
Accept-Ranges: bytes
Content-Length: 81
Content-Type: text/html; charset=UTF-8

<html>
Congratulations!  You've downloaded the first Wireshark lab file!
</html>

PS C:\Users\donts\Desktop> []
```

```
PROBLEMS 136    OUTPUT    TERMINAL    DEBUG CONSOLE

Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.13 mod_perl/2.0.11 Perl/v5.16.3
Last-Modified: Wed, 13 Jan 2021 06:59:01 GMT
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<html>
Congratulations!  You've downloaded the first Wireshark lab file!
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PS C:\Users\donts\Desktop> []
```

GET the data for a large file

Instructions to run:

      Used Python 3

      Navigate to directory with file

      Input "./largeFilePythonSocket.py" into the terminal and hit enter

```
C:\Users\donts\Desktop>largeFilePythonSocket.py
HTTP/1.1 200 OK
Date: Wed, 13 Jan 2021 23:39:36 GMT
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.13 mod_perl/2.0.11 Perl/v5.16.3
Last-Modified: Wed, 13 Jan 2021 06:59:01 GMT
ETag: "1194-5b8c2ac92305d"
Accept-Ranges: bytes
Content-Length: 4500
Content-Type: text/html; charset=UTF-8

<html><head>
<title>Historical Documents:THE BILL OF RIGHTS</title></head>


<body bgcolor="#ffffff" link="#330000" vlink="#666633">
<p><br>
</p>
<p></p><center><b>THE BILL OF RIGHTS</b><br>
   <em>Amendments 1-10 of the Constitution</em>
</center>

<p>The Conventions of a number of the States having, at the time of adopting
the Constitution, expressed a desire, in order to prevent misconstruction
or abuse of its powers, that further declaratory and restrictive clauses
should be added, and as extending the ground of public confidence in the
Government will best insure the beneficent ends of its institution; </p><p>  Resolved, by the Senate and House of Representatives of the United
States of America, in Congress assembled, two-thirds of both Houses concurring,
that the following articles be proposed to the Legislatures of the several
States, as amendments to the Constitution of the United States; all or any
of which articles, when ratified by three-fourths of the said Legislatures,
to be valid to all intents and purposes as part of the said Constitution,
namely:    </p><p><a name="1"><strong><h3>Amendment I</h3></strong></a>
```

First Few Lines

```
</p><p><a name="8"><strong><h3>Amendment VIII</h3></strong></a>

<p></p><p>Excessive bail shall not be required, nor excessive fines
imposed, nor cruel and unusual punishments inflicted.

</p><p><a name="9"><strong><h3>Amendment IX</h3></strong></a>

<p></p><p>The enumeration in the Constitution, of certain rights, shall
not be construed to deny or disparage others retained by the people.

</p><p><a name="10"><strong><h3>Amendment X</h3></strong></a>

<p></p>
<p>The powers not delegated to the United States by the Constitution, nor prohibited
  by it to the states, are reserved to the states respectively, or to the people.</p>
</body></html>

C:\Users\donts\Desktop>
```
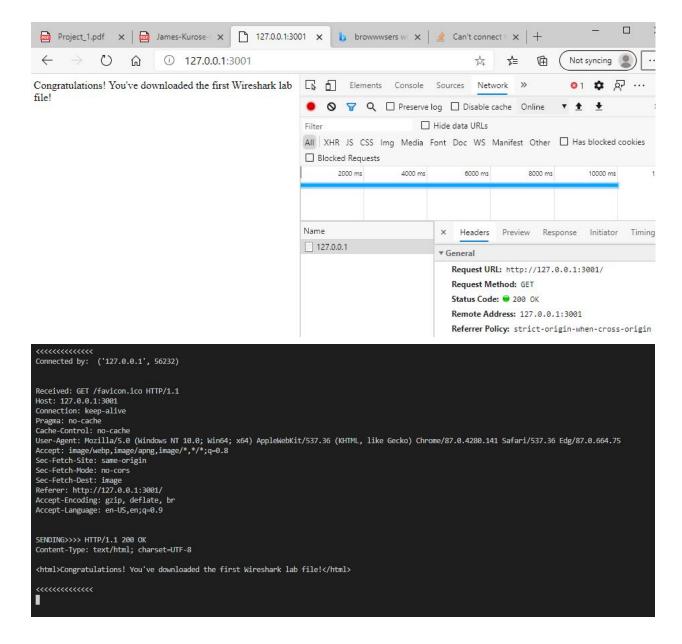
Last Few Lines

Http_server.py

Instructions to run:

      Used Python 3

      Navigate to directory with file

      Input "./http_server.py" into the terminal and hit enter

      Then go to 127.0.0.1:3001

      Port number is 3001

```
<<<<<<<<<<<<<<<
Connected by:  ('127.0.0.1', 56232)


Received: GET /favicon.ico HTTP/1.1
Host: 127.0.0.1:3001
Connection: keep-alive
Pragma: no-cache
Cache-Control: no-cache
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/87.0.4280.141 Safari/537.36 Edg/87.0.664.75
Accept: image/webp,image/apng,image/*,*/*;q=0.8
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: no-cors
Sec-Fetch-Dest: image
Referer: http://127.0.0.1:3001/
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9


SENDING>>>> HTTP/1.1 200 OK
Content-Type: text/html; charset=UTF-8

<html>Congratulations! You've downloaded the first Wireshark lab file!</html>

<<<<<<<<<<<<<<
```

Questions:
If the client and server try to talk over a TCP socket at the same time what happens?