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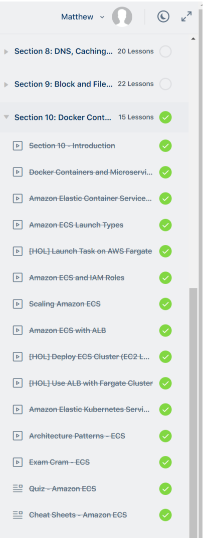
CS 561

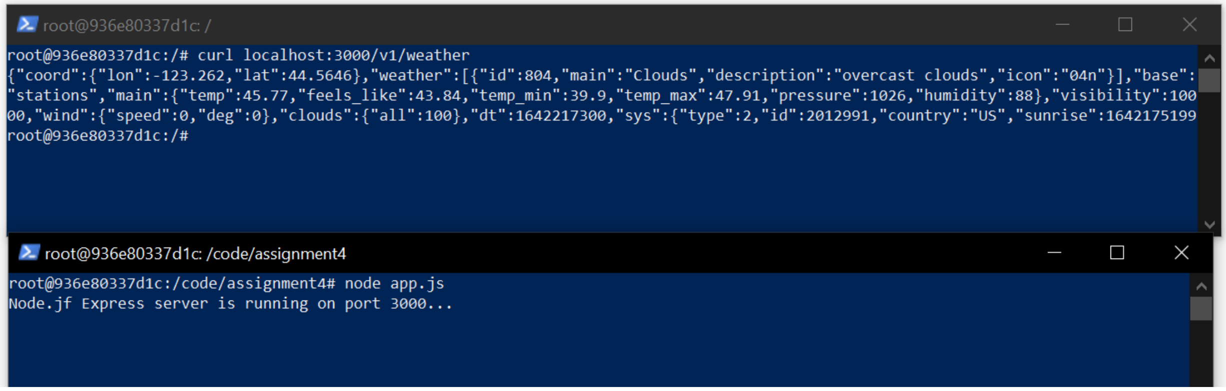
Assignment 4

1. AWS Training #10



- Section 8: DNS, Caching... 20 Lessons ○
- Section 9: Block and File... 22 Lessons ○
- Section 10: Docker Cont... 15 Lessons ✓
  - ~~Section 10 - Introduction~~ ✓
  - ~~Docker Containers and Microservi...~~ ✓
  - ~~Amazon Elastic Container Service...~~ ✓
  - ~~Amazon ECS Launch Types~~ ✓
  - ~~[HOL] Launch Task on AWS Fargate~~ ✓
  - ~~Amazon ECS and IAM Roles~~ ✓
  - ~~Scaling Amazon ECS~~ ✓
  - ~~Amazon ECS with ALB~~ ✓
  - ~~[HOL] Deploy ECS Cluster (EC2 L...~~ ✓
  - ~~[HOL] Use ALB with Fargate Cluster~~ ✓
  - ~~Amazon Elastic Kubernetes Servi...~~ ✓
  - ~~Architecture Patterns - ECS~~ ✓
  - ~~Exam Cram - ECS~~ ✓
  - ~~Quiz - Amazon ECS~~ ✓
  - ~~Cheat Sheets - Amazon ECS~~ ✓

