PSP0201

Week 2

Writeup

Group Name: DASH

Members

ID	Name	Role
1211101775	Lam Yuet Xin	Leader
1211101749	Teoh Xin Pei	Member
1211101398	Poh Ern Qi	Member
1211101800	Tan Jia Jin	Member

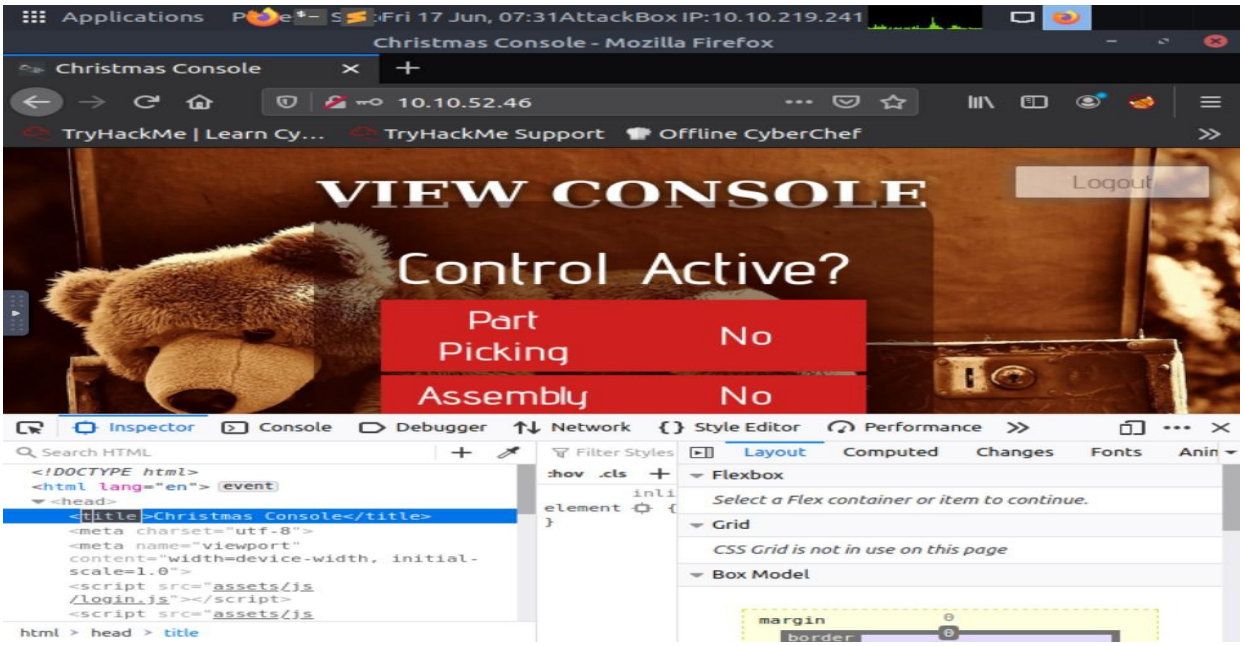
Day 1: Web Exploitation – A Christmas Crisis

