

Department of Electrical and Computer Engineering

Modern Distributed Systems

**Assignment#1 due 3/12/2022**

Using **socket programming**, implement a simple but a complete web server that supports **multithreading** in **go** or **java** or **C/C++** that is listening on port 6677. The user types in the browser something like <http://localhost:6677/>

The program should check

1. if the request is **/ or (for example localhost:6677/)** then the server should send index.html file with Content-Type: text/html.

The index.html file should contain

HTML webpage that contains

1. “MDS-Simple Webserver” in the title
2. “Welcome to o **Modern Distributed System” (**part of the phrase is in **Blue)**
3. Your name and ID
4. Some information about you. For instance, projects you have done during different course (programming, electrical, math, etc), skills, hobbies, etc.
5. Use CSS to make the page looks nice
6. Divide the page in different boxes and put student’s information in the different boxes
7. Include CSS as a separate file
8. An image with extention.jpg and an image with extension .png
9. A link to a local html file (an html file) and a link to <https://www.w3schools.com/tags/att_img_src.asp>
10. if the request is an .**html** file then the server should send the requested html file with Content-Type: text/html. You can use any html file.
11. if the request is a **.css** file then the server should send the requested css file with Content-Type: text/css. You can use any CSS file
12. if the request is an .**js** file then the server should send the requested html file with Content-Type: application/javascript. You can use any html file.
13. if the request is a .**png** then the server should send the png image with Content-Type: image/png. You can use any image.
14. if the request is a **.jpg** then the server should send the jpg image with Content-Type: image/jpeg. You can use any image.
15. Use the status code 307 Temporary Redirect to redirect the following
    1. If the request is /gl then redirect to google website
    2. If the request is /ghb then redirect to GitHub website
    3. If the request is /bzu then redirect to birzeit university website
16. If the request is wrong or the file doesn’t exist the server should return a simple HTML webpage that contains (Content-Type: text/html)
17. “HTTP/1.1 404 Not Found” in the response status
18. “Error” in the title
19. “The file is not found” in the body in **red**
20. Yournames and IDs in **Bold**
21. The IP and port number of the client

The program should print the HTTP requests on the terminal window (command line window).

Provide screenshots of the browser to show that your project works as expected. Test the project from a browser on the **same computer** and from **a different computer or phone**.

Provide also a screenshot of the HTTP request printed on the command line.

Hint: Have a look on HTTP response in Listing 1 and the HTML code In Listing 2. You may use the minimal header and HTML code. Have a look also on rfc2616 (https://tools.ietf.org/html/rfc2616)

*HTTP/1.1 200 OK*

*Connection: close*

*Date: Fri, 03 Mar 2017 06:19:37 GMT*

*Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.1e-fips PHP/5.4.16*

*Last-Modified: Fri, 03 Mar 2017 05:28:07 GMT*

*Content-Length: 6821*

*Content-Type: text/html*

*data data data data data ...*

Listing 1: HTTP Response

*<!DOCTYPE html>*

*<html>*

*<head><title >XYZ Company INC.</ title ></head>*

*<body><h1>Welcome <b>XYZ</b> Company</h1>*

*<img src="http:www. xyz.com/ images / logo.gif " ALT="XYZ Logo"><br>*

*We are so happy that you have chosen to visit our website.*

*</body>*

*</html>*

*Listing 2: Simple HTML Code*

**You have to submit**

1. **A report in pdf format (only pdf format) that contains Screenshots** with **detailed explanation**, **codes, runs, etc.**
2. The code with comments (include the code in the pdf file and as text file .py or .java or .c as well)