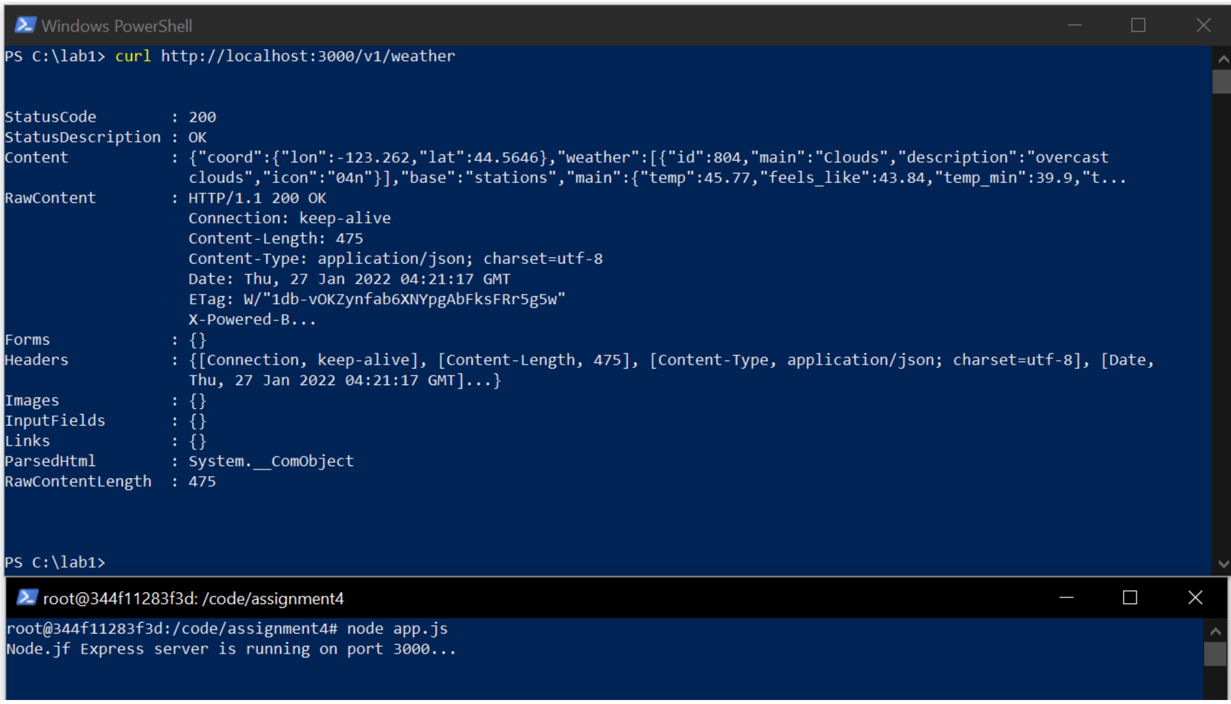
2. Done
3. 4 Docker Configurations
   a. Server and client in same docker container



```
root@936e80337d1c:/# curl localhost:3000/v1/weather
{"coord":{"lon":-123.262,"lat":44.5646},"weather":[{"id":804,"main":"Clouds","description":"overcast clouds","icon":"04n"}],"base":
"stations","main":{"temp":45.77,"feels_like":43.84,"temp_min":39.9,"temp_max":47.91,"pressure":1026,"humidity":88},"visibility":100
00,"wind":{"speed":0,"deg":0},"clouds":{"all":100},"dt":1642217300,"sys":{"type":2,"id":2012991,"country":"US","sunrise":1642175199
root@936e80337d1c:/#
```

```
root@936e80337d1c:/code/assignment4# node app.js
Node.jf Express server is running on port 3000...
```

