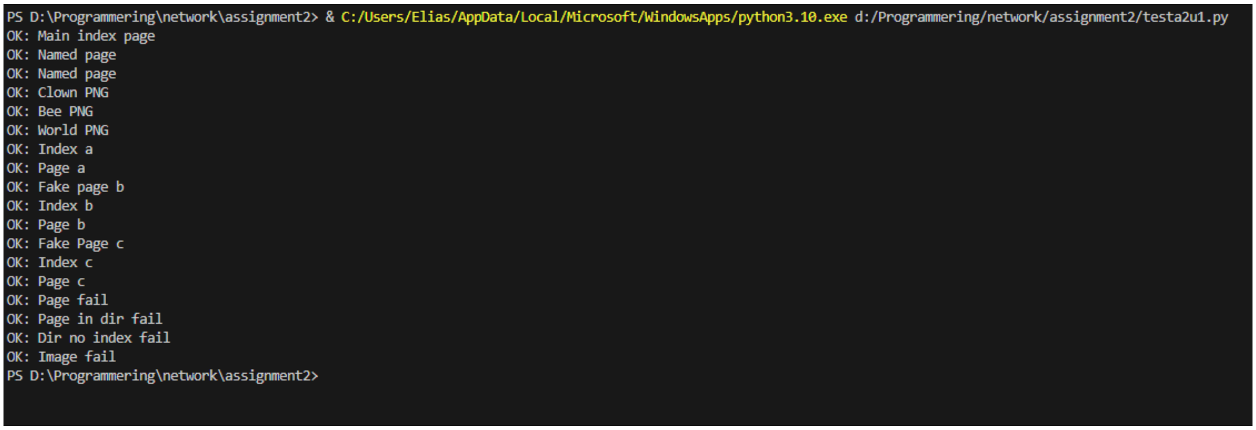
1DV701 Assignment 2 Resubmission - Web Server

