

CS425 – Computer Networks

Project 1

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List of implemented options:

- Allow the server port to be initialized at start up
- Allow the document base directory to be initialized at start up, for example via a command line argument or an initialization file.
- Include the Date and Server fields in the Response message header.
- Reply with a hyperlinked directory listing if a directory is the requested resource.

Implementation Details:

- Server Port and Base directory initialization via command line argument:
 - Usage: ./server port-number [base directory ending with '/']
 - Server port read from command line
 - Base directory is optional, i.e., If base directory is not provided, current directory is used as base directory
- Date and Server Field in Response Headers
 - Date is served in the format used by most websites like facebook, wikipedia.

Date: Thu, 18 2016 21:52:19 GMT

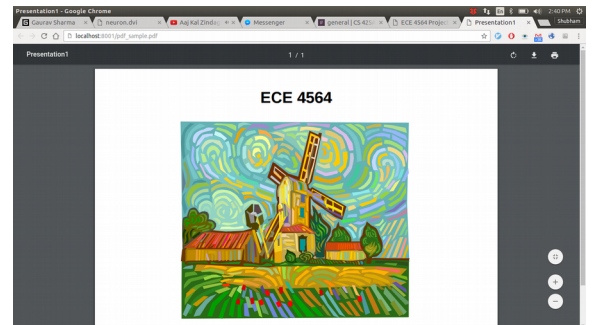
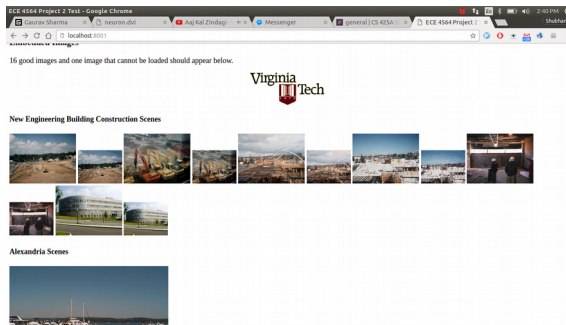
Current time is calculated using gmtime function in ctime library.
 - Server is served in following format using gethostname() in the following format.

Server: subm-Inspiron-5537
- Hyperlinked directory listing
 - Checked if the given path is a directory or not.
 - If yes, extracted content of directory and formatted them in a list tag of html
 - Hyperlinks are created by appending name of the files with original url.
 - Resultant html is served

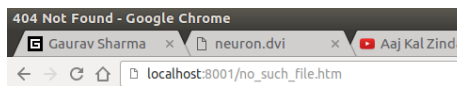
Testing

Browser Used: Google Chrome

- Working testfiles:
 - All links were tested and found working. This include page redirection, images, pdfs, gifs etc.

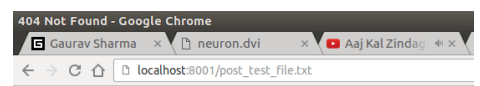


- Working error messages:
 - Error messages were handled for :
 - Invalid request format[400]
 - Invalid method [501]
 - File not found [404]



Requested file not found

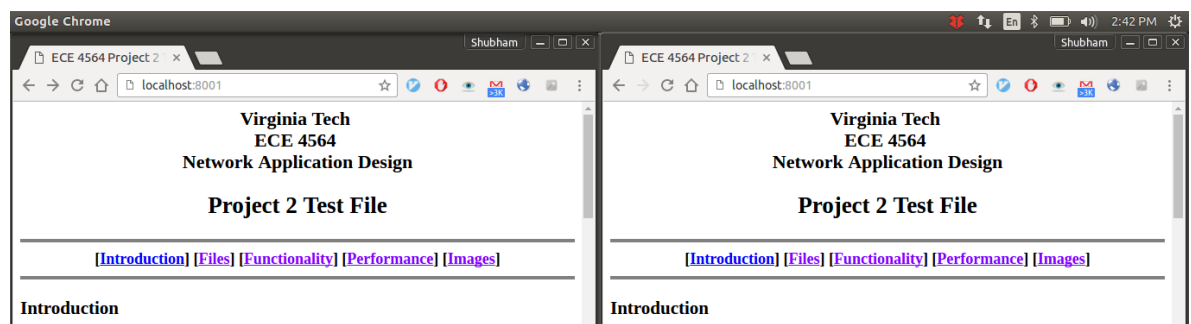
Http Response Status: 404
Http Response Message: Not Found



Request parsing error

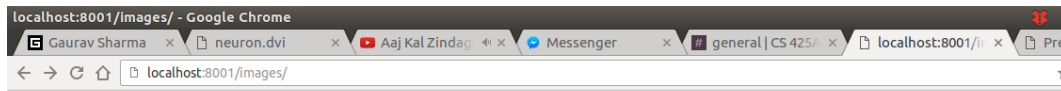
Http Response Status: 501
Http Response Message: Not Implemented

- Persistent connection :
 - Multiple clients were able to send requests at the same time.
 - All requests from client are served by a single thread only. This was tested by printing pid.



- Directory Listing

- Created a directory inside directory for testing. Found working
- All contents of directory were listed including '..', '.' and other directories.



Directory Contents

- [neb004.jpg](#)
- [neb002.jpg](#)
- [thm005.gif](#)
- [thm002.gif](#)
- [thm003.gif](#)
- [thm001.gif](#)
- [neb001.jpg](#)
- [neb005.jpg](#)
- [thm006.jpg](#)
- [page.html](#)
- [thm004.gif](#)
- [.as](#)
- [neb006.jpg](#)
- [.s](#)
- [neb003.jpg](#)
- [vt.gif](#)

- Server, Port Number, Base directory

- Files were being served according to base directory.

```
./server /home/subm/Dev/CS425A-Computer-Networks/Assignment 2
subm@subm-Inspiron-5537 ~/D/C/Assignment 2> ./server 8002 References/webfiles
Using base dir: References/webfiles
bind successful
Listening ...
```

- Summary: All mentioned features were found working correctly.

- Reference code used from internet:

- <http://stackoverflow.com/questions/4553012/checking-if-a-file-is-a-directory-or-just-a-file> : Checking if a path is directory or not
- <http://stackoverflow.com/questions/5309471/getting-file-extension-in-c>: Getting extension of a file in c
- <http://stackoverflow.com/questions/5840148/how-can-i-get-a-files-size-in-c>: Getting size of file

Appendix:

- Source File: server.cpp