Tools used: Attackbox /try hack me

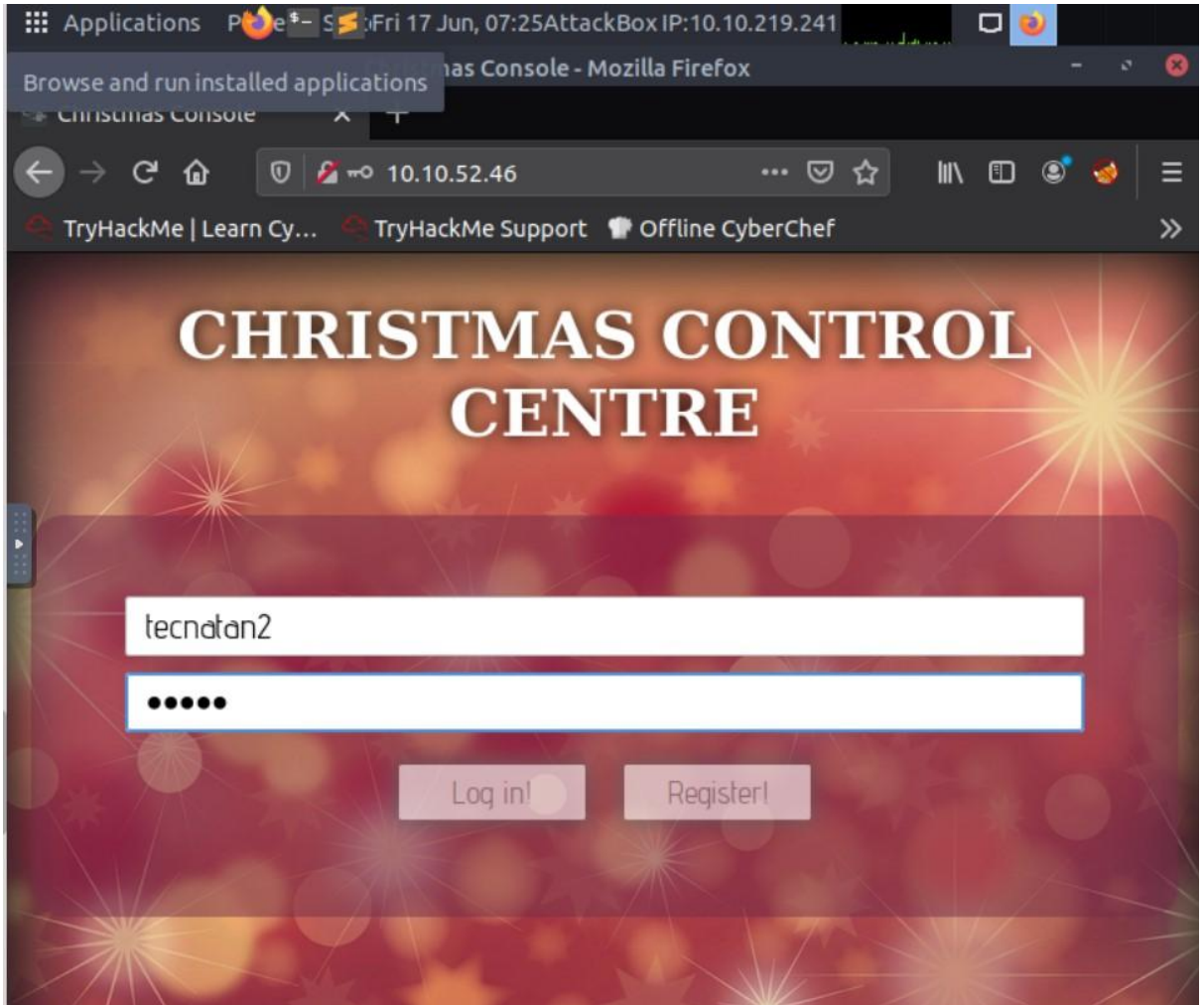
Solution/walkthrough:

Question 1

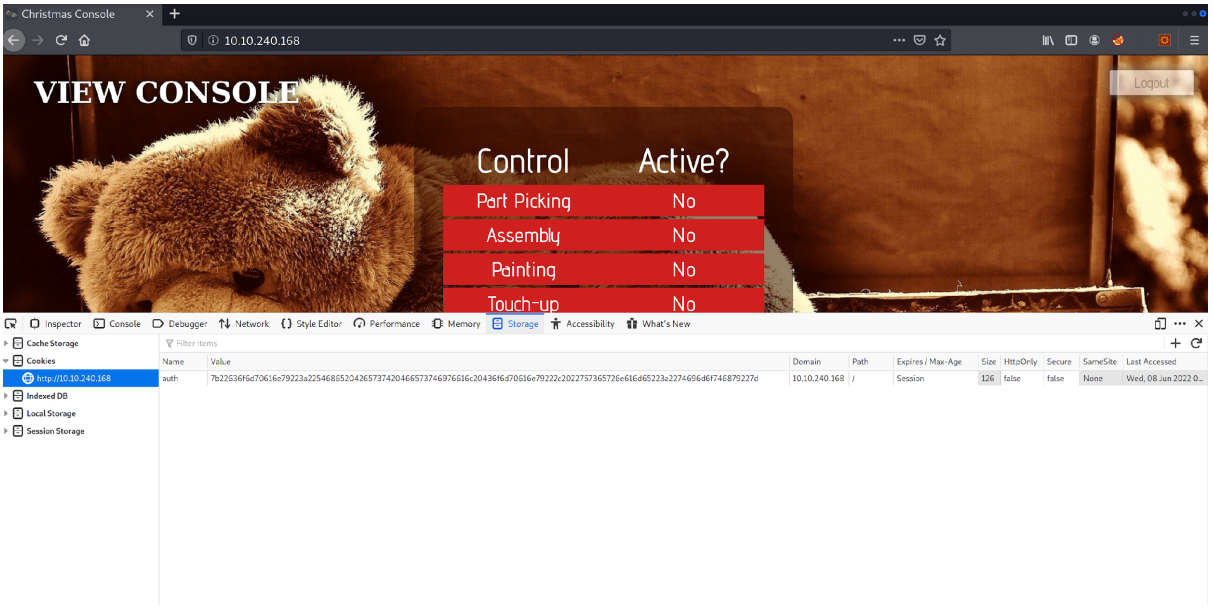
Inspect the website and we will see <tittle>Christmas Console</tittle> from the html tittle tag.