Authors: Henry Shafer, Elias Michalsky

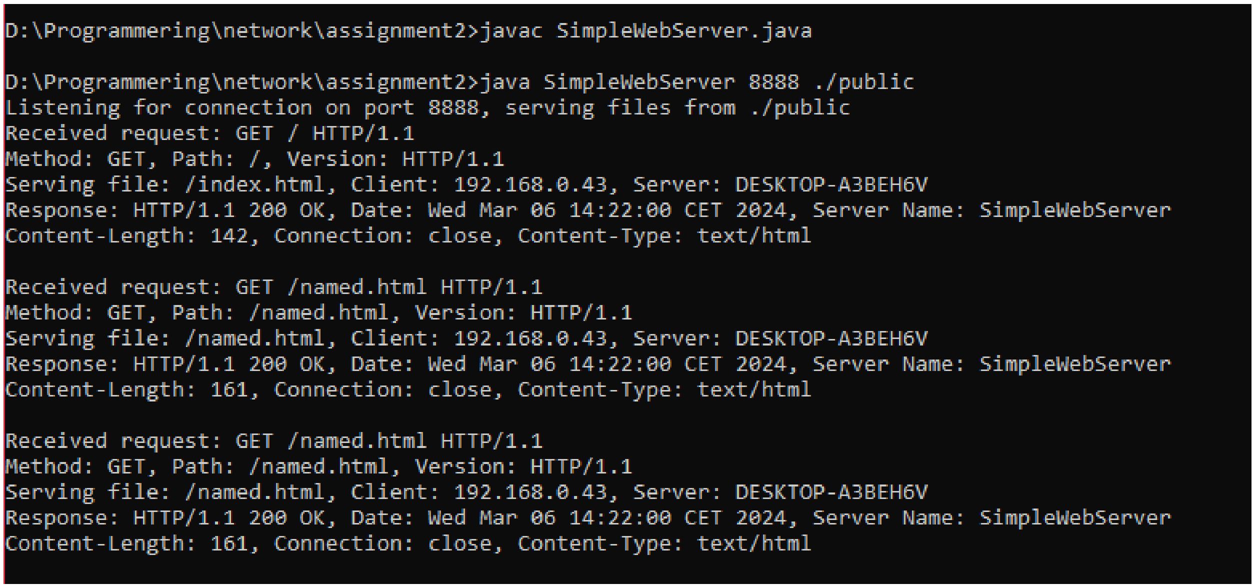
Semester: Spring 2024

Email: hs223nr@student.lnu.se, em223qw@student.lnu.se

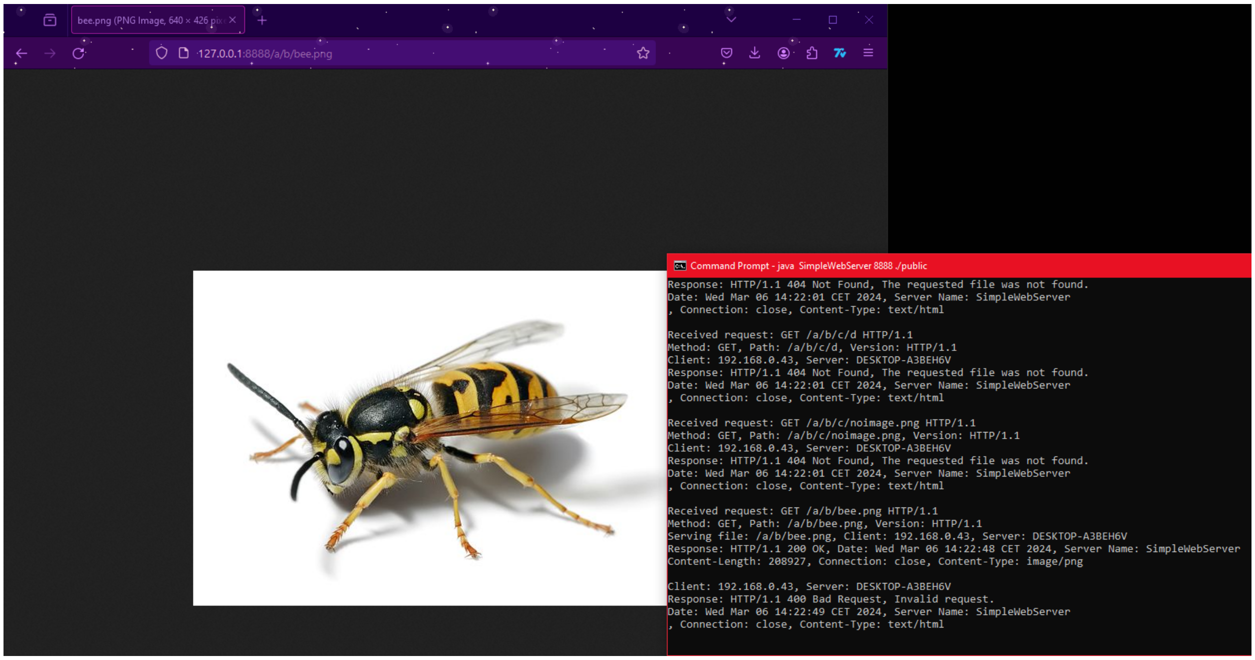
1 Problem 1



```
PS D:\Programmering\network\assignment2> & C:/Users/Elias/AppData/Local/Microsoft/WindowsApps/python3.10.exe d:/Programmering/network/assignment2/testa2u1.py
OK: Main index page
OK: Named page
OK: Named page
OK: Clown PNG
OK: Bee PNG
OK: World PNG
OK: Index a
OK: Page a
OK: Fake page b
OK: Index b
OK: Page b
OK: Fake Page c
OK: Index c
OK: Page c
OK: Page fail
OK: Page in dir fail
OK: Dir no index fail
OK: Image fail
PS D:\Programmering\network\assignment2>
```



```
D:\Programmering\network\assignment2>javac SimpleWebServer.java

D:\Programmering\network\assignment2>java SimpleWebServer 8888 ./public
Listening for connection on port 8888, serving files from ./public
Received request: GET / HTTP/1.1
Method: GET, Path: /, Version: HTTP/1.1
Serving file: /index.html, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:22:00 CET 2024, Server Name: SimpleWebServer
Content-Length: 142, Connection: close, Content-Type: text/html

Received request: GET /named.html HTTP/1.1
Method: GET, Path: /named.html, Version: HTTP/1.1
Serving file: /named.html, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:22:00 CET 2024, Server Name: SimpleWebServer
Content-Length: 161, Connection: close, Content-Type: text/html

Received request: GET /named.html HTTP/1.1
Method: GET, Path: /named.html, Version: HTTP/1.1
Serving file: /named.html, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:22:00 CET 2024, Server Name: SimpleWebServer
Content-Length: 161, Connection: close, Content-Type: text/html
```

