

HTTP Server

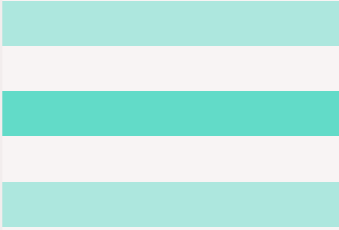
A STATIC FILE WEB SERVER

Group 5

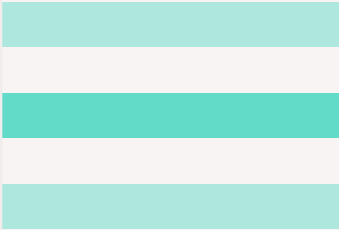


Project Definition

Multithreaded application built on C++ using TCP/IP and network programming



Uses UNIX/Linux features like pthreads, mutex and conditional variables and supports GET HTTP methods



Approach

How we overcome the project execution

Connect to the clients with a reliable TCP Connection

Initially a Simple TCP Server was created a checkpoint to connect with the browser and receive the header.

Multi-Thread support was then added to handle the multiple clients.

Added multiple threads support to handle multiple clients as there can be many users sending requests for the web server

Parsing the header recieved from each clients

Each field of the header was separated and based on the recieved field values the response header is created.

Sending the File Data of requested file

Read the data file of the requested file and send the data of the file to the client socket back along with the response header.

Managing shared Data-Structure among multiple threads

Added the mutex locking and unlocking as a shared data-structure will be in use.

Support for conditional variables to manage the CPU resources

As threads take up lot of CPU time as it keeps on running in background adding conditional variable reduces the CPU usage while no task is assigned to the queue.

Originality

A custom, multi-threaded HTTP Web Server

Based on the server requirements the support for the methods of request that can be handled and file types it can send is maintained.

Complete Project is modular and maintainable

The code for the project is in C++ and divided into multiple functions for easy maintainability.

Efficient use of the data structures and thread processes

The handling of the thread processes, the data structures shared among the threads and the duration of each thread working is maintained to rich high efficiency.

TOOLS

- Sockets
- P-Threads
- Mutex (Lock-Unlock)
- Conditional Variables (Signal-Wait)



REFERENCES



BOOKS



ARTICLES



WEB

Computer Network a system approach, Fifth edition, Larry L. Peterson and Bruce S. Davie

<https://github.com/iFuSiiOnzZ/http/blob/master/httpd/functions.c>

https://www.youtube.com/playlist?list=PL9IEJIKnBJjH_zM5LnovnoaKIXML5qh17

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