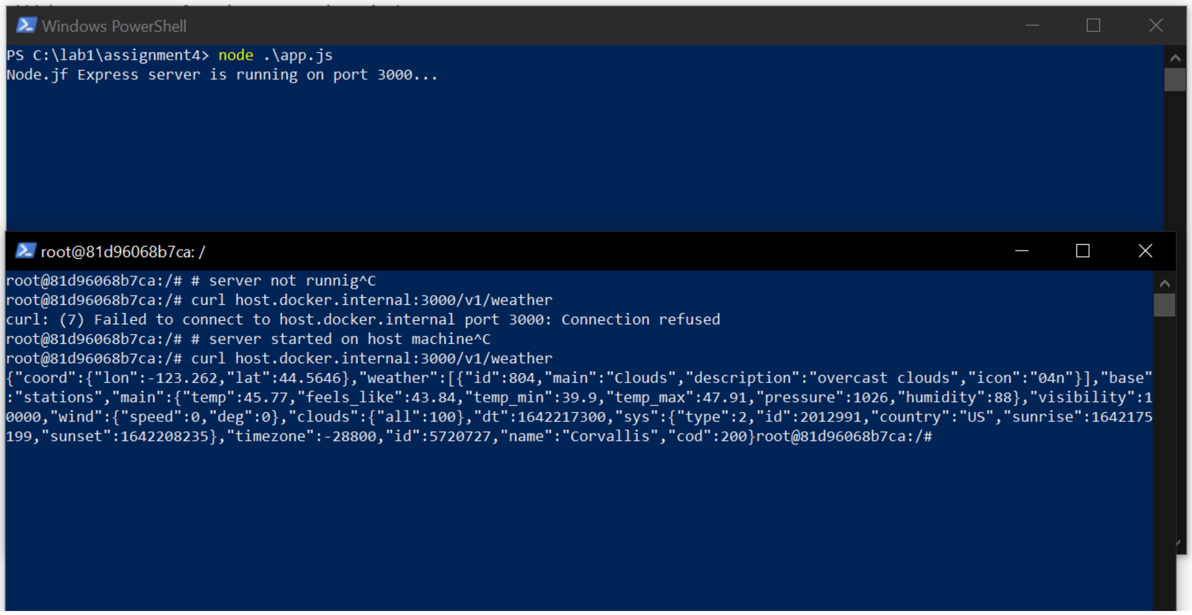
b. Server in docker, client on host



```
PS C:\lab1> curl http://localhost:3000/v1/weather


StatusCode        : 200
StatusDescription : OK
Content           : {"coord":{"lon":-123.262,"lat":44.5646},"weather":[{"id":804,"main":"Clouds","description":"overcast
                    clouds","icon":"04n"}],"base":"stations","main":{"temp":45.77,"feels_like":43.84,"temp_min":39.9,"t...
RawContent        : HTTP/1.1 200 OK
                    Connection: keep-alive
                    Content-Length: 475
                    Content-Type: application/json; charset=utf-8
                    Date: Thu, 27 Jan 2022 04:21:17 GMT
                    ETag: W/"1db-vOKZynfab6XNYpgAbFksFRr5g5w"
                    X-Powered-B...
Forms             : {}
Headers           : {[Connection, keep-alive], [Content-Length, 475], [Content-Type, application/json; charset=utf-8], [Date,
                    Thu, 27 Jan 2022 04:21:17 GMT]...}
Images            : {}
InputFields       : {}
Links             : {}
ParsedHtml        : System.__ComObject
RawContentLength  : 475



PS C:\lab1>
```

```
root@344f11283f3d:/code/assignment4# node app.js
Node.jf Express server is running on port 3000...
```

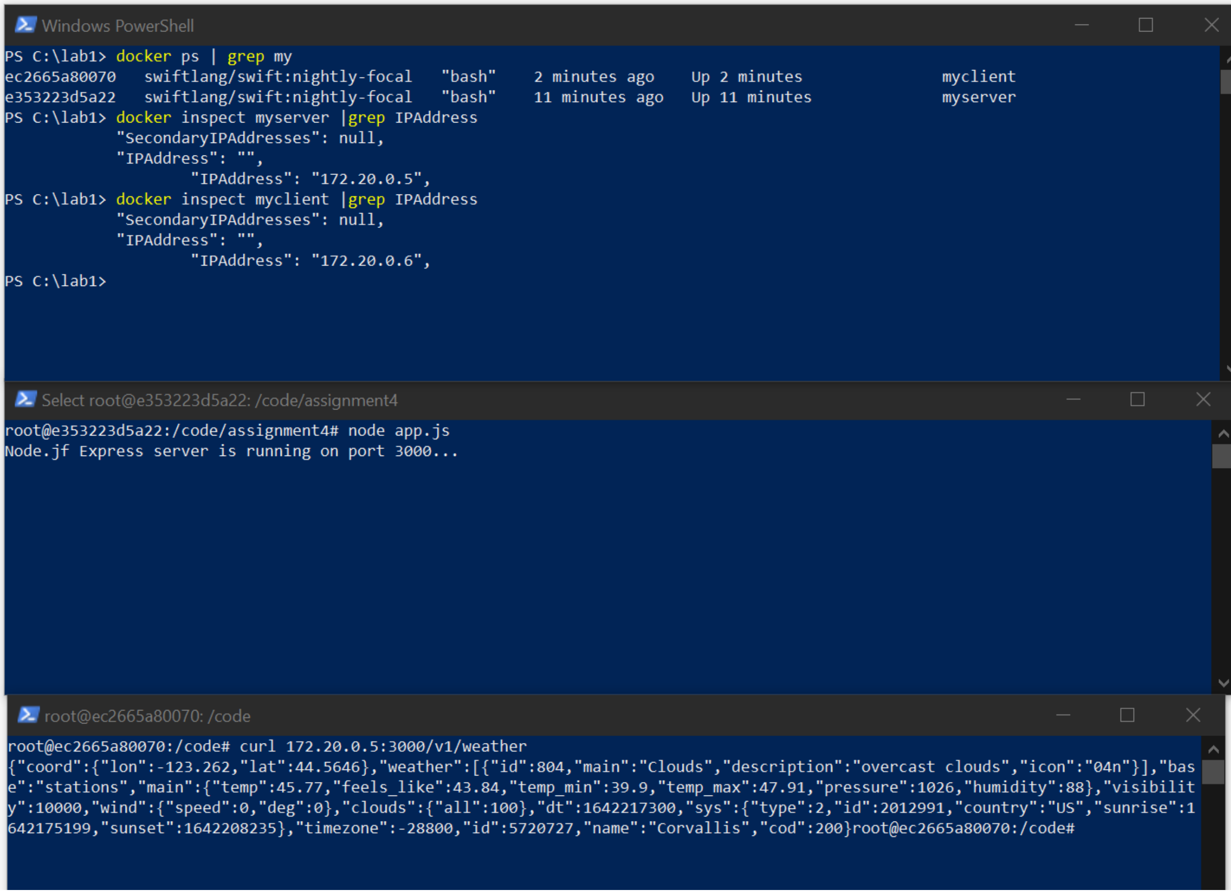
c. Server on host, client in docker



```
PS C:\lab1\assignment4> node .\app.js
Node.jf Express server is running on port 3000...
```

```
root@81d96068b7ca:/# # server not runnig^C
root@81d96068b7ca:/# curl host.docker.internal:3000/v1/weather
curl: (7) Failed to connect to host.docker.internal port 3000: Connection refused
root@81d96068b7ca:/# # server started on host machine^C
root@81d96068b7ca:/# curl host.docker.internal:3000/v1/weather
{"coord":{"lon":-123.262,"lat":44.5646},"weather":[{"id":804,"main":"Clouds","description":"overcast clouds","icon":"04n"}],"base"
:"stations","main":{"temp":45.77,"feels_like":43.84,"temp_min":39.9,"temp_max":47.91,"pressure":1026,"humidity":88},"visibility":1
0000,"wind":{"speed":0,"deg":0},"clouds":{"all":100},"dt":1642217300,"sys":{"type":2,"id":2012991,"country":"US","sunrise":1642175
199,"sunset":1642208235},"timezone":-28800,"id":5720727,"name":"Corvallis","cod":200}root@81d96068b7ca:/#
```

