INF 142: Assignment 1

Submission Deadline: 08:00 am, Monday, March 04, 2019

Academic Honesty

You may discuss homework problems with anyone and use any reference material, provided you do not copy any other person's work. Appropriate reference or credit must be acknowledged if you do not solve the homework problems on your own.

For this programming projects, it is expected that you have written EVERY LINE OF CODE that you submit (with the exception of code given out in the assignment).

The following activities are PROHIBITED:

- Writing code with another student.
- Copying code from another student.
- Giving code to another student (via email, printouts, etc).
- Posting code in a publicly accessible location.
- Using code fragments that are freely available (e.g., in public repositories) without properly acknowledging and citing

the source.

A student found responsible for academic dishonesty is subject to academic penalty to be determined by the instructor of the course

Programming - HTTP Web server and client

In this assignment, you will learn the basics of socket programming for TCP connections:

- how to create a socket,
- bind it to a specific address and port,
- and send and receive a HTTP packet.

You will also learn some basics of HTTP header format.

You will develop a web server that handles one HTTP request at a time. Your web server should accept and parse the HTTP request, get the requested file from the servers file system, create an HTTP response message consisting of the requested file preceded by header lines, and then send the response directly to the client. If the requested file is not present in the server, the server should send an HTTP 404 Not Found message back to the client.

Assisting Python Code

You will find the skeleton code for the Web server at

https://mitt.uib.no/courses/16316/files/folder/ObligatoryAssignments

You are to complete the skeleton code. The places where you need to fill in code are marked with #Fill in start and #Fill in end. Each place may require one or more lines of code.

Running the Server

Put an HTML file, HelloWorld.html, in the same directory that the server is in. (Its up to you to choose the content in your HelloWorld.html. One short sentence/paragraph is enough. No need to make it fancy for this assignment). Run the server program.

Assume the web server is running on localhost (e.g., 127.0.0.1). Open a browser and provide the corresponding URL. For example:

http://localhost:8000/HelloWorld.html or http://127.0.0.1:8000/HelloWorld.html

where HelloWorld.html is the name of the file you placed in the server directory. Note also the use of the port number after the colon. You need to use this port number in the server code as well. The browser should then display the contents of HelloWorld.html. If you omit ":8000", the browser will assume port 80 and you will get the web page from the server only if your server is listening at port 80. Then try to get a file that is not present at the server. You should get a 404 Not Found message.

What to hand in?

1. You will hand in the complete server code along with the screen shots of your client browser, verifying that you actually receive the contents of the HTML file from the server.
2. Instead of using a browser, write your own HTTP client to test your server. Your client will connect to the server using a TCP connection, send an HTTP request to the server, and display the server response as an output. You can assume that the HTTP request sent is a GET method.

The client should take command line arguments specifying the server IP address or host name, the port at which the server is listening, and the path at which the requested object is stored at the server. The following is an input command format to run the client (in Python).

client.py server_host server_port filename

Submission Requirement

If you complete the assignment in Python, it's preferable to use Python3. Your hand-in should be a compressed file in the format Assignment1-Yourname.zip (or *.rar, *.tar) containing the source code as well as the HTML file HelloWorld.html.

If you complete the assignment in Java, your hand-in should be a compressed file in the format Assignment1-Yourname.zip (or *.rar, *.tar), which contains the following file

- an executable file
- an README.txt instructing how to compile the source code
- a folder containing the HTML file HelloWorld.html, the source code (as well as all dependencies in the source code)

Total Grade: 10

- Program Correctness (8'): Your programs are successfully compiled, and correctly send/receive corresponding message
- Program Robustness (1'): Properly handling errors in socket operations and other potential errors
- Program Comments (1'): Your codes are commented and documented properly