

CIS656 – Distributed Systems - Fall 2025
Programming Assignment 5 – Multithread Web Server
Maximum Points: 100 (3% of the final grade)

Due: 8:30PM on Wednesday, November 5, 2025

(Please work on this programming assignment individually, or as a group of two or three people)

Objective

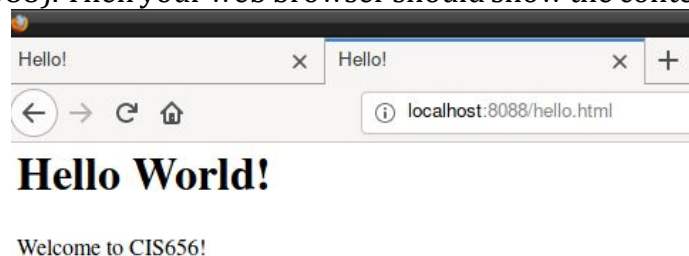
The objective of this programming assignment is to help students develop an understanding of web service. Upon completion, the students will be able to implement a simple multithread web server.

Description

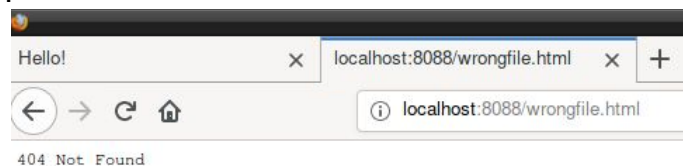
In this programming assignment, please create a simple but functional multi-threaded mini http server that receives an arbitrary number of HTTP requests and executes them correctly. You only need to implement a basic GET method. In other words, your program only supports requests of retrieving a simple “hello.html” file concurrently. If a requested file does not exist, you must return the 404 response code (Not Found). Your http server should keep running unless you manually shutdown the program. (You can download “hello.html” from BlackBoard or create your own.)

Example:

After your implementation, you can place the “hello.html” in the correct directory and open the web browser to enter “localhost:8088/hello.html” (assuming your server listens to port 8088). Then your web browser should show the content of “hello.html”.



If your web browser requests a wrong file that does not exist, then it should show “404 Not Found”.



As shown in the figures, your program should support requests from multiple tabs of the browser concurrently.

Grading Criteria:

- **Program correctness: 75%**
- **Demo or video: 25% (please see the requirements below. If you only submit the source codes but do not demo your program or make a video, 25% of your grade will be deducted.)**

Depending on the format, please follow the following requirements.

- (1) If you can demonstrate your program in person with the instructor, please do that during the office hours, or at the end of Wednesday, November 5's class. Then you do NOT need to submit anything to BlackBoard.
- (2) If you want to demonstrate your program online synchronously with the instructor, you can do that during the office hours, or at the end of Wednesday, November 5's class online via Zoom. Then you do NOT need to submit anything to BlackBoard.
- (3) If you cannot demonstrate your program in person or online synchronously with the instructor, please make a video to show the program correctness and go through your source codes to explain how they work. Then please submit the source codes and video link to BlackBoard. If you work in a group, only ONE group member needs to submit the source file and the video link, but please include your group members' names in "Submission" field of the submission page.