Testing Environment

Server IP: 192.168.0.12

Client IP: 192.168.0.15

Part I

Source code:

```
#import socket module
from socket import *
serverSocket = socket(AF_INET, SOCK_STREAM)
#Prepare a sever socket
#Fill in start
serverSocket.setsockopt(SOL_SOCKET, SO_REUSEADDR, 1)
port=12209
serverSocket.bind(('', port))
serverSocket.listen(1)
#Fill in end
while True:
    #Establish the connection
    print 'Ready to serve...'
    connectionSocket, addr = serverSocket.accept()
    try:
        message = connectionSocket.recv(1024).decode()#Fill in start
#Fill in end
        filename=message.split()[1]
        f=open(filename[1:])
        outputdata=f.readlines()#Fill in start #Fill in en
        length=0
        for i in range(0, len(outputdata)):
            length+=len(outputdata[i])
        #Send one HTTP header line into socket
        #Fill in start
        header="HTTP/1.1 200 OK\r\n"+\
            "Content-Type: text/html; charset=utf-8\r\n"+\
```

```
            "Content-Length: %d\r\n\r\n"
        connectionSocket.send(header % (length))
        #Fill in end
        #Send the content of the requested file to the client
        for i in range(0, len(outputdata)):
            connectionSocket.send(outputdata[i])

        connectionSocket.send("\r\n")
        connectionSocket.close()
    except IOError:
        #Send response message for file not found
        #Fill in start
        body="HTTP/1.1 404 Not Found\r\n"+\
            "Content-Type: text/plain; charset=utf-8\r\n"+\
            "Content-Length: %d\r\n\r\n%s"
        outputdata="404 Not Found."
        connectionSocket.send(body % (len(outputdata),outputdata))
        #Fill in end
        #Close client socket
        #Fill in start
        connectionSocket.close()
        #Fill in end

serverSocket.close()
```

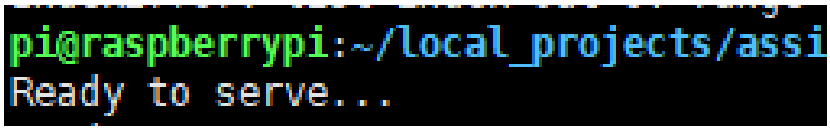
HTML source:

```
<html>
<body>
<h1>Hello World</h1>
<h2>Author: Tianpeng Xia</h2>
<body/>
</html>
```

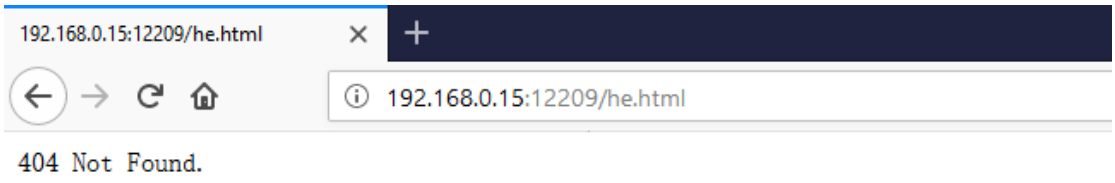
What is in the folder:

```
pi@raspberrypi:~/local_projects/assignments/assignment1
total 8
-rw-r--r-- 1 pi pi   85 Jan 31 19:51 HelloWorld.html
-rw-r--r-- 1 pi pi 1752 Jan 31 20:13 WebServer_v1.py
```

Start running the server:



Try to access something not there:



Try to access "HelloWorld.HTML":