d. Server in docker, client in another docker container



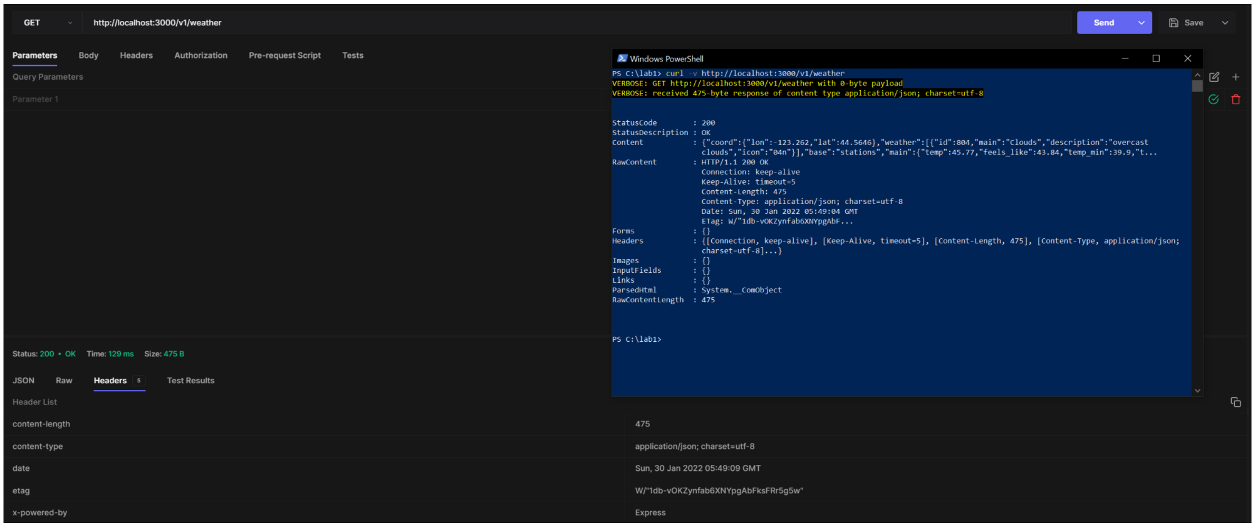
```
PS C:\lab1> docker ps | grep my
ec2665a80070   swiftlang/swift:nightly-focal   "bash"    2 minutes ago    Up 2 minutes                  myclient
e353223d5a22   swiftlang/swift:nightly-focal   "bash"    11 minutes ago   Up 11 minutes                 myserver
PS C:\lab1> docker inspect myserver |grep IPAddress
            "SecondaryIPAddresses": null,
            "IPAddress": "",
                    "IPAddress": "172.20.0.5",
PS C:\lab1> docker inspect myclient |grep IPAddress
            "SecondaryIPAddresses": null,
            "IPAddress": "",
                    "IPAddress": "172.20.0.6",
PS C:\lab1>
```

```
root@e353223d5a22:/code/assignment4# node app.js
Node.jf Express server is running on port 3000...
```

```
root@ec2665a80070:/code# curl 172.20.0.5:3000/v1/weather
{"coord":{"lon":-123.262,"lat":44.5646},"weather":[{"id":804,"main":"Clouds","description":"overcast clouds","icon":"04n"}],"bas
e":"stations","main":{"temp":45.77,"feels_like":43.84,"temp_min":39.9,"temp_max":47.91,"pressure":1026,"humidity":88},"visibilit
y":10000,"wind":{"speed":0,"deg":0},"clouds":{"all":100},"dt":1642217300,"sys":{"type":2,"id":2012991,"country":"US","sunrise":1
642175199,"sunset":1642208235},"timezone":-28800,"id":5720727,"name":"Corvallis","cod":200}root@ec2665a80070:/code#
```

