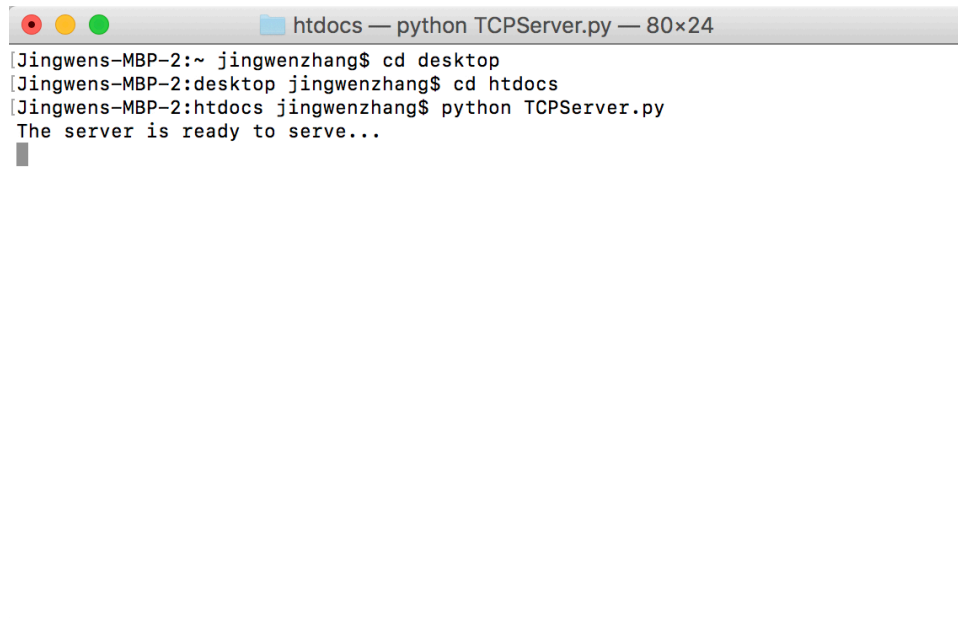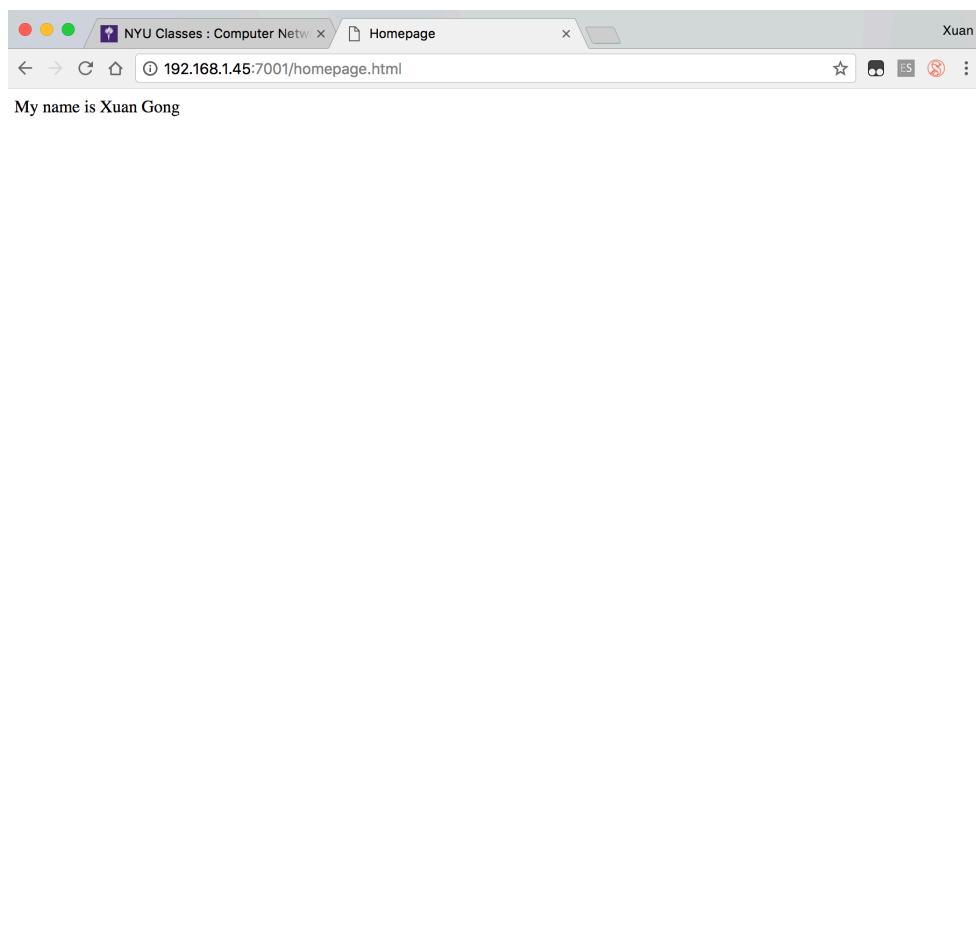Screen Shots:

I use two computers which are connected to the same router to do this assignment. One is client, one is server.