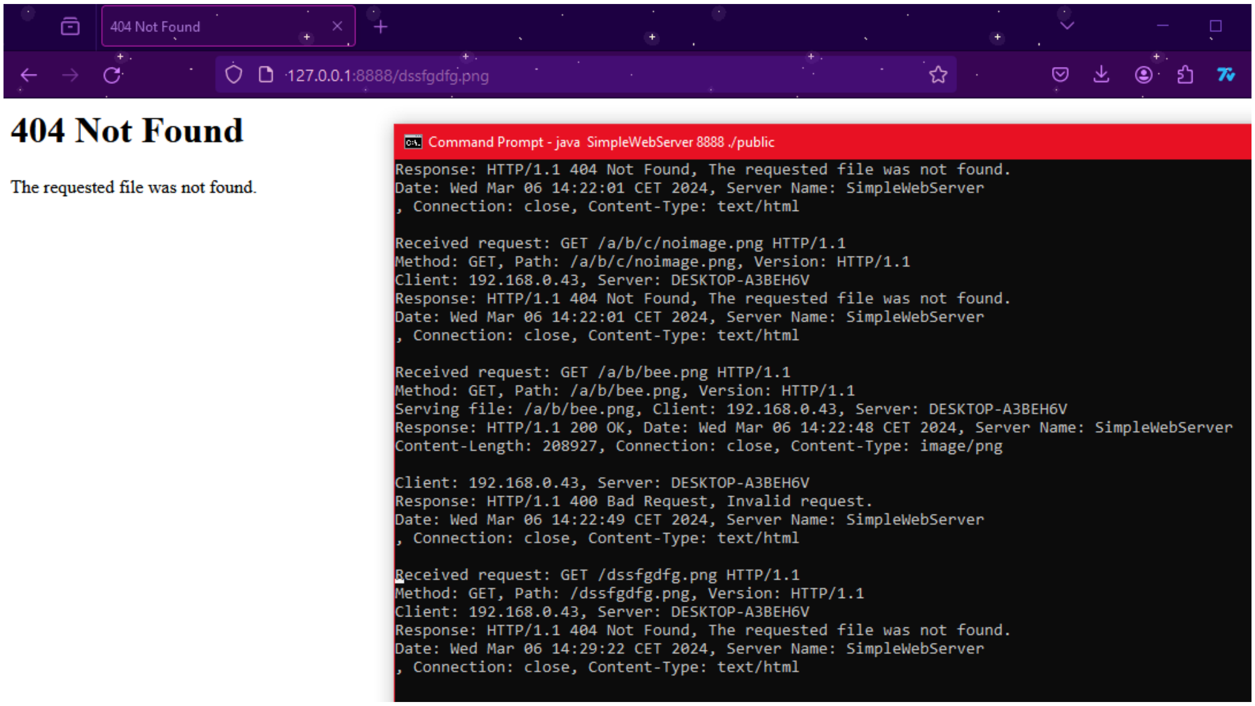

bee.png (PNG Image, 640 × 426 pix
127.0.0.1:8888/a/b/bee.png
Command Prompt - java SimpleWebServer 8888 ./public

```
Response: HTTP/1.1 404 Not Found, The requested file was not found.
Date: Wed Mar 06 14:22:01 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html

Received request: GET /a/b/c/d HTTP/1.1
Method: GET, Path: /a/b/c/d, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 404 Not Found, The requested file was not found.
Date: Wed Mar 06 14:22:01 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html

Received request: GET /a/b/c/noimage.png HTTP/1.1
Method: GET, Path: /a/b/c/noimage.png, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 404 Not Found, The requested file was not found.
Date: Wed Mar 06 14:22:01 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html

Received request: GET /a/b/bee.png HTTP/1.1
Method: GET, Path: /a/b/bee.png, Version: HTTP/1.1
Serving file: /a/b/bee.png, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:22:48 CET 2024, Server Name: SimpleWebServer
Content-Length: 208927, Connection: close, Content-Type: image/png

Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 400 Bad Request, Invalid request.
Date: Wed Mar 06 14:22:49 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html
```

1.1 Discussion

The first screenshot shows that the Python test script is OK for all tests, these are run as specified in the ‘test scripts and webserver content’ folder in Moodle. The second shows how to start the server using two parameters, port and path. The console output provides all the requests and otherwise good information for debugging etc. In the third screenshot, we are using the provided public folder and a ‘GET’ request to display the bee picture, aligning with the implementation standards outlined in RFC 7230, 7231, and 7232. All in all, this shows that we have correctly implemented a simple web server that is capable of serving files using 'GET' from the provided path.

