

Advanced Networking

HTTPS Assignment Readme file

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Environment and tools used for the assignment:

Windows 11, Python 3.10.0, Command Prompt and Google Chrome

Question:

- 1.(a). Using an appropriate library, write a small web server which takes URLs of the form "http://hostname:port/{add,subtract,multiply,divide}/x/y" and prints the result as a single text/plain result. So the URL <http://hostname:port/add/5/7> Links to an external site.
- 1.(b). Extend your code to instead of taking a URL containing the expression, instead take JSON via a POST operation.

1. First step:

Download the zip file from git repository or clone the repository using:

Command for cloning:

```
git clone https://github.com/kevinsudhir/AdvancedNetworking_HTTPS_Assignment.git
```

To download zip file, simply open the following link

https://github.com/kevinsudhir/AdvancedNetworking_HTTPS_Assignment/archive/refs/heads/main.zip

This will download AdvancedNetworking_HTTPS_Assignment-main zip file and can be extracted.

After cloning or downloading zip file follow the below steps or follow the extracted Readme_HTTP_Assignment.pdf to further execute the assignment.

2. Second step:

File name to be run from the folder: **http_assignment.py**

Run the following command in command prompt/ terminal to execute the file according to installed Python environment:

```
py http_assignment.py or
```

```
python http_assignment.py or
```

```
python3 http_assignment.py
```

3. Third step:

Open any web browser and type the following in address bar to get result for question 1.(a):

<http://localhost:8000/{add,subtract,multiply,divide}/x/y>

For example: <http://localhost:8000/multiply/2/6>

4. Open another command prompt and type the following command to get result for question 1.(b)

```
curl -i -X POST -H "Content-Type:application/json" -d "{ \"operation\" :  
\"{add,subtract,multiply,divide}\", \"arguments\" : [x,y] }" http://localhost:8000
```

For Example: `curl -i -X POST -H "Content-Type:application/json" -d "{ \"operation\" : \"divide\",
\"arguments\" : [4,2] }" http://localhost:8000`

Note: This above command is to run in windows command prompt

```
curl -XPOST -d '{"operation":"{add,subtract,multiply,divide}","arguments":[x,y]}'  
"http://localhost:8080"
```

For Example: `curl -XPOST -d '{"operation":"divide","arguments":[4,7]}' "http://localhost:8080"`

Note: This above command is to run in Linux/Ubuntu shell/terminal or Mac terminal.

5. Following are the results observed

For question 1.(a):

By adding the following as web address in address bar of google chrome:
`http://localhost:8000/multiply/3/-99`

Output in cmd/terminal: `127.0.0.1 - - [10/Dec/2021 07:44:40] "GET /multiply/3/-99 HTTP/1.1" 200 -`

Output in chrome: Output: -297.0

For question 1.(b):

Running the following command in new cmd: `curl -i -X POST -H "Content-Type:application/json" -d "{
\"operation\" : \"divide\", \"arguments\" : [400,6] }" http://localhost:8000`

Running the following command in new Linux/Ubuntu/Mac terminal: `curl -XPOST -d
'{"operation":"divide","arguments":[400,6]}' http://localhost:8080`

Output in the main cmd/terminal:

`127.0.0.1 - - [10/Dec/2021 09:15:23] "POST / HTTP/1.1" 200 -`

Output in the new cmd/terminal:

HTTP/1.0 200 OK Server: SimpleHTTP/0.6 Python/3.10.0

Date: Fri, 10 Dec 2021 09:15:23 GMT Content-Length: 20

`{"Output": "66.667"}`

6. To stop the server

- Enter Ctrl+C or Cmd+C to stop the server