

CMPT 371 Mini-Project: A Web Server

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April 12, 2021

Testing HTTP 200 by using the test.html provided and requesting it from the server. This is test case 1 in singleThreadClient.py.

```
12/04/2021 13:36.12 python3 singleThread.py
The server is ready to receive
connected to: 127.0.0.1 59495
Sending HTTP/1.1 200 OK
Last-Modified: Friday, 2 Apr 2021 12:00:00 GMT

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Congratulations! Your Web Server is Working!</p>
</body>
</html>

Closing connection with: 127.0.0.1 59495
```

```
12/04/2021 13:41.26 python3 singleThreadClient.py
From Server: HTTP/1.1 200 OK
Last-Modified: Friday, 2 Apr 2021 12:00:00 GMT

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Congratulations! Your Web Server is Working!</p>
</body>
</html>
```

Testing HTTP 304 by sending if-modified-since in the header request, then the server checks if the last-modified of the html is the same as if-modified-since. The dates are equal so the server will send 304. This is the second test case in singleThreadClient.py

```
12/04/2021 13:43.43 python3 singleThread.py  
The server is ready to receive  
connected to: 127.0.0.1 59518  
Sending HTTP/1.1 304 Not Modified
```

```
Closing connection with: 127.0.0.1 59518
```

```
12/04/2021 13:43.24 python3 singleThreadClient.py  
From Server: HTTP/1.1 304 Not Modified
```

Testing HTTP 400 by sending an improper GET request by spelling GETT instead of GET. This is test case 3 in singleThreadClient.py

```
12/04/2021 13:58.17 python3 singleThread.py
The server is ready to receive
connected to: 127.0.0.1 59577
Sending HTTP/1.1 400 BAD REQUEST
Content-Type: text/html

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Bad Request</p>
</body>
</html>

Closing connection with: 127.0.0.1 59577
```

```
12/04/2021 13:58.17 python3 singleThreadClient.py
From Server: HTTP/1.1 400 BAD REQUEST
Content-Type: text/html

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Bad Request</p>
</body>
</html>
```

Testing HTTP 404 by requesting a page that does not exist in our directory. This is test case 4 in singleThreadClient.py

```
12/04/2021 14:01.38 python3 singleThread.py
The server is ready to receive
connected to: 127.0.0.1 59587
Sending HTTP/1.1 404 NOT FOUND

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Not Found</p>
</body>
</html>

Closing connection with: 127.0.0.1 59587
```

```
12/04/2021 14:01.43 python3 singleThreadClient.py
From Server: HTTP/1.1 404 NOT FOUND

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Not Found</p>
</body>
</html>
```

Testing HTTP 408 by adding a connection timeout of 3 seconds to the server. We get the client to connect to the server, then sleep for 3 seconds before trying to send the request. Because the client took too long, the server sends a 408 response. This is test case 5 in singleThreadClient.py

```
12/04/2021 14:00.03 python3 singleThread.py
The server is ready to receive
connected to: 127.0.0.1 59581
Sending HTTP/1.1 408 Request Timed Out

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>
  <p>Request Timed Out</p>
</body>
</html>

Closing connection with: 127.0.0.1 59581
```

```
12/04/2021 14:00.03 python3 singleThreadClient.py
From Server: HTTP/1.1 408 Request Timed Out

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>
  <p>Request Timed Out</p>
</body>
</html>
```

This is the start of the multi-thread test cases

All the tests are done by modifying the client code so that two clients connect to the server simultaneously, then after both are connected, they send their requests. This means there are two active threads as shown by these outputs.

Testing for a 200 response on thread 1 and for a 404 response on thread 2.

```
12/04/2021 14:20.40 python3 multiThread.py
The server is ready to receive
connected to: 127.0.0.1 59636
[ACTIVE CONNECTIONS] 1
connected to: 127.0.0.1 59637
[ACTIVE CONNECTIONS] 2
Sending HTTP/1.1 200 OK
Last-Modified: Friday, 2 Apr 2021 12:00:00 GMT

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Congratulations! Your Web Server is Working!</p>
</body>
</html>

Sending HTTP/1.1 404 NOT FOUND

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Not Found</p>
</body>
</html>

Closing connection with: 127.0.0.1 59636
Closing connection with: 127.0.0.1 59637
```

12/04/2021 14:20.44 python3 multiThreadClient.py

From Server: HTTP/1.1 200 OK

Last-Modified: Friday, 2 Apr 2021 12:00:00 GMT

```
<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Congratulations! Your Web Server is Working!</p>
</body>
</html>
```

From Server: HTTP/1.1 404 NOT FOUND

```
<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Not Found</p>
</body>
</html>
```

Testing 304 Not Modified and 400 Bad Request on thread 1 and thread 2 respectively.

```
12/04/2021 14:23.29 python3 multiThread.py
The server is ready to receive
connected to: 127.0.0.1 59657
[ACTIVE CONNECTIONS] 1
connected to: 127.0.0.1 59658
Sending HTTP/1.1 304 Not Modified

[ACTIVE CONNECTIONS] 2

Closing connection with: 127.0.0.1 59657
Sending HTTP/1.1 400 BAD REQUEST
Content-Type: text/html

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Bad Request</p>
</body>
</html>

Closing connection with: 127.0.0.1 59658
```

```
12/04/2021 14:23.33 python3 multiThreadClient.py
From Server: HTTP/1.1 304 Not Modified

From Server: HTTP/1.1 400 BAD REQUEST
Content-Type: text/html

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Bad Request</p>
</body>
</html>
```


Testing 2 timeout responses in parallel

```
12/04/2021 15:37.42 python3 multiThread.py
The server is ready to receive
connected to: 127.0.0.1 60039
[ACTIVE CONNECTIONS] 1
connected to: 127.0.0.1 60040
[ACTIVE CONNECTIONS] 2
Sending HTTP/1.1 408 Request Timed Out

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Request Timed Out</p>
</body>
</html>

Sending HTTP/1.1 408 Request Timed Out

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>

  <p>Request Timed Out</p>
</body>
</html>

Closing connection with: 127.0.0.1 60039
Closing connection with: 127.0.0.1 60040
```

12/04/2021 15:37.46 python3 multiThreadClient.py
From Server: HTTP/1.1 408 Request Timed Out

```
<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>
  <p>Request Timed Out</p>
</body>
</html>
```

From Server: HTTP/1.1 408 Request Timed Out

```
<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title></title>

  <meta name="author" content="">
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
</head>

<body>
  <p>Request Timed Out</p>
</body>
</html>
```