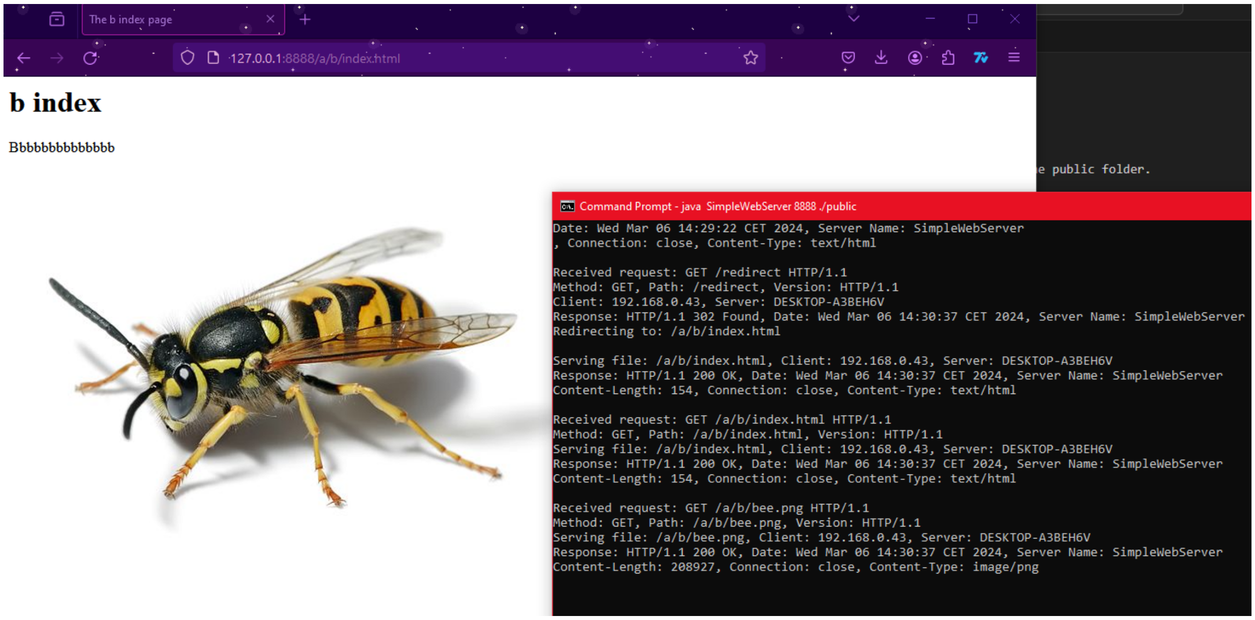
2 Problem 2


404 Not Found
127.0.0.1:8888/dssfgdfg.png
Command Prompt - java SimpleWebServer 8888 ./public

404 Not Found

The requested file was not found.

```
Response: HTTP/1.1 404 Not Found, The requested file was not found.
Date: Wed Mar 06 14:22:01 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html

Received request: GET /a/b/c/noimage.png HTTP/1.1
Method: GET, Path: /a/b/c/noimage.png, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 404 Not Found, The requested file was not found.
Date: Wed Mar 06 14:22:01 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html

Received request: GET /a/b/bee.png HTTP/1.1
Method: GET, Path: /a/b/bee.png, Version: HTTP/1.1
Serving file: /a/b/bee.png, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:22:48 CET 2024, Server Name: SimpleWebServer
Content-Length: 208927, Connection: close, Content-Type: image/png

Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 400 Bad Request, Invalid request.
Date: Wed Mar 06 14:22:49 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html

Received request: GET /dssfgdfg.png HTTP/1.1
Method: GET, Path: /dssfgdfg.png, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 404 Not Found, The requested file was not found.
Date: Wed Mar 06 14:29:22 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html
```

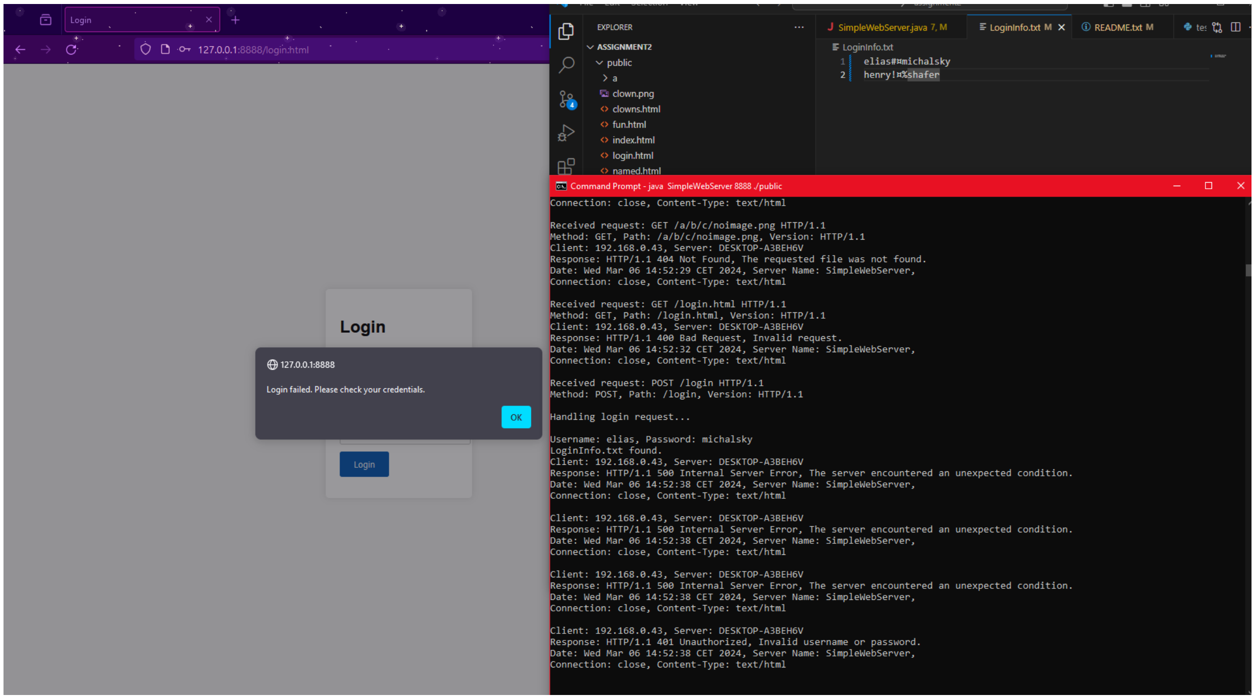

The b index page
127.0.0.1:8888/a/b/index.html
Command Prompt - java SimpleWebServer 8888 ./public

