

# Assignment 3: Java Local Webserver and Client

CSCI3171

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## Files included

MyClient.class

- To run the client

WebServer.class

- To run the server

MyClient.java

- Java code for client

WebServer.java

- Java code for server

test.html

- An html file to test with

## Code Explanation

### MyClient Explanation

This Java code represents a simple HTTP client. It takes three command-line arguments: the server address, port number, and the path to request. Upon execution, it establishes a socket connection to the specified server and port. Then it constructs an HTTP GET request for the given path and sends it to the server. After sending the request, it reads and displays the server's response line by line. Finally, it closes the streams and socket connections.

### WebServer Explanation

This Java code represents a simple web server that listens on port 80 for incoming HTTP requests. Upon receiving a request, it reads the request message line by line and extracts the requested filename. Then it checks if the requested file exists. If the file exists, it constructs an HTTP response message with a status of 200 OK and sends the content of the requested file back to the client. If the file does not exist, it constructs an HTTP response message with a status of 404 Not Found and sends an error message back to the client. The server continues to run in an infinite loop, processing incoming requests.

### Testing Methods/Environment Explanation

When testing just the server, I used a combination between a terminal and chrome browser. I used <http://127.0.0.1:80/> followed by the file I wanted to establish the connection. For a positive test I found my test.html file. For my negative test, I looked for fail.html which wasn't present.

When testing for the client and server, I ran two instances of terminal, one running the client, and one for the server. When testing, I passed arguments 127.0.0.1 and 80 for address and port respectively to the client. For the postative test, the file argument was test.html, and for the negative test, the argument was fail.html

# Testing Server Browser: Screen Shots

## Test1: file found

```
Ready to serve...
GET /test.html HTTP/1.1
Host: 127.0.0.1
Connection: keep-alive
sec-ch-ua: "Chromium";v="122", "Not(A:Brand";v="24", "Google Chrome";v="122"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "macOS"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/122.0.0.0 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br, zstd
Accept-Language: en-US,en;q=0.9

Ready to serve...
hello world
```

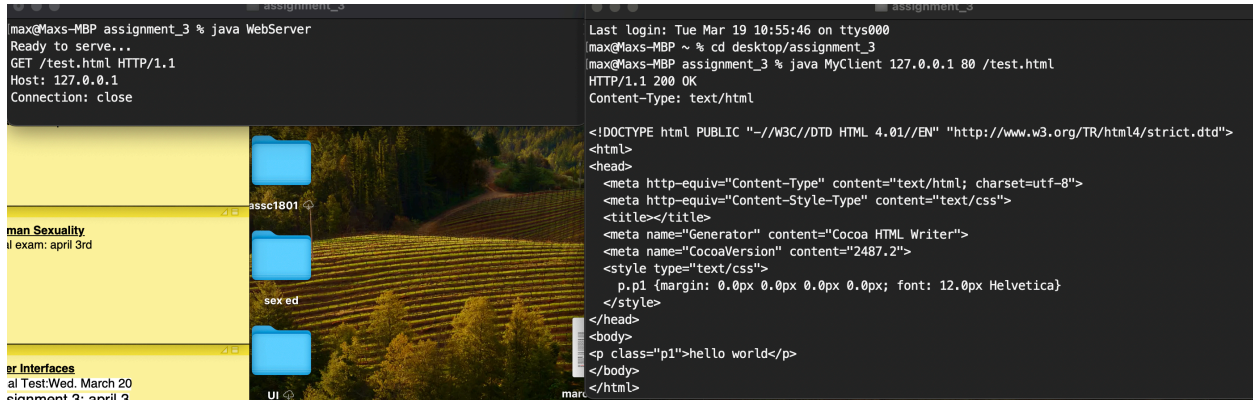
## Test 2: File not found

```
max@Maxs-MBP assignment_3 % java WebServer
Ready to serve...
GET /fail.html HTTP/1.1
Host: 127.0.0.1
Connection: keep-alive
sec-ch-ua: "Chromium";v="122", "Not(A:Brand";v="24", "Google Chrome";v="122"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "macOS"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/122.0.0.0 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br, zstd
Accept-Language: en-US,en;q=0.9

404 Not Found
```

# Testing Client and Server: Screen Shots

## Test 1: returning correct info

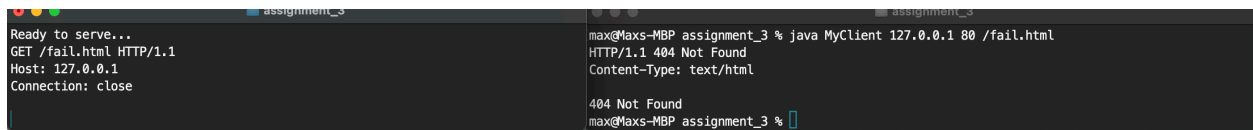


The screenshot shows a web browser window on the left and a terminal window on the right. The browser displays a yellow background with a sidebar containing links like 'man Sexuality' and 'er Interfaces'. The main content area shows a landscape image. The terminal window shows the following output:

```
Last login: Tue Mar 19 10:55:46 on ttys000
max@Maxs-MBP ~ % cd desktop/assignment_3
max@Maxs-MBP assignment_3 % java MyClient 127.0.0.1 80 /test.html
HTTP/1.1 200 OK
Content-Type: text/html

<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
<html>
<head>
  <meta http-equiv="Content-Type" content="text/html; charset=utf-8">
  <meta http-equiv="Content-Style-Type" content="text/css">
  <title></title>
  <meta name="Generator" content="Cocoa HTML Writer">
  <meta name="CocoaVersion" content="2487.2">
  <style type="text/css">
    p.p1 {margin: 0.0px 0.0px 0.0px 0.0px; font: 12.0px Helvetica}
  </style>
</head>
<body>
  <p class="p1">hello world</p>
</body>
</html>
```

## Test 2: cannot find file



The screenshot shows a web browser window on the left and a terminal window on the right. The browser displays a yellow background with a sidebar containing links like 'man Sexuality' and 'er Interfaces'. The main content area shows a landscape image. The terminal window shows the following output:

```
max@Maxs-MBP assignment_3 % java MyClient 127.0.0.1 80 /fail.html
HTTP/1.1 404 Not Found
Content-Type: text/html

404 Not Found
max@Maxs-MBP assignment_3 %
```