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

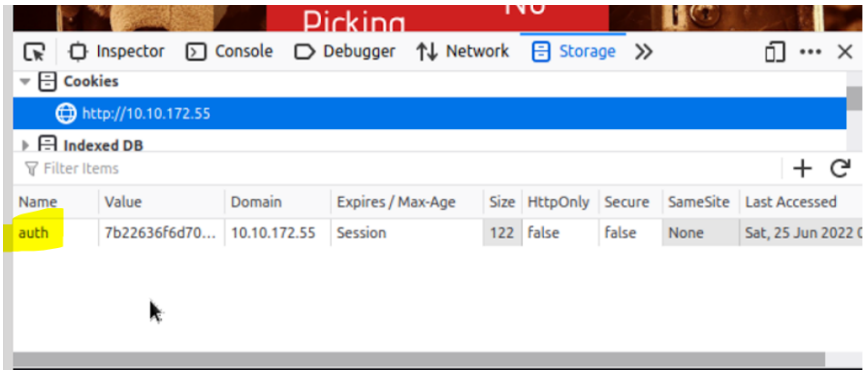


Opening up the browser developer tools to check on the cookie.



Question 2

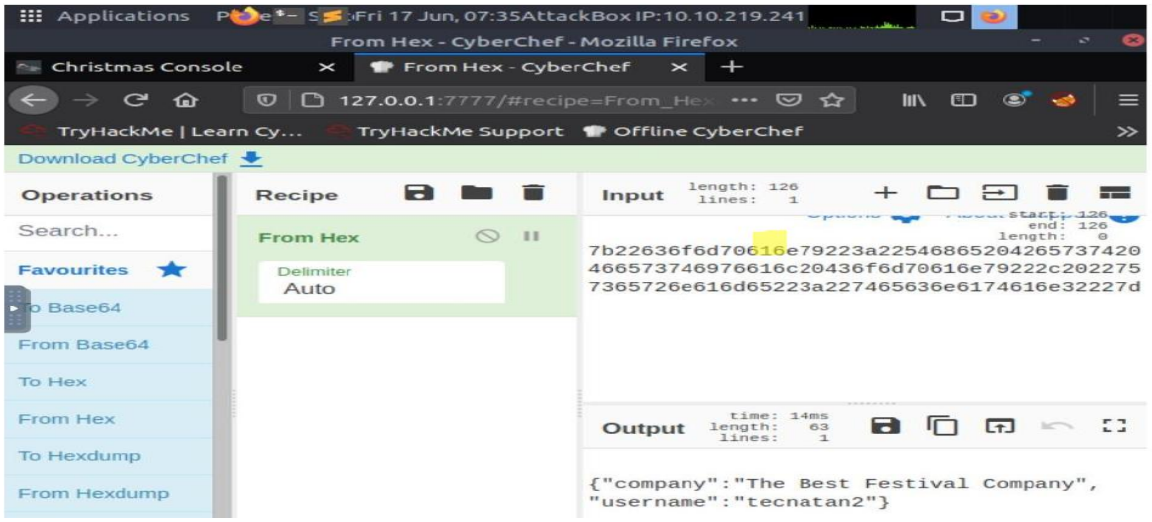
The name of the cookie used for authentication is Auth.