b index

Bbbbbbbbbbbbbb

```
e public folder.
```

```
Date: Wed Mar 06 14:29:22 CET 2024, Server Name: SimpleWebServer
, Connection: close, Content-Type: text/html

Received request: GET /redirect HTTP/1.1
Method: GET, Path: /redirect, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 302 Found, Date: Wed Mar 06 14:30:37 CET 2024, Server Name: SimpleWebServer
Redirecting to: /a/b/index.html

Serving file: /a/b/index.html, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:30:37 CET 2024, Server Name: SimpleWebServer
Content-Length: 154, Connection: close, Content-Type: text/html

Received request: GET /a/b/index.html HTTP/1.1
Method: GET, Path: /a/b/index.html, Version: HTTP/1.1
Serving file: /a/b/index.html, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:30:37 CET 2024, Server Name: SimpleWebServer
Content-Length: 154, Connection: close, Content-Type: text/html

Received request: GET /a/b/bee.png HTTP/1.1
Method: GET, Path: /a/b/bee.png, Version: HTTP/1.1
Serving file: /a/b/bee.png, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:30:37 CET 2024, Server Name: SimpleWebServer
Content-Length: 208927, Connection: close, Content-Type: image/png
```



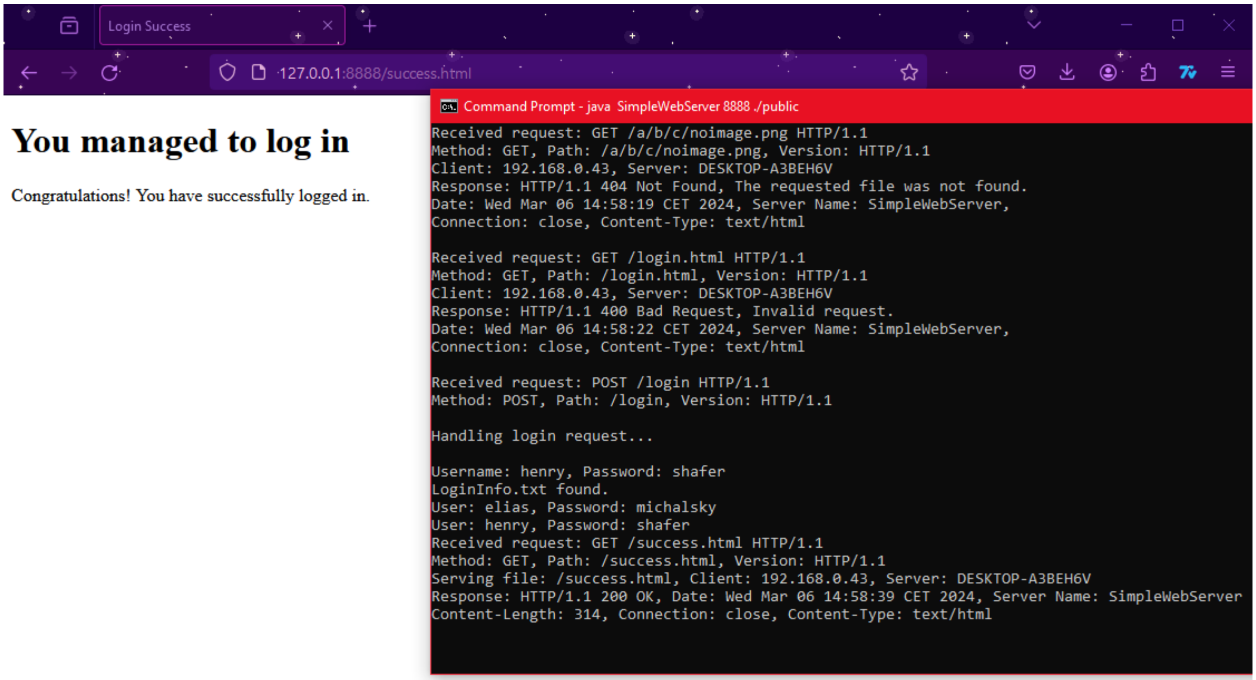
```
elias#¤michalsky
henry!¤%shafer
```

```
Connection: close, Content-Type: text/html

Received request: GET /a/b/c/noimage.png HTTP/1.1
Method: GET, Path: /a/b/c/noimage.png, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 404 Not Found, The requested file was not found.
Date: Wed Mar 06 14:52:29 CET 2024, Server Name: SimpleWebServer,
Connection: close, Content-Type: text/html

Received request: GET /login.html HTTP/1.1
Method: GET, Path: /login.html, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 400 Bad Request, Invalid request.
Date: Wed Mar 06 14:52:32 CET 2024, Server Name: SimpleWebServer,
Connection: close, Content-Type: text/html

Received request: POST /login HTTP/1.1
Method: POST, Path: /login, Version: HTTP/1.1

Handling login request...

Username: elias, Password: michalsky
LoginInfo.txt found.
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 500 Internal Server Error, The server encountered an unexpected condition.
Date: Wed Mar 06 14:52:38 CET 2024, Server Name: SimpleWebServer,
Connection: close, Content-Type: text/html

Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 500 Internal Server Error, The server encountered an unexpected condition.
Date: Wed Mar 06 14:52:38 CET 2024, Server Name: SimpleWebServer,
Connection: close, Content-Type: text/html

Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 500 Internal Server Error, The server encountered an unexpected condition.
Date: Wed Mar 06 14:52:38 CET 2024, Server Name: SimpleWebServer,
Connection: close, Content-Type: text/html

Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 401 Unauthorized, Invalid username or password.
Date: Wed Mar 06 14:52:38 CET 2024, Server Name: SimpleWebServer,
Connection: close, Content-Type: text/html
```