4. https://github.com/osu-mp/cs561-assignments/blob/main/4/swagger.yaml
5. **Weather**

   Both curl (blue window) and hoppscotch (black) had mostly the same headers: content-length, content-type, date, and etag. The one addition hoppscotch had was x-powered-by. This x-powered-by field was not shown in the Windows curl output, but was visible when running the git/mingw64 curl (see auth screenshot below).

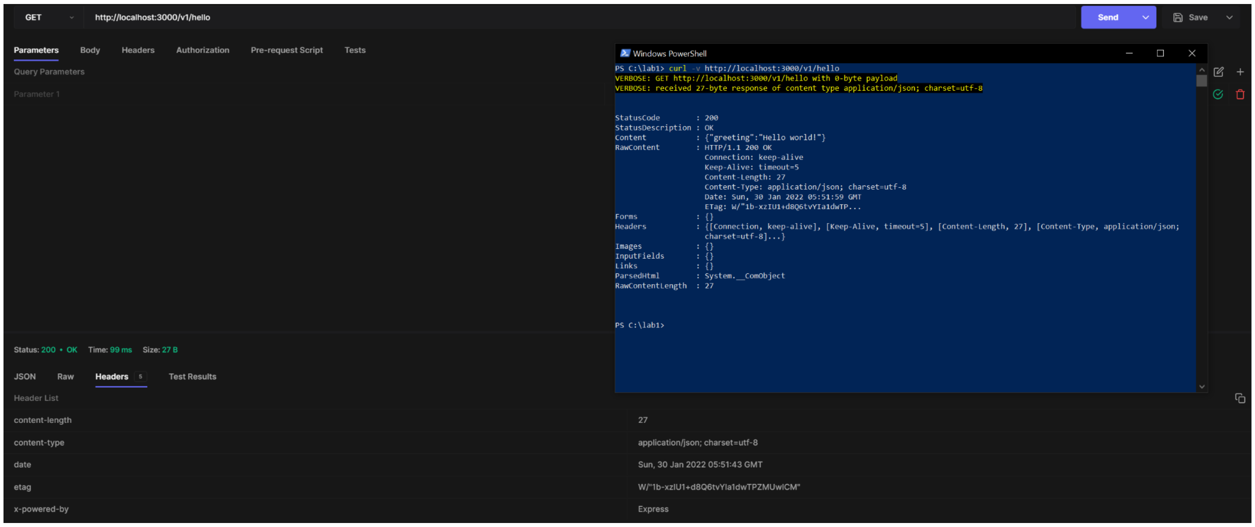


```
PS C:\lab1> curl -v http://localhost:3000/v1/weather
VERBOSE: GET http://localhost:3000/v1/weather with 0-byte payload
VERBOSE: received 475-byte response of content type application/json; charset=utf-8


StatusCode        : 200
StatusDescription : OK
Content           : {"coord":{"lon":-123.262,"lat":44.5646},"weather":[{"id":804,"main":"Clouds","description":"overcast
                    clouds","icon":"04n"}],"base":"stations","main":{"temp":45.77,"feels_like":43.84,"temp_min":39.9,"t...
RawContent        : HTTP/1.1 200 OK
                    Connection: keep-alive
                    Keep-Alive: timeout=5
                    Content-Length: 475
                    Content-Type: application/json; charset=utf-8
                    Date: Sun, 30 Jan 2022 05:49:04 GMT
                    ETag: W/"1db-vOKZynfab6XNYpgAbF...
Forms             : {}
Headers           : {[Connection, keep-alive], [Keep-Alive, timeout=5], [Content-Length, 475], [Content-Type, application/json;
                    charset=utf-8]...}
Images            : {}
InputFields       : {}
Links             : {}
ParsedHtml        : System.__ComObject
RawContentLength  : 475



PS C:\lab1>
```