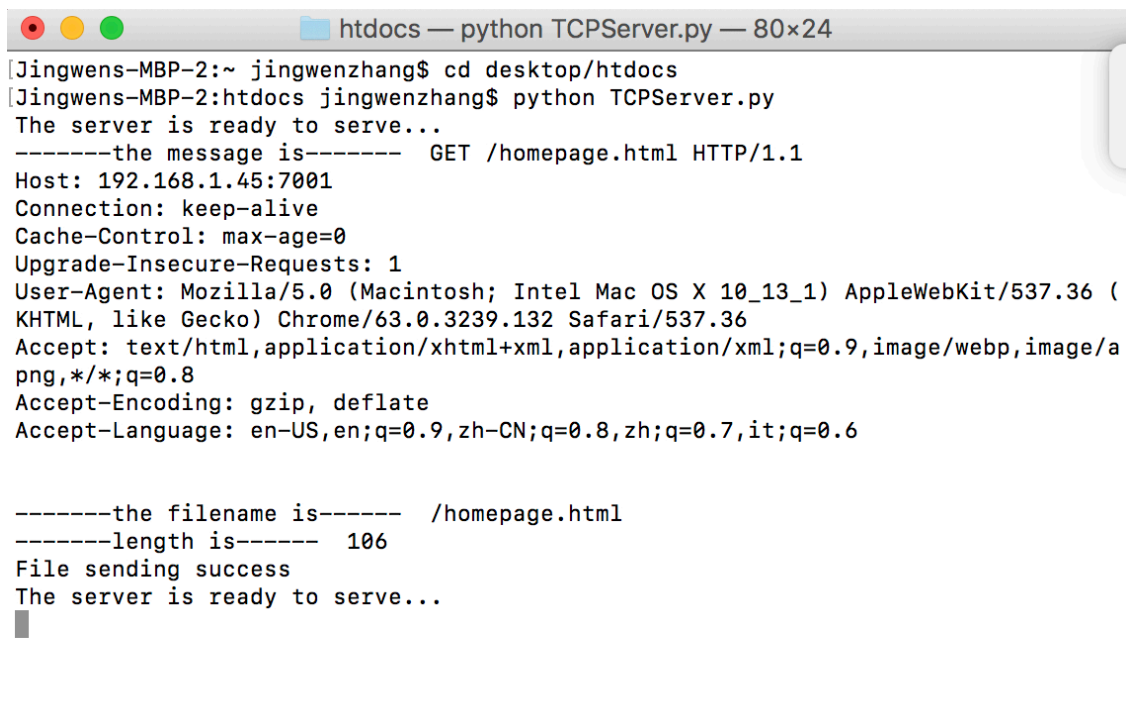First, we start the server on the server side:

Then, we open a browser on the client side and provide a valid URL. The client can get the file that is present at the server:
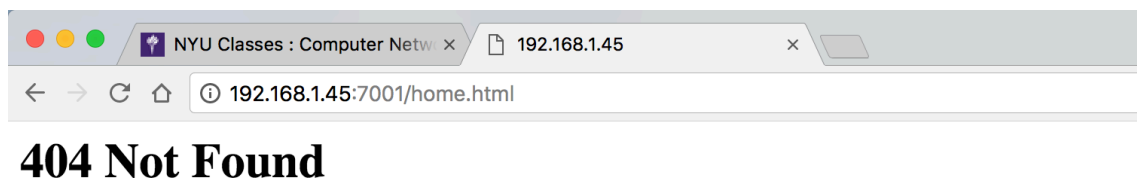
Now the server shows the message:

```
● ● ●                 📁 htdocs — python TCPServer.py — 80×24
[Jingwens-MBP-2:~ jingwenzhang$ cd desktop/htdocs
[Jingwens-MBP-2:htdocs jingwenzhang$ python TCPServer.py
The server is ready to serve...
-------the message is-------  GET /homepage.html HTTP/1.1
Host: 192.168.1.45:7001
Connection: keep-alive
Cache-Control: max-age=0
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_1) AppleWebKit/537.36 (
KHTML, like Gecko) Chrome/63.0.3239.132 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/a
png,*/*;q=0.8
Accept-Encoding: gzip, deflate
Accept-Language: en-US,en;q=0.9,zh-CN;q=0.8,zh;q=0.7,it;q=0.6


-------the filename is------  /homepage.html
-------length is------   106
File sending success
The server is ready to serve...
█
```

Then, we try to get a file that is not present at the server, the client can get a message:

```
● ● ●   🟣 NYU Classes : Computer Netw ×   📄 192.168.1.45        ×

←  →  C  ⌂   ⓘ 192.168.1.45:7001/home.html
```

404 Not Found

Now, the server shows the message:

```
The server is ready to serve...
-------the message is-------  GET /home.html HTTP/1.1
Host: 192.168.1.45:7001
Connection: keep-alive
Cache-Control: max-age=0
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_1) AppleWebKit/537.36 (
KHTML, like Gecko) Chrome/63.0.3239.132 Safari/537.36
Upgrade-Insecure-Requests: 1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/a
png,*/*;q=0.8
Accept-Encoding: gzip, deflate
Accept-Language: en-US,en;q=0.9,zh-CN;q=0.8,zh;q=0.7,it;q=0.6


-------the filename is------  /home.html
The server is ready to serve...
```

During the process, I use wireshark to capture the packets:

The client IP is 192.168.1.37 and the server IP is 192.168.1.45. In the picture above, I tried to get homepage.html, we can see the HTTP 200 OK success status response code, the request from the client has succeeded. And then I tried to get home.html, "404 Not Found" message returned since there were no such file on the server.