Part II

Source code:

```
#import socket module
from socket import *
from threading import *
serverSocket = socket(AF_INET, SOCK_STREAM)
#Prepare a sever socket
#Fill in start
serverSocket.setsockopt(SOL_SOCKET, SO_REUSEADDR, 1)
port=12209
serverSocket.bind(('', port))
serverSocket.listen(1)
#Fill in end

#BOF function to process a request
def do_request(connectionSocket,addr):
    try:
        message = connectionSocket.recv(1024).decode()#Fill in start
#Fill in end
        filename=message.split()[1]
        f=open(filename[1:])
        outputdata=f.readlines()#Fill in start #Fill in end
        runtime_filename='HelloWorldPort_%s.html' % (addr[1],)
        runtime_file=open(runtime_filename,'w')
        for i in range(0, len(outputdata)):
            runtime_file.write(outputdata[i])
        f.close()
        runtime_content="<p><b>YOUR IP IS: %s</b></p><p><b>THE PORT USED
BY YOUR BROWSER IS: %s</b></p>" % (addr[0],addr[1])
        runtime_file.write(runtime_content);
        runtime_file.close();
        #open the newly created file
        f=open(runtime_filename)
        outputdata=f.readlines()
        f.close()
        length=0
        for i in range(0, len(outputdata)):
            length+=len(outputdata[i])
        #Send one HTTP header line into socket
```

```
        #Fill in start
        header="HTTP/1.1 200 OK\r\n"+\
            "Content-Type: text/html; charset=utf-8\r\n"+\
            "Content-Length: %d\r\n\r\n"
        connectionSocket.send(header % (length))
        #Fill in end
        #Send the content of the requested file to the client
        for i in range(0, len(outputdata)):
            connectionSocket.send(outputdata[i])

        connectionSocket.send("\r\n")
        connectionSocket.close()
    except IOError:
        #Send response message for file not found
        #Fill in start
        body="HTTP/1.1 404 Not Found\r\n"+\
            "Content-Type: text/plain; charset=utf-8\r\n"+\
            "Content-Length: %d\r\n\r\n%s"
        outputdata="404 Not Found."
        connectionSocket.send(body % (len(outputdata),outputdata))
        #Fill in end
        #Close client socket
        #Fill in start
        connectionSocket.close()
        #Fill in end
#EOF function to process a request

while True:
    #Establish the connection
    print 'Ready to serve...'
    connectionSocket, addr = serverSocket.accept()
    t=Thread(target=do_request,args=(connectionSocket,addr))
    t.start()
serverSocket.close()
```

HTML source:

```
<html>
<body>
<h1>Hello World</h1>
<h2>Author: Tianpeng Xia</h2>
<body/>
</html>
```

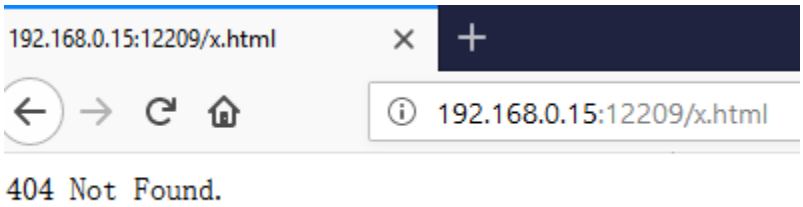
What is the folder before the test:

```
pi@raspberrypi:~/local_projects/assignments/assignment1/p
total 8
-rw-r--r-- 1 pi pi   85 Jan 31 19:51 HelloWorld.html
-rw-r--r-- 1 pi pi 2555 Jan 31 22:06 WebServer_v2.py
```

Start running the server:

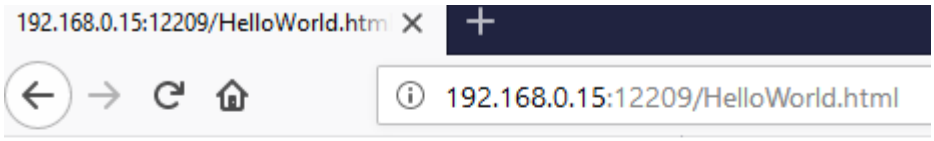
```
pi@raspberrypi:~/local_projects/assignments/as
Ready to serve...
```

Try to access something not there:



404 Not Found.

Try to access "HelloWorld.html":