Status: 200 • OK Time: 129 ms Size: 475 B

content-length	475
content-type	application/json; charset=utf-8
date	Sun, 30 Jan 2022 05:49:09 GMT
etag	W/"1db-vOKZynfab6XNYpgAbFksFRr5g5w"
x-powered-by	Express

Hello



http://localhost:3000/v1/hello

```
PS C:\lab1> curl -v http://localhost:3000/v1/hello
VERBOSE: GET http://localhost:3000/v1/hello with 0-byte payload
VERBOSE: received 27-byte response of content type application/json; charset=utf-8


StatusCode        : 200
StatusDescription : OK
Content           : {"greeting":"Hello world!"}
RawContent        : HTTP/1.1 200 OK
                    Connection: keep-alive
                    Keep-Alive: timeout=5
                    Content-Length: 27
                    Content-Type: application/json; charset=utf-8
                    Date: Sun, 30 Jan 2022 05:51:59 GMT
                    ETag: W/"1b-xzIU1+d8Q6tvYIa1dwTP...
Forms             : {}
Headers           : {[Connection, keep-alive], [Keep-Alive, timeout=5], [Content-Length, 27], [Content-Type, application/json;
                    charset=utf-8]...}
Images            : {}
InputFields       : {}
Links             : {}
ParsedHtml        : System.__ComObject
RawContentLength  : 27



PS C:\lab1>
```