2.1 Discussion

As shown in the first screenshot, our 404 seems to work fine. You can simply try to access any file not provided in the public folder, and you will get a 404 response. The second screenshot shows the 302 redirect response. To get it, I browsed to ‘127.0.0.1:8888/redirect’ which directed me to /a/b/index.html. ‘/redirect’ is a hardcoded URL that redirects to ‘/index.html’. The last screenshot shows a 500 response which is harder to replicate. I replicated it by changing the format in the LoginInfo.txt file, which caused both a 500 response and a 401 unauthorized response. All of those errors we were able to throw demonstrate compliance with HTTP protocol standards outlined in RFC 7230, 7231, and 7232.

3 Problem 3


Login Success
127.0.0.1:8888/success.html
Command Prompt - java SimpleWebServer 8888 ./public

You managed to log in

Congratulations! You have successfully logged in.

```
Received request: GET /a/b/c/noimage.png HTTP/1.1
Method: GET, Path: /a/b/c/noimage.png, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 404 Not Found, The requested file was not found.
Date: Wed Mar 06 14:58:19 CET 2024, Server Name: SimpleWebServer,
Connection: close, Content-Type: text/html

Received request: GET /login.html HTTP/1.1
Method: GET, Path: /login.html, Version: HTTP/1.1
Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 400 Bad Request, Invalid request.
Date: Wed Mar 06 14:58:22 CET 2024, Server Name: SimpleWebServer,
Connection: close, Content-Type: text/html

Received request: POST /login HTTP/1.1
Method: POST, Path: /login, Version: HTTP/1.1

Handling login request...

Username: henry, Password: shafer
LoginInfo.txt found.
User: elias, Password: michalsky
User: henry, Password: shafer
Received request: GET /success.html HTTP/1.1
Method: GET, Path: /success.html, Version: HTTP/1.1
Serving file: /success.html, Client: 192.168.0.43, Server: DESKTOP-A3BEH6V
Response: HTTP/1.1 200 OK, Date: Wed Mar 06 14:58:39 CET 2024, Server Name: SimpleWebServer
Content-Length: 314, Connection: close, Content-Type: text/html
```

3.1 Discussion

The screenshot shows a successful login with POST. When you press the login button at the login page, it will compare your entered credentials to the credentials in the LoginInfo.txt file, as seen in the console. The login is successful if the credentials match, and it then redirects you to 'success.html' which is a simple page saying they managed to log in. The successful post condition also adheres to RFC 7230, 7231, and 7232.