

COMP489: Distributed Computing - Assignment 1

Test Plan

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Testing Environment

For my development environment, I'm using Ubuntu 24.04.2 LTS running in WSL on Windows 11.

```
alex@alex-desktop:~$ cat /etc/lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=24.04
DISTRIB_CODENAME=noble
DISTRIB_DESCRIPTION="Ubuntu 24.04.2 LTS"
```

Following <https://ubuntu.com/tutorials/install-jre> to install the Java Runtime Environment (JRE), as well as the Install the Java Development Kit (JDK)

```
alex@alex-desktop:~$ sudo apt install default-jre default-jdk
```

Installs the OpenJDK JRE 21.0.6 `java` runtime...

```
alex@alex-desktop:~$ java --version
openjdk 21.0.6 2025-01-21
OpenJDK Runtime Environment (build 21.0.6+7-Ubuntu-124.04.1)
OpenJDK 64-Bit Server VM (build 21.0.6+7-Ubuntu-124.04.1, mixed mode, sharing)
alex@alex-desktop:~/comp489-a1$ javac --version
javac 21.0.6
```

All assignment program files are located in the `comp489-a1` directory.

```
alex@alex-desktop:~$ cd comp489-a1
alex@alex-desktop:~/comp489-a1$
```

Testing Procedure

Compile all java files in the working directory using wildcard glob.

```
alex@alex-desktop:~/comp489-a1$ javac *.java
```

In a separate shell open start the WebServer, Proxy, and Client Java programs.

WebServer

```
alex@alex-desktop:~/comp489-a1$ java WebServer
Web Server is listening on port 8080
```

Proxy

```
alex@alex-desktop:~/comp489-a1$ java Proxy
```

Proxy Server is listening on port 8081

Client

alex@alex-desktop:~/comp489-a1\$ java Client
Enter URL:

Test Results

| Test Case | Client Input (STDIN) | Client Output (STDOUT) | Proxy Output (STDOUT) | WebServer Output (STDOUT) |
|-----------|---|--|---|---|
| 1 | Enter URL: http://localhost/testfile.html | HTTP/1.1 200 OK Content-Type: text/html <!DOCTYPE html> <html lang="en"> <head> <meta charset="UTF-8"> <title>Test HTML File</title> </head> <body><h1>Hello, testfile.html</h1> </body> </html> | Client connected GET http://localhost/testfile.html HTTP/1.1 Forwarding to WebServer | Client connected GET /testfile.html HTTP/1.1 HTTP/1.1 200 OK Client disconnected |
| 2 | Enter URL: http://localhost/testfile.jpg | HTTP/1.1 200 OK Content-Type: image/jpeg JFIF...:ExifMMQQQC | Client connected GET http://localhost/testfile.jpg HTTP/1.1 Forwarding to WebServer | Client connected GET /testfile.jpg HTTP/1.1 HTTP/1.1 200 OK Client disconnected |
| 3 | Enter URL: http://localhost/ | HTTP/1.1 404 Not Found | Client connected GET http://localhost/ HTTP/1.1 Forwarding to WebServer | Client connected GET / HTTP/1.1 HTTP/1.1 404 Not Found Client disconnected |
| 4 | Enter URL: (empty line) | Error: URL cannot be empty. | (none) | (none) |
| 5 | Enter URL: http://wrong | Error: Malformed URL. | (none) | (none) |
| 6 | Enter URL: http://google.com | HTTP/1.1 200 OK (or another 2xx/3xx/4xx depending on response) | Client connected GET http://google.com HTTP/1.1 Forwarding to internet | (none) |
| 7 | Enter URL: <u>ftp://ftp.us.dell.com/readme.txt</u> | (none) | java.lang.IllegalArgumentException: invalid URI scheme ftp | (none) |

Testing WebServer with curl

| Test Case | Shell Input Command | Shell Output (STDOUT) | Notes |
|-----------|---------------------------------------|--|---|
| 8 | curl -X POST http://localhost:8080 -v | * Host localhost:8080 was resolved. * IPv6: ::1 * IPv4: 127.0.0.1 * Trying ::1:8080... * Connected to localhost (::1) port 8080 > POST / HTTP/1.1 > Host: localhost:8080 > User-Agent: curl/8.5.0 > Accept: */* WebServer does not support HTTP POST requests, returns a 400 Bad Request error. | WebServer does not support HTTP POST requests, returns a 400 Bad Request error. |

< HTTP/1.1 400 Bad Request

Testing Webserver basic functionality with internet browser.