Status: 200 • OK   Time: 99 ms   Size: 27 B

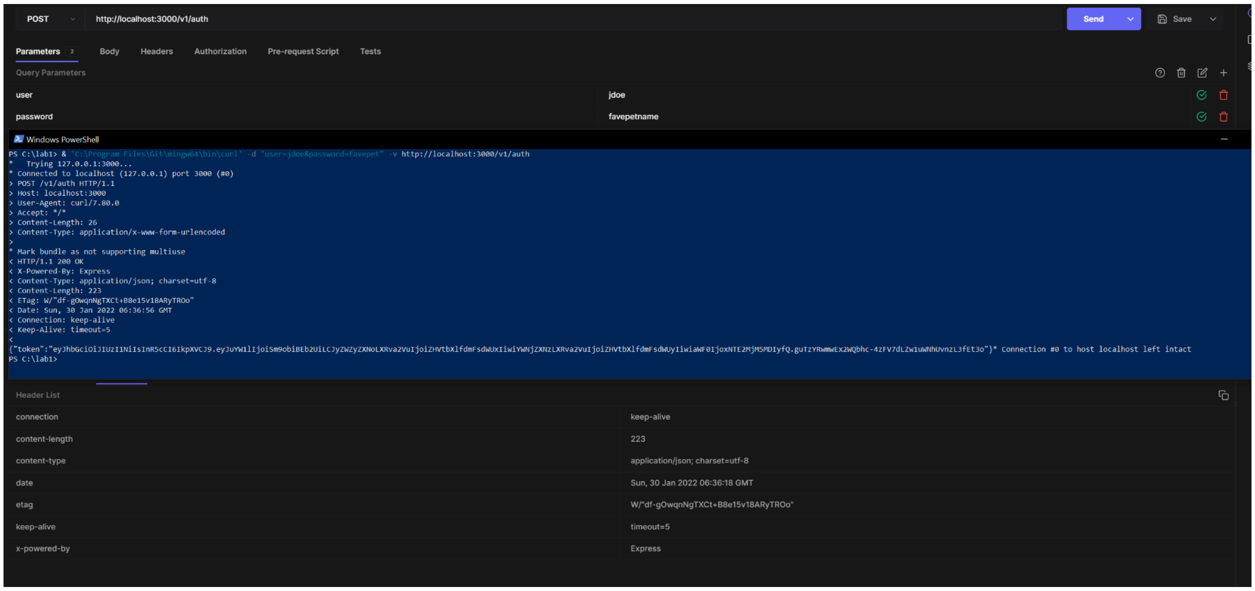
JSON   Raw   Headers 5   Test Results

Header List

content-length	27
content-type	application/json; charset=utf-8
date	Sun, 30 Jan 2022 05:51:43 GMT
etag	W/"1b-xzIU1+d8Q6tvYIa1dwTPZMUwICM"
x-powered-by	Express

Auth

Using an expanded view during auth, it looks like the x-powered by is present in the curl command (just needed to use the git/mingw64 curl instead of the Windows curl).



http://localhost:3000/v1/auth

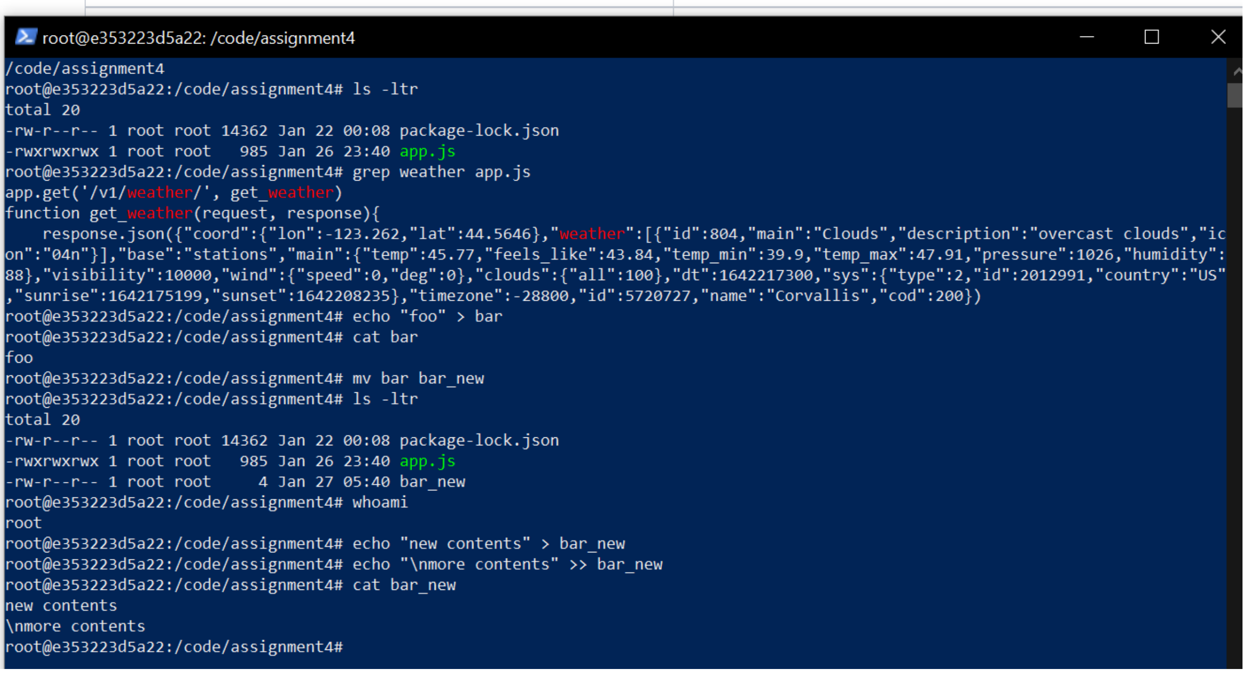
user	jdoe
password	favepetname

```
PS C:\lab1> & 'C:\Program Files\Git\mingw64\bin\curl' -d "user=jdoe&password=favepet" -v http://localhost:3000/v1/auth
*   Trying 127.0.0.1:3000...
* Connected to localhost (127.0.0.1) port 3000 (#0)
> POST /v1/auth HTTP/1.1
> Host: localhost:3000
> User-Agent: curl/7.80.0
> Accept: */*
> Content-Length: 26
> Content-Type: application/x-www-form-urlencoded
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< X-Powered-By: Express
< Content-Type: application/json; charset=utf-8
< Content-Length: 223
< ETag: W/"df-gOwqnNgTXCt+B8e15v18ARyTROo"
< Date: Sun, 30 Jan 2022 06:36:56 GMT
< Connection: keep-alive
< Keep-Alive: timeout=5
<
{"token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJuYW1lIjoiSm9obiBEb2UiLCJyZWZyZXNoLXRva2VuIjoiZHVtbXlfdmFsdWUxIiwiYWNjZXNzLXRva2VuIjoiZHVtbXlfdmFsdWUyIiwiaWF0IjoxNTE2MjM5MDIyfQ.guTzYRwmwEx2WQbhc-4zFV7dLZw1uWNhUvnzL3fEt3o"}* Connection #0 to host localhost left intact
PS C:\lab1>
```

