CSEN 310: Distributed Systems

## Programming Assignment 1

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**Description:**

A multithreaded web server is built in Java that listens on a specific port, takes client connections, and serves static files from a user-specified document root. At startup, the server configures logging, parses command-line options and launches a main loop that listens for incoming sockets. Each new client's request line is processed by a different thread, which reads the HTTP method (GET), path, and protocol version. The server examines the presence of the file, its permissions, and the authorized file extensions before returning the appropriate status code (200, 404, 403, 400) and minimal headers. If HTTP/1.1 is used, the connection can be kept open for additional requests, whereas HTTP/1.0 ends automatically after each request. Browsers can load HTML pages and embedded resources from the same connection. The code includes logging to track request details, error conditions and active client sessions, demonstrating the principles of client-server communication, multithreading, and basic HTTP protocol handling.

List of files

Note: one readme.pdf is included

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Run the program:

Compile the java code:

Javac server.java

Then

Run

java Server -document\_root <path> -port <port> [--protocol\_version <1.0|1.1>]

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Scu web page:

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Other types of files:A screen shot of a computer screen

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HTTP Codes:

200

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404:

If we find a file that is not present in the directory root

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400 :

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403:

Note: please change the file permission using “chmod 000 filename” and try it with other user other than the owner because in mac read permission is present even using “chmod” to delete all permission. This is one problem I faced. The code handles forbidden file requests.

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Logging :

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Refernces:

<https://www.geeksforgeeks.org/how-to-set-up-a-basic-http-server-in-java/>

<https://docs.oracle.com/javase/tutorial/networking/sockets/>

<https://www.w3schools.com>

<https://medium.com/@sakhawy/creating-an-http-server-from-scratch-ed41ef83314b>