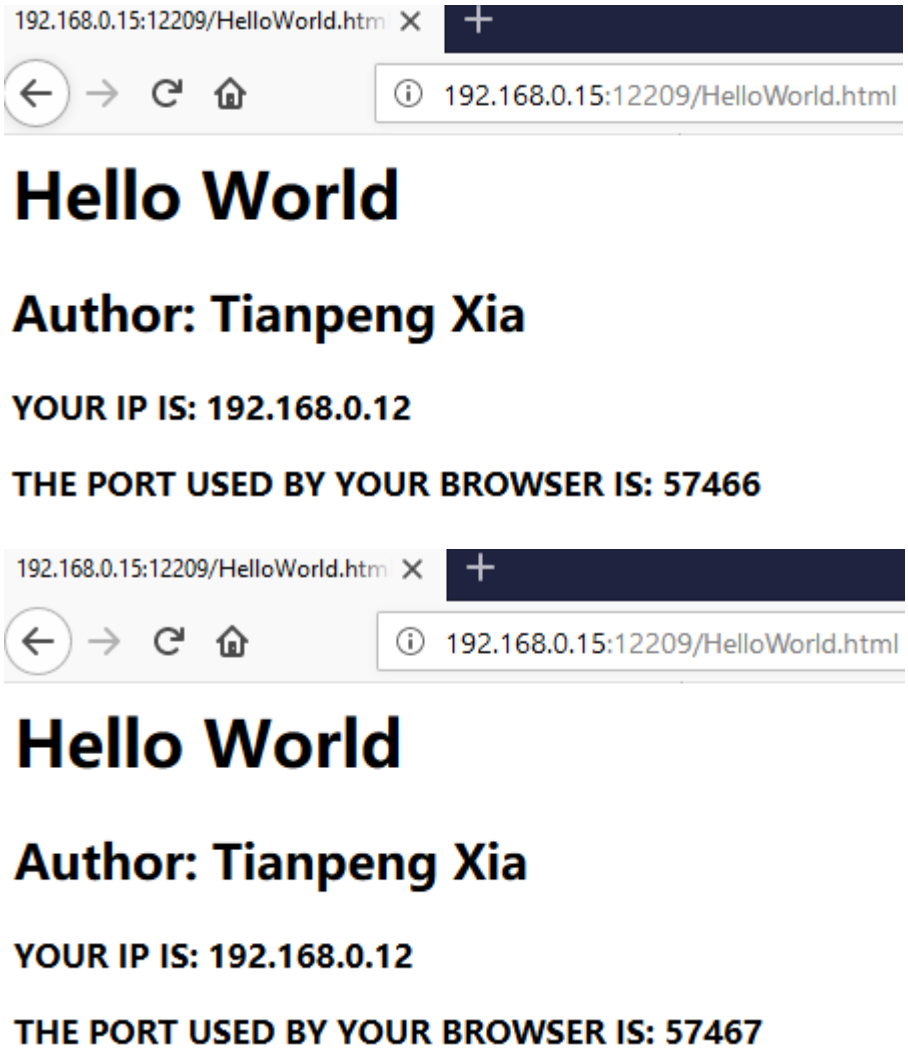


Hello World

Author: Tianpeng Xia

YOUR IP IS: 192.168.0.12

THE PORT USED BY YOUR BROWSER IS: 57463



What files are added after the test:

```
pi@raspberrypi:~/local_projects/assignments/assignment1/part2
total 20
-rw-r--r-- 1 pi pi   85 Jan 31 19:51 HelloWorld.html
-rw-r--r-- 1 pi pi  176 Feb  3 01:22 HelloWorldPort_57463.html
-rw-r--r-- 1 pi pi  176 Feb  3 01:22 HelloWorldPort_57466.html
-rw-r--r-- 1 pi pi  176 Feb  3 01:22 HelloWorldPort_57467.html
-rw-r--r-- 1 pi pi 2555 Jan 31 22:06 WebServer_v2.py
```

All the HelloWorldPort_XXXXX files were created at runtime.