

Distributed Systems  
Programming Assignment-1  
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**Description on the program:**

By accepting and handling HTTP requests, this program serves as an HTTP web server. The program is multithreaded, so as soon as the connection is approved, a new request can be made. Three seconds are spent with the connection before it is shut down (has a timeout of 5 seconds). The HTTP/1.1 protocol is used to respond to HTTP requests.

The server's port number and the document root are both parameters that the program accepts. A new thread is started for the client when the server accepts a connection. Individual requests for the HTML page and image files are made by the client. Following the establishment of the connection, the socket is kept active for Five seconds. The connection parses the HTTP request and provides the result as either an image or an HTML file. The index.html is the default file if the user doesn't enter an explicit filename. The connection analyzes the HTTP request, producing either an image or an HTML file as the output. If the user doesn't provide a clear filename, the index.html file is used by default.

**List of files Submitted with ReadMe file:**

```
vishnuvardhankathika@Vishnus-MacBook-Pro Documents % cd clientServer
vishnuvardhankathika@Vishnus-MacBook-Pro clientServer % ls -ls
total 7144
928 -rw-r--r--@ 1 vishnuvardhankathika staff 471680 Feb 7 17:23 house.gif
96 -rw-r--r--@ 1 vishnuvardhankathika staff 48544 Feb 7 17:23 house.jpeg
6064 -rw-r--r--@ 1 vishnuvardhankathika staff 3102917 Feb 7 17:22 house1.jpg
32 -rw-r--r--@ 1 vishnuvardhankathika staff 12305 Feb 7 17:25 images.jpeg
8 -rw-r--r--@ 1 vishnuvardhankathika staff 318 Feb 7 17:29 index.html
0 drwxr-xr-x 4 vishnuvardhankathika staff 128 Feb 7 16:30 scu
16 -rw-rw-r--@ 1 vishnuvardhankathika staff 4282 Feb 7 17:06 webserver.py
vishnuvardhankathika@Vishnus-MacBook-Pro clientServer %
```

**Files in SCU folder:**

```
vishnuvardhankathika@Vishnus-MacBook-Pro scu % ls -la
total 128
drwxr-xr-x 4 vishnuvardhankathika staff 128 Feb 7 16:30 .
drwxr-xr-x 10 vishnuvardhankathika staff 320 Feb 7 17:35 ..
-rw-r--r-- 1 vishnuvardhankathika staff 21201 Feb 7 16:30 academics.html
-rw-r--r-- 1 vishnuvardhankathika staff 40832 Feb 7 16:12 index.html
vishnuvardhankathika@Vishnus-MacBook-Pro scu %
```

**Instructions:**

The follow command are used to run the server.

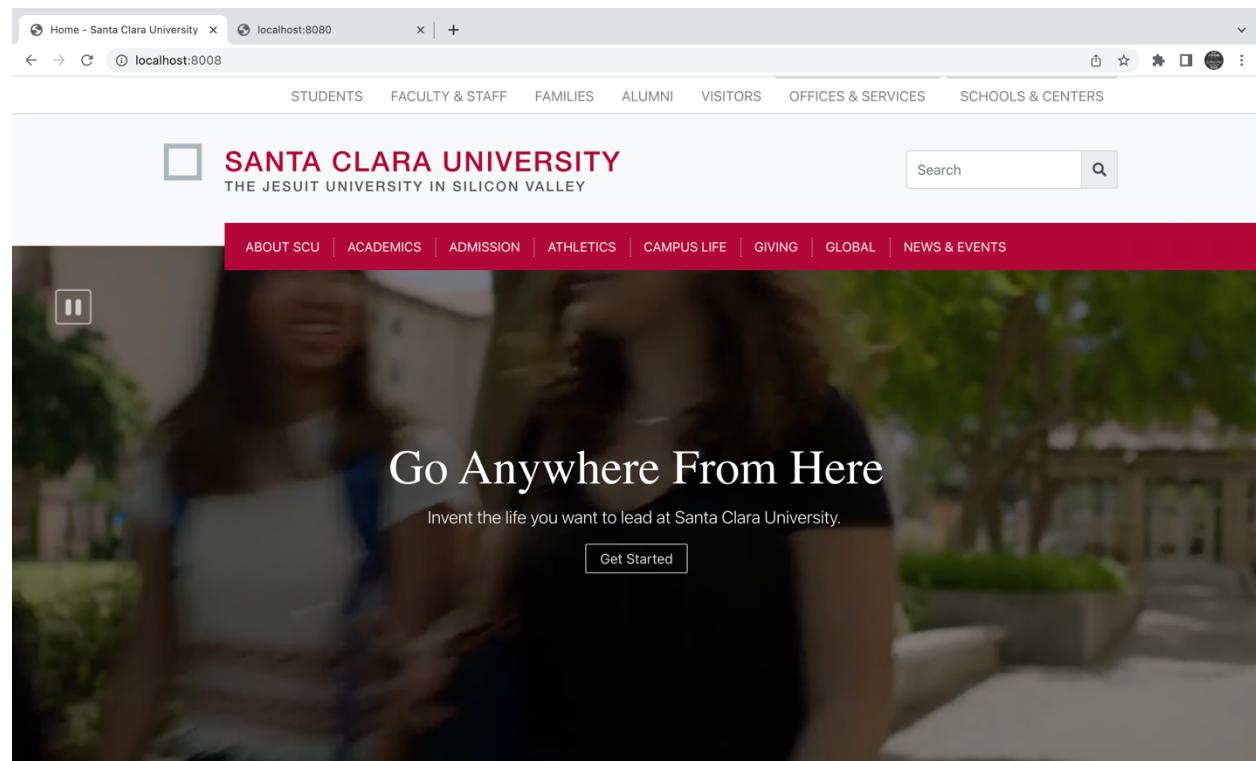
```
python3 ./webserver.py -document_root './' -port 8008
python3 ./webserver.py -document_root './scu/' -port 8008
```

