

## CSE322 Offline

### HTTP File server

#### Task 1:

In this problem, you need to develop a web server that can handle **multiple** incoming HTTP GET requests and send HTTP response message back to the client, with appropriate Content-type in the response (according to **the standard http protocol**). The requirements of the web server are-

- Listen on a specified port (**last four digits of your student ID**), and accept HTTP requests.
- Handle each HTTP request **in a separate thread**.
- Handle **HTTP version 1.0** GET requests.
- Extract filename from HTTP request and return the file or an appropriate error message. If we type "localhost:port/path" in the address bar of a browser then:
  1. If **path is a directory**, then generate an **html page** showing the list of all files inside **as links** (for differentiability purpose, you **must show the directory names with *bold-italic fonts***). **Each element in the list must be a link**. If we click on a directory link, the server enters into that directory and shows the list of files in the new directory. If we click on a file link and it is a text or image file (**.txt, .jpg, .png etc.**), content of that file must be shown **in a new html page**. **For all other formats that file must be downloaded when clicked**.
  2. If **path is a text or image file**, then show the content of that file in a new html page. For all other formats enforce downloading the file **to the browser** by specifying **the content-type in the response message**. **(Must send the file in fragments of specific chunk size)**
  3. If **path is not found**, then generate a 404: Page not found error message to the browser and also in the console of the server.
- **Return a HTTP response message and close the client socket connection.**
- **Return appropriate status code, e.g. 200 (OK) or 404 (NOT FOUND), in the response.**
- **Determine and send the correct MIME type specifier in the response message.**
- **Your web server must be able to serve other HTTP requests while a file download is going on.**
- You need to generate **an appropriate log file for the corresponding http request**. The log file will contain both **the http request and also the http response messages**.

#### Task 2:

Here, you will have to implement a "**Client**" program that will connect to the "**Web Server**" of Task 1. **It will only be used to upload files to the "uploaded" directory of the server**. You have to implement it in such a way that a client can upload multiple files in parallel. So, the requirements of the client are:

- Connect to the specified port of the web server.
- Take file name as input from the console.  
Note: **Only text and image files (.txt, .jpg, .png., .mp4 etc.) are allowed to upload.**
- Handle each file upload request in a thread.
- **Upload the file to the specified directory of the server in fragments of specific chunk size.**
- If the given file name or format is invalid, **write an error message to both the console of the server and the client.**

### Implementation:

HTTP **GET** request message to the web server will be of the form:

**"GET /... HTTP/1.0"**

Make the file upload request message from the client to the server of the form:

**"UPLOAD *filename*"**

You can use the above information to figure out how to handle the requests from the web browser and the java client process as per the requirements.

### Warnings:

- You need to implement **the basics of http protocol accordingly**; therefore, **you cannot use any JAVA high level library. You cannot use JavaScript. All the operations should be strictly limited to Socket Programming and html manipulation.**
- **Remember that for each socket the input and output stream can be instantiated only once.**
- Please do not copy. If found guilty, you will be given a straight negative 100% marks.

**Help:** [https://www.tutorialspoint.com/http/http\\_methods.htm](https://www.tutorialspoint.com/http/http_methods.htm)

### Tentative Mark Distribution:

Task 1	Show Directory	5
	File download	3
	Show content in HTML	3
	Error: Not found	2
	Parallel requests	3
	Log file	2
Task 2	File upload	3
	Error: invalid name/format	4
	Parallel upload	3
Task 0	Proper submission	2
Total		30

### Submission Instruction & Deadline:

- Put your source codes in a folder named "xx05xxx", then zip it into "xx05xxx.zip" and upload to the moodle. (Your submission **must not contain** any other file)
- Deadline: **11:55 P.M. of 13th September, 2024 (Friday)**