Header List

connection	keep-alive
content-length	223
content-type	application/json; charset=utf-8
date	Sun, 30 Jan 2022 06:36:18 GMT
etag	W/"df-gOwqnNgTXCt+B8e15v18ARyTROo"
keep-alive	timeout=5
x-powered-by	Express

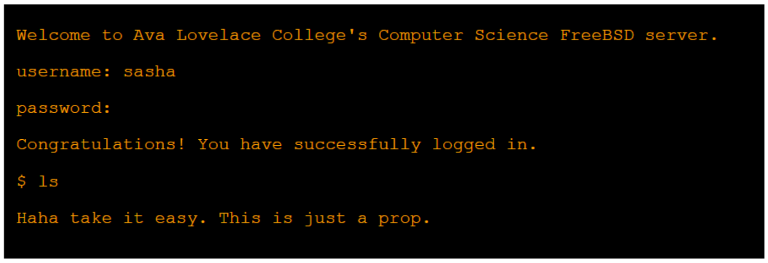
6. Unix commands practice



```
/code/assignment4
root@e353223d5a22:/code/assignment4# ls -ltr
total 20
-rw-r--r-- 1 root root 14362 Jan 22 00:08 package-lock.json
-rwxrwxrwx 1 root root   985 Jan 26 23:40 app.js
root@e353223d5a22:/code/assignment4# grep weather app.js
app.get('/v1/weather/', get_weather)
function get_weather(request, response){
    response.json({"coord":{"lon":-123.262,"lat":44.5646},"weather":[{"id":804,"main":"Clouds","description":"overcast clouds","ic
on":"04n"}],"base":"stations","main":{"temp":45.77,"feels_like":43.84,"temp_min":39.9,"temp_max":47.91,"pressure":1026,"humidity":
88},"visibility":10000,"wind":{"speed":0,"deg":0},"clouds":{"all":100},"dt":1642217300,"sys":{"type":2,"id":2012991,"country":"US"
,"sunrise":1642175199,"sunset":1642208235},"timezone":-28800,"id":5720727,"name":"Corvallis","cod":200})
root@e353223d5a22:/code/assignment4# echo "foo" > bar
root@e353223d5a22:/code/assignment4# cat bar
foo
root@e353223d5a22:/code/assignment4# mv bar bar_new
root@e353223d5a22:/code/assignment4# ls -ltr
total 20
-rw-r--r-- 1 root root 14362 Jan 22 00:08 package-lock.json
-rwxrwxrwx 1 root root   985 Jan 26 23:40 app.js
-rw-r--r-- 1 root root     4 Jan 27 05:40 bar_new
root@e353223d5a22:/code/assignment4# whoami
root
root@e353223d5a22:/code/assignment4# echo "new contents" > bar_new
root@e353223d5a22:/code/assignment4# echo "\nmore contents" >> bar_new
root@e353223d5a22:/code/assignment4# cat bar_new
new contents
\nmore contents
root@e353223d5a22:/code/assignment4#
```

7. Cracking Hack-Along

The orange-and-black terminal window below will probably not show up on a smartphone. (Have not tried on a tablet.) So you might have to use a laptop (e.g. your macbook) or desktop for this one.



```
Welcome to Ava Lovelace College's Computer Science FreeBSD server.
username: sasha
password:
Congratulations! You have successfully logged in.
$ ls
Haha take it easy. This is just a prop.
```