## Demo:

SCU default page(../scu) running on port 8008

```
vishnuvardhankathkika@Vishnus-MacBook-Pro ~ % cd clientServer  
vishnuvardhankathkika@Vishnus-MacBook-Pro clientServer % python3 ./webserver.py -document_root './scu/' -port 8008  
The Server is launchedlocalhost:8008  
The Directory is ./scu/  
['GET', '/', 'HTTP/1.1']  
<socket.socket fd=7, family=AddressFamily.AF_INET, type=SocketKind.SOCK_STREAM, proto=0, laddr=('127.0.0.1', 8008), raddr='HTTP/1.1 200 ok\r\nContent: text/html\r\n\r\n'  
['GET', '/media/scuedu/style-assets/stylesheets/f.css', 'HTTP/1.1']  
<socket.socket fd=9, family=AddressFamily.AF_INET, type=SocketKind.SOCK_STREAM, proto=0, laddr=('127.0.0.1', 8008), raddr='HTTP/1.1 200 ok\r\nContent: application/css\r\n\r\n'
```

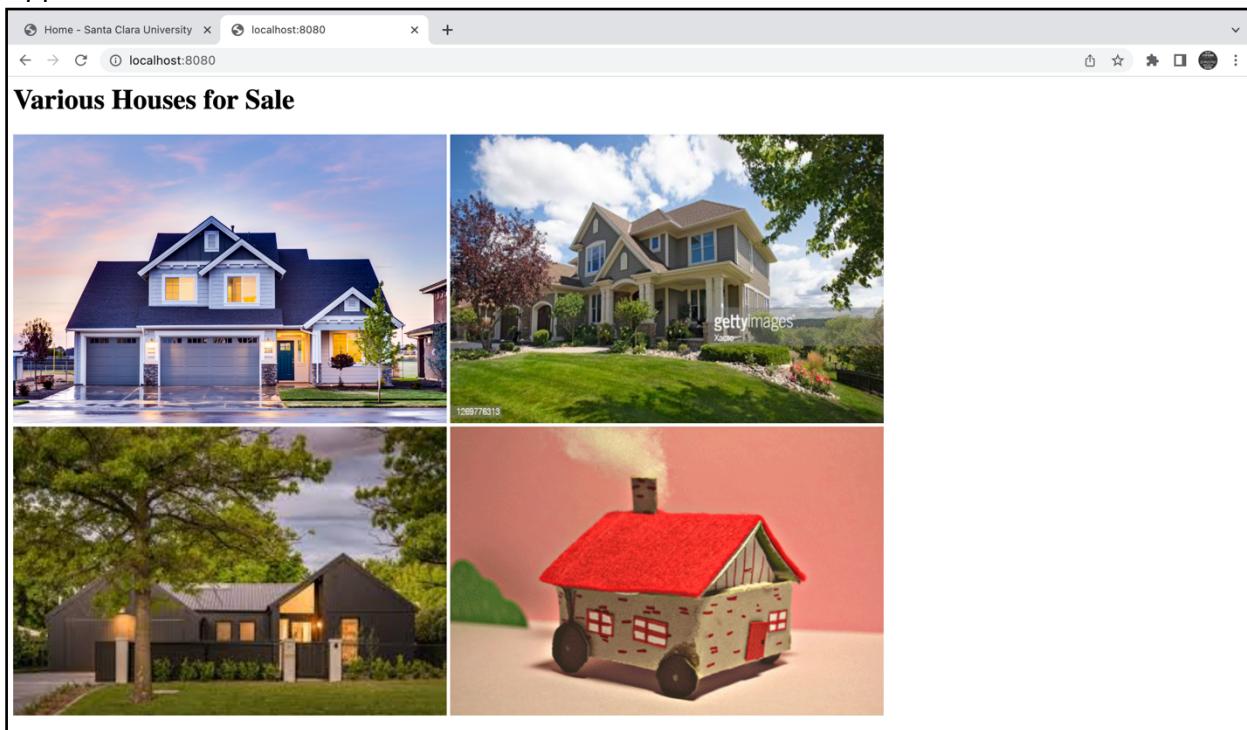
Application on web browser



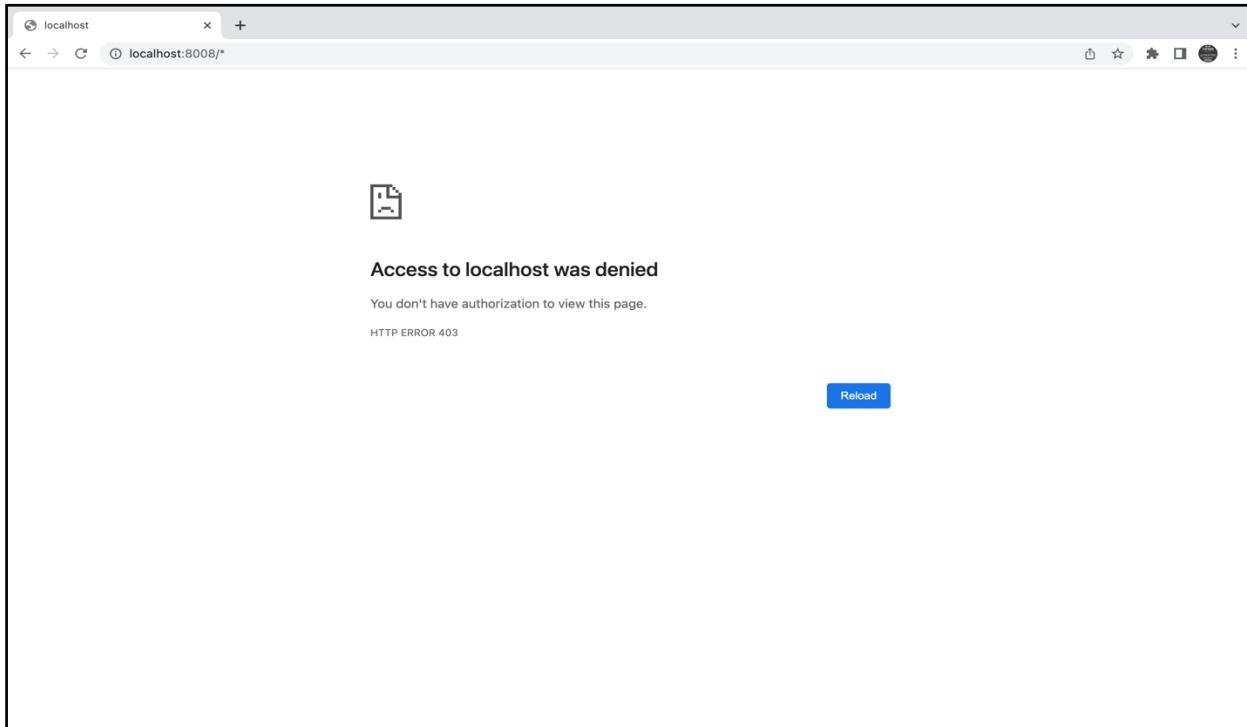
Another Page running simultaneously in port 8080 default index.html

```
vishnuvardhankathkika@Vishnus-MacBook-Pro clientServer % python3 ./webserver.py -document_root './' -port 8080  
The Server is launchedlocalhost:8080  
The Directory is ./  
['GET', '/', 'HTTP/1.1']  
<socket.socket fd=7, family=AddressFamily.AF_INET, type=SocketKind.SOCK_STREAM, proto=0, laddr=('127.0.0.1', 8080), raddr='('127.0.0.1', 55374)>  
b'HTTP/1.1 200 ok\r\nContent: text/html\r\n\r\n'  
['GET', '/house1.jpg', 'HTTP/1.1']  
<socket.socket fd=8, family=AddressFamily.AF_INET, type=SocketKind.SOCK_STREAM, proto=0, laddr=('127.0.0.1', 8080), raddr='('127.0.0.1', 55375)>  
['GET', '/house1.jpeg', 'HTTP/1.1']  
<socket.socket fd=10, family=AddressFamily.AF_INET, type=SocketKind.SOCK_STREAM, proto=0, laddr=('127.0.0.1', 8080), raddr='('127.0.0.1', 55378)>
```

## Application on web browser



## Error 403:



## Error 404:

