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Professor Mehlhase

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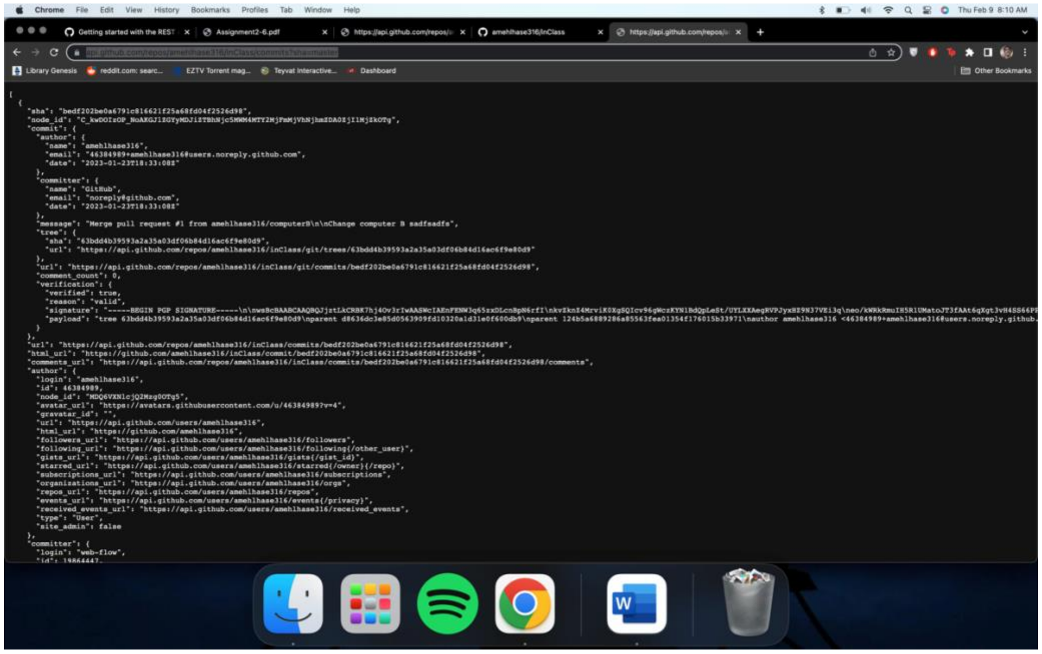
SER321

Assignment 2

Task 1:

URL for default branch:

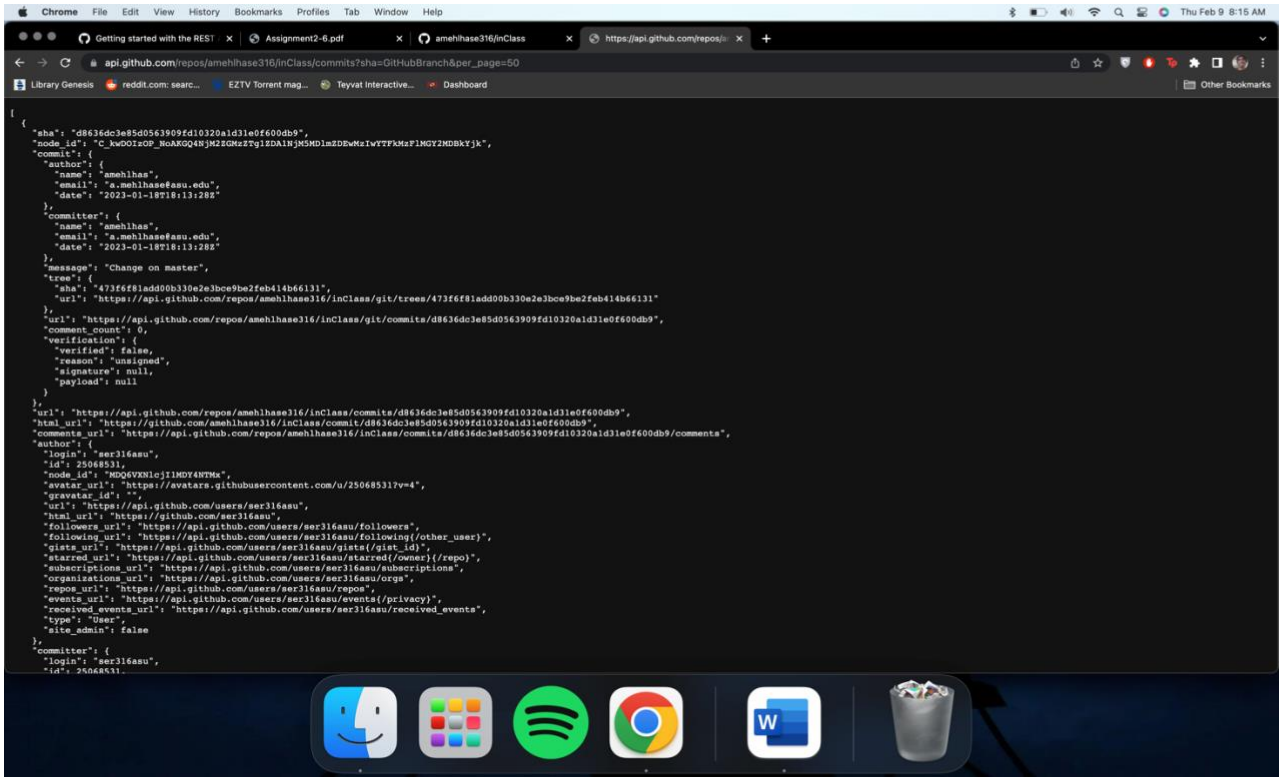
https://api.github.com/repos/amehlhase316/inClass/commits?sha=master



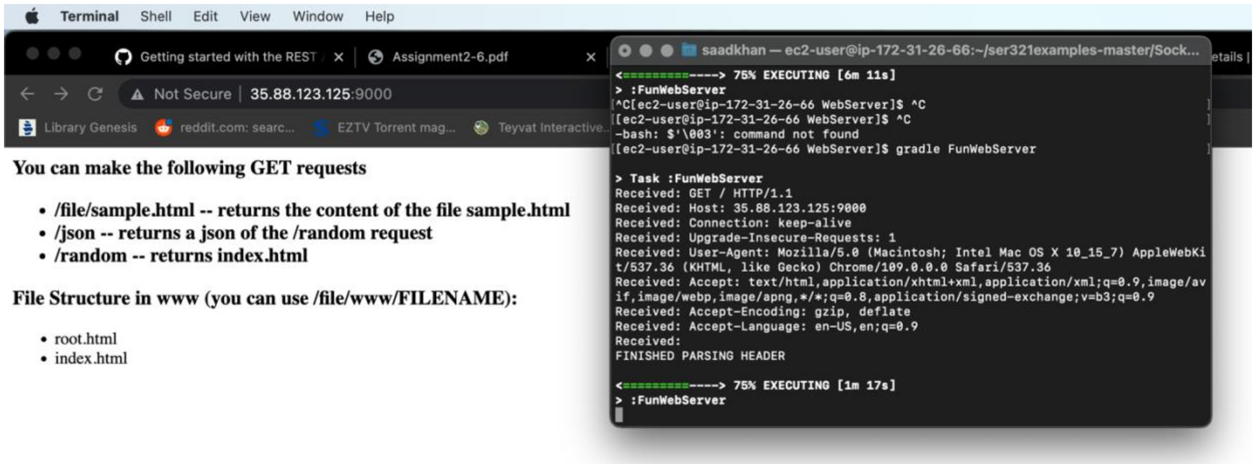
```
[
  {
    "sha": "bedf202be0a6791c816621f25a68fd04f2526d98",
    "node_id": "C_kwDOIzOP_NoAKGJlZGYyMDJiZTBhNjc5MWM4MTY2MjFmMjVhNjhmZDA0ZjI1MjZkOTg",
    "commit": {
      "author": {
        "name": "amehlhase316",
        "email": "46384989+amehlhase316@users.noreply.github.com",
        "date": "2023-01-23T18:33:08Z"
      },
      "committer": {
        "name": "GitHub",
        "email": "noreply@github.com",
        "date": "2023-01-23T18:33:08Z"
      },
      "message": "Merge pull request #1 from amehlhase316/computerB\n\nChange computer B sadfsadfs",
      "tree": {
        "sha": "63bdd4b39593a2a35a03df06b84d16ac6f9e80d9",
        "url": "https://api.github.com/repos/amehlhase316/inClass/git/trees/63bdd4b39593a2a35a03df06b84d16ac6f9e80d9"
      },
      "url": "https://api.github.com/repos/amehlhase316/inClass/git/commits/bedf202be0a6791c816621f25a68fd04f2526d98",
      "comment_count": 0,
      "verification": {
        "verified": true,
        "reason": "valid",
        "signature": "-----BEGIN PGP SIGNATURE-----\n\nwsBcBAABCAAQBQJjztLkCRBK7hj4Ov3rIwAASWcIAEnFENW3q65zxDLcnBpN6rfI\nkvZknZ4MrviK0XgSQIcv96gWczKYN1BdQpLeSt/UYLXXAegRVPJyxHZ9N37VEi3q\neo/kWRkRmuIH5R1UMatoJT3fAAt6qXgt3vH4SS66PF
        "payload": "tree 63bdd4b39593a2a35a03df06b84d16ac6f9e80d9\nparent d8636dc3e85d0563909fd10320a1d31e0f600db9\nparent 124b5a6889286a85563fea01354f176015b33971\nauthor amehlhase316 <46384989+amehlhase316@users.noreply.github.
      }
    },
    "url": "https://api.github.com/repos/amehlhase316/inClass/commits/bedf202be0a6791c816621f25a68fd04f2526d98",
    "html_url": "https://github.com/amehlhase316/inClass/commit/bedf202be0a6791c816621f25a68fd04f2526d98",
    "comments_url": "https://api.github.com/repos/amehlhase316/inClass/commits/bedf202be0a6791c816621f25a68fd04f2526d98/comments",
    "author": {
      "login": "amehlhase316",
      "id": 46384989,
      "node_id": "MDQ6VXNlcjQ2Mzg0OTg5",
      "avatar_url": "https://avatars.githubusercontent.com/u/46384989?v=4",
      "gravatar_id": "",
      "url": "https://api.github.com/users/amehlhase316",
      "html_url": "https://github.com/amehlhase316",
      "followers_url": "https://api.github.com/users/amehlhase316/followers",
      "following_url": "https://api.github.com/users/amehlhase316/following{/other_user}",
      "gists_url": "https://api.github.com/users/amehlhase316/gists{/gist_id}",
      "starred_url": "https://api.github.com/users/amehlhase316/starred{/owner}{/repo}",
      "subscriptions_url": "https://api.github.com/users/amehlhase316/subscriptions",
      "organizations_url": "https://api.github.com/users/amehlhase316/orgs",
      "repos_url": "https://api.github.com/users/amehlhase316/repos",
      "events_url": "https://api.github.com/users/amehlhase316/events{/privacy}",
      "received_events_url": "https://api.github.com/users/amehlhase316/received_events",
      "type": "User",
      "site_admin": false
    },
    "committer": {
      "login": "web-flow",
      "id": 19864447,
```

URL with parameters:

https://api.github.com/repos/amehlhase316/inClass/commits?sha=GitHubBranch&per_page=50


```
[
  {
    "sha": "d8636dc3e85d0563909fd10320a1d31e0f600db9",
    "node_id": "C_kwDOIzOP_NoAKGQ4NjM2ZGMzZTg1ZDA1NjM5MDlmZDEwMzIwYTFkMzFlMGY2MDBkYjk",
    "commit": {
      "author": {
        "name": "amehlhas",
        "email": "a.mehlhase@asu.edu",
        "date": "2023-01-18T18:13:28Z"
      },
      "committer": {
        "name": "amehlhas",
        "email": "a.mehlhase@asu.edu",
        "date": "2023-01-18T18:13:28Z"
      },
      "message": "Change on master",
      "tree": {
        "sha": "473f6f81add00b330e2e3bce9be2feb414b66131",
        "url": "https://api.github.com/repos/amehlhase316/inClass/git/trees/473f6f81add00b330e2e3bce9be2feb414b66131"
      },
      "url": "https://api.github.com/repos/amehlhase316/inClass/git/commits/d8636dc3e85d0563909fd10320a1d31e0f600db9",
      "comment_count": 0,
      "verification": {
        "verified": false,
        "reason": "unsigned",
        "signature": null,
        "payload": null
      }
    },
    "url": "https://api.github.com/repos/amehlhase316/inClass/commits/d8636dc3e85d0563909fd10320a1d31e0f600db9",
    "html_url": "https://github.com/amehlhase316/inClass/commit/d8636dc3e85d0563909fd10320a1d31e0f600db9",
    "comments_url": "https://api.github.com/repos/amehlhase316/inClass/commits/d8636dc3e85d0563909fd10320a1d31e0f600db9/comments",
    "author": {
      "login": "ser316asu",
      "id": 25068531,
      "node_id": "MDQ6VXNlcjI1MDY4NTMx",
      "avatar_url": "https://avatars.githubusercontent.com/u/25068531?v=4",
      "gravatar_id": "",
      "url": "https://api.github.com/users/ser316asu",
      "html_url": "https://github.com/ser316asu",
      "followers_url": "https://api.github.com/users/ser316asu/followers",
      "following_url": "https://api.github.com/users/ser316asu/following{/other_user}",
      "gists_url": "https://api.github.com/users/ser316asu/gists{/gist_id}",
      "starred_url": "https://api.github.com/users/ser316asu/starred{/owner}{/repo}",
      "subscriptions_url": "https://api.github.com/users/ser316asu/subscriptions",
      "organizations_url": "https://api.github.com/users/ser316asu/orgs",
      "repos_url": "https://api.github.com/users/ser316asu/repos",
      "events_url": "https://api.github.com/users/ser316asu/events{/privacy}",
      "received_events_url": "https://api.github.com/users/ser316asu/received_events",
      "type": "User",
      "site_admin": false
    },
    "committer": {
      "login": "ser316asu",
      "id": 25068531,
```

Task 2:


You can make the following GET requests

- **/file/sample.html -- returns the content of the file sample.html**
- **/json -- returns a json of the /random request**
- **/random -- returns index.html**

File Structure in www (you can use /file/www/FILENAME):

- root.html
- index.html

```
<=========----> 75% EXECUTING [6m 11s]
> :FunWebServer
^C[ec2-user@ip-172-31-26-66 WebServer]$ ^C
[ec2-user@ip-172-31-26-66 WebServer]$ ^C
-bash: $'\003': command not found
[ec2-user@ip-172-31-26-66 WebServer]$ gradle FunWebServer

> Task :FunWebServer
Received: GET / HTTP/1.1
Received: Host: 35.88.123.125:9000
Received: Connection: keep-alive
Received: Upgrade-Insecure-Requests: 1
Received: User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKi
t/537.36 (KHTML, like Gecko) Chrome/109.0.0.0 Safari/537.36
Received: Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/av
if,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Received: Accept-Encoding: gzip, deflate
Received: Accept-Language: en-US,en;q=0.9
Received:
FINISHED PARSING HEADER

<=========----> 75% EXECUTING [1m 17s]
> :FunWebServer
```

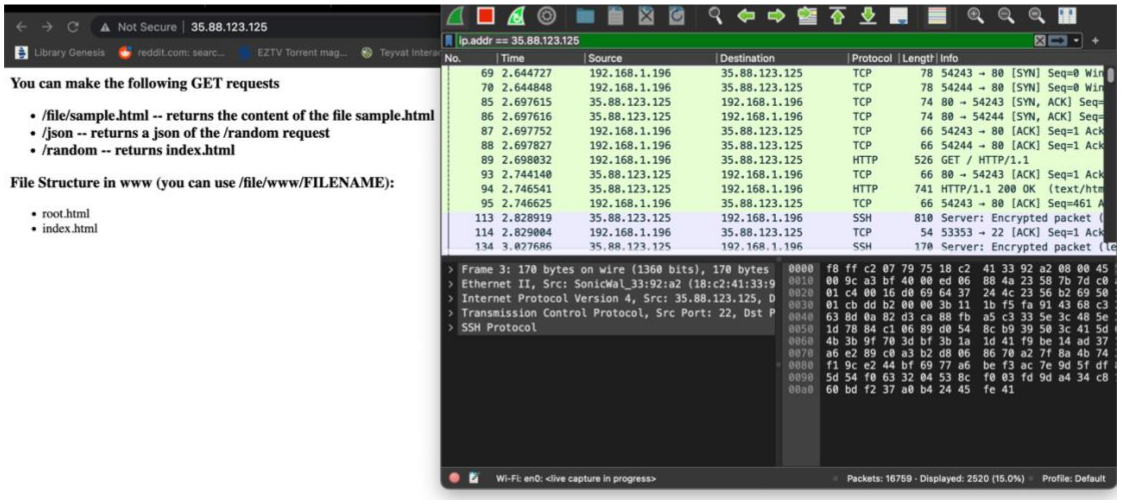
1. I used the ip address filter to only see activity for the connection between my PC and the aws server the program is running on.
2. The browser sends an HTTP request to the server asking for a new random page when you are on the "/random" page and click the "Random" button. The browser refreshes the

page by making another HTTP request to the server, which causes the current page to reload. These requests will appear in the command line output from the server.

3. We can get three response codes. The 200,400 and 404 codes.
4. The codes you can get are 200 ok code signaling the execution was successful, the 400 bad request code when request is not recognized and the 404 not found code when the file being called isn't found.
5. Yes I can.
6. HTTPs encrypts your data so anyone tracking traffic cant gain access to your sensitive data while your PC is communicating with a website.
7. The server listens to port 9000, which isn't the most common port for HTTP because the default HTTP port is 80.
8. Port 53789

Task 2.3

1. http://35.88.123.125/
2. The port being connected to is port 80. The ports changed because before we were specifying the port to connect to but now, we aren't so it connected to the default http port, 80, and is then rerouted to port 9000.
3. It is still http because we did not change the protocol, we just changed the port its connecting to.

4. 

Not Secure | 35.88.123.125

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You can make the following GET requests

- **/file/sample.html -- returns the content of the file sample.html**
- **/json -- returns a json of the /random request**
- **/random -- returns index.html**

File Structure in www (you can use /file/www/FILENAME):

- root.html
- index.html

ip.addr == 35.88.123.125

```
No.  Time      Source         Destination    Protocol Length Info
 69 2.644727   192.168.1.196  35.88.123.125  TCP       78 54243 → 80 [SYN] Seq=0 Wir
 70 2.644848   192.168.1.196  35.88.123.125  TCP       78 54244 → 80 [SYN] Seq=0 Wir
 85 2.697615   35.88.123.125  192.168.1.196  TCP       74 80 → 54243 [SYN, ACK] Seq=
 86 2.697616   35.88.123.125  192.168.1.196  TCP       74 80 → 54244 [SYN, ACK] Seq=
 87 2.697752   192.168.1.196  35.88.123.125  TCP       66 54243 → 80 [ACK] Seq=1 Ack
 88 2.697827   192.168.1.196  35.88.123.125  TCP       66 54244 → 80 [ACK] Seq=1 Ack
 89 2.698032   192.168.1.196  35.88.123.125  HTTP     526 GET / HTTP/1.1
 93 2.744140   35.88.123.125  192.168.1.196  TCP       66 80 → 54243 [ACK] Seq=1 Ack
 94 2.746541   35.88.123.125  192.168.1.196  HTTP     741 HTTP/1.1 200 OK  (text/htm
 95 2.746625   192.168.1.196  35.88.123.125  TCP       66 54243 → 80 [ACK] Seq=461 A
113 2.828919   35.88.123.125  192.168.1.196  SSH      810 Server: Encrypted packet (
114 2.829004   192.168.1.196  35.88.123.125  TCP       54 53353 → 22 [ACK] Seq=1 Ack
134 3.027686   35.88.123.125  192.168.1.196  SSH      170 Server: Encrypted packet (le
```

```
> Frame 3: 170 bytes on wire (1360 bits), 170 bytes
> Ethernet II, Src: SonicWal_33:92:a2 (18:c2:41:33:9
> Internet Protocol Version 4, Src: 35.88.123.125, D
> Transmission Control Protocol, Src Port: 22, Dst P
> SSH Protocol
```

```
0000  f8 ff c2 07 79 75 18 c2  41 33 92 a2 08 00 45
0010  00 9c a3 bf 40 00 ed 06  88 4a 23 58 7b 7d c0
0020  01 c4 00 16 d0 69 64 37  24 4c 23 56 b2 69 50
0030  01 cb dd b2 00 00 3b 11  1b f5 fa 91 43 68 c3
0040  63 8d 0a 82 d3 ca 88 fb  a5 c3 33 5e 3c 48 5e
0050  1d 78 84 c1 06 89 d0 54  8c b9 39 50 3c 41 5d
0060  4b 3b 9f 70 3d bf 3b 1a  1d 41 f9 be 14 ad 37
0070  a6 e2 89 c0 a3 b2 d8 06  86 70 a2 7f 8a 4b 74
0080  f1 9c e2 44 bf 69 77 a6  be f3 ac 7e 9d 5f df
0090  5d 54 f0 63 32 04 53 8c  f0 03 fd 9d a4 34 c8
00a0  60 bd f2 37 a0 b4 24 45  fe 41
```

Wi-Fi: en0: <live capture in progress>   Packets: 16759 · Displayed: 2520 (15.0%)   Profile: Default

Task 2.5.1:

I chose to put in error handling for when both the inputs aren’t provided and when one of the inputs is invalid. With this error handling in place, the server will be able to handle invalid or missing data provided by the client in a more graceful way, without crashing and while providing meaningful responses to the client.

Task 2.5.4:

Method 1: convert

Request: http://localhost:9000/convert?value=15&from=miles&to=km

Path: convert

Body parameter:	from (string)
	To (string)
	val (double)

Response:

Ok (200)

Bad Request (400)

Internal Server Error (500)

Not Found (404)

Output: Conversion Result + value + “ “ + from + “ is equal to “ + result + ” “ + to

This method takes a number input along with two string inputs. The number input is the value to be converted while the two string inputs tell the program if the value needs to be converted from miles to km or km to miles.

Method 2: multiply squares

Request: http://localhost:9000/multiply_squares?num1=2&num2=3

Path: multiply_squares

Body parameter:

Num1 (int)

Num2 (int)

Response:

Ok (200)

Bad Request (400)

Internal Server Error (500)

Not Found (404)

Output: The closest perfect square to the sum of squares of " + num1 + " and " + num2 + " is: " + closestPerfectSquare + "."

This method takes in two integers as arguments, squares them, adds the squares and then finds the closest possible perfect square.