Question 3

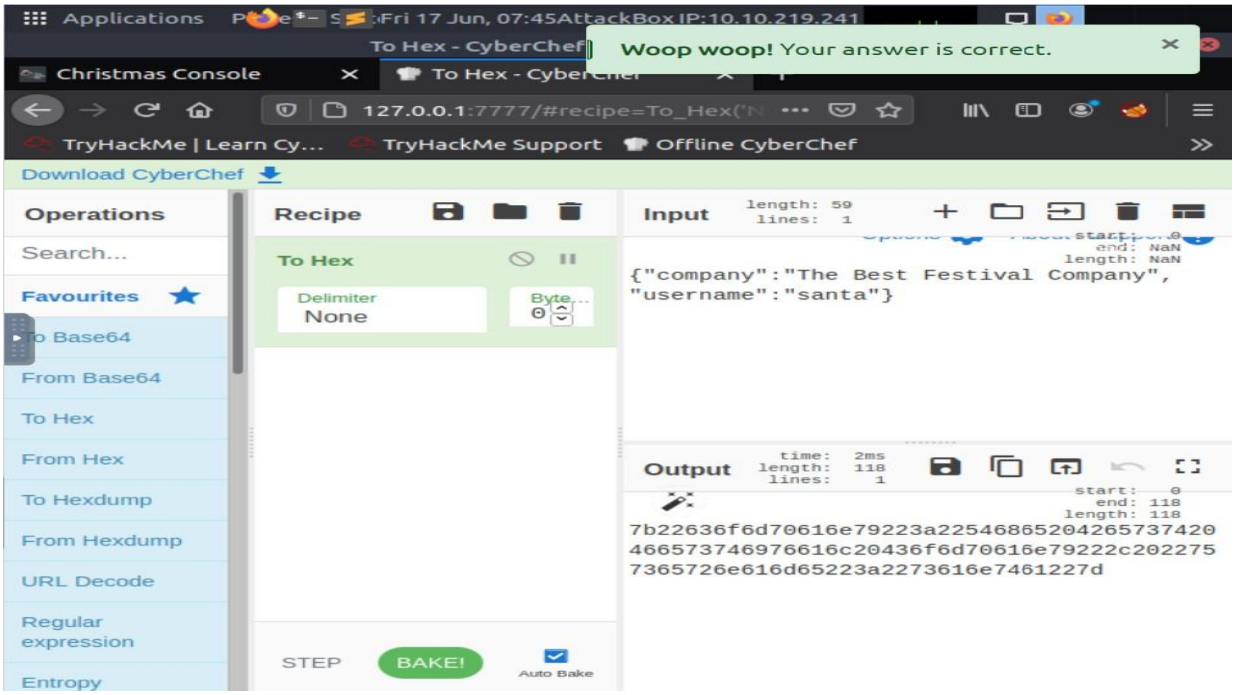
Using Cyberchef, convert the cookie value to string.

Format of the value of this cookie encoded in hexadecimal.



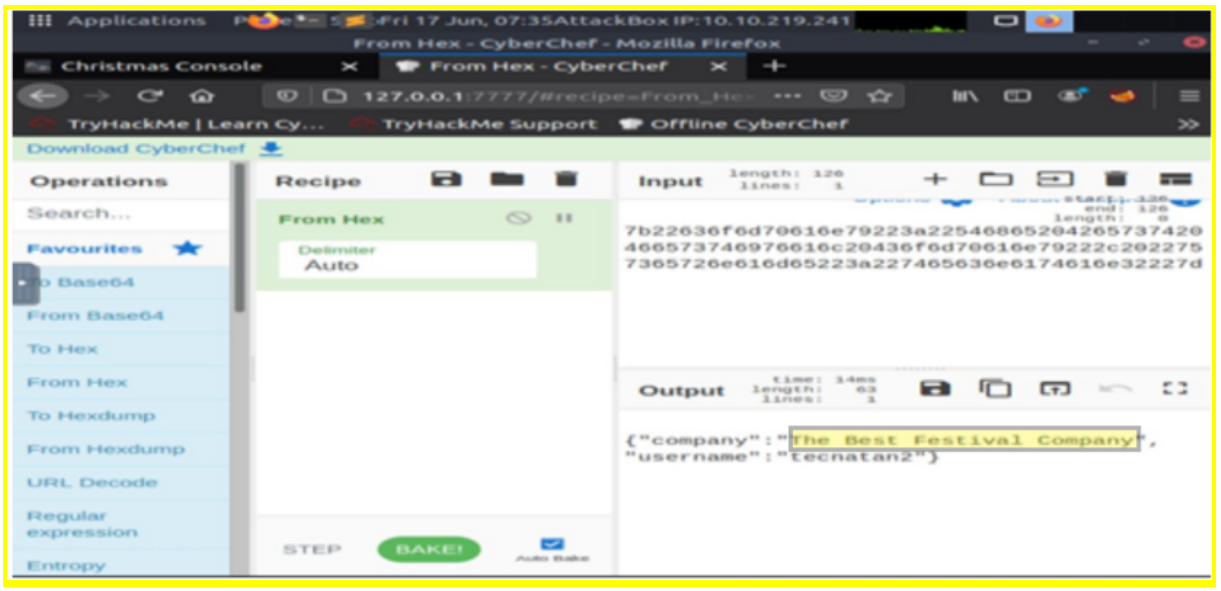
Question 4

Changing the username to 'santa', convert the JSON statement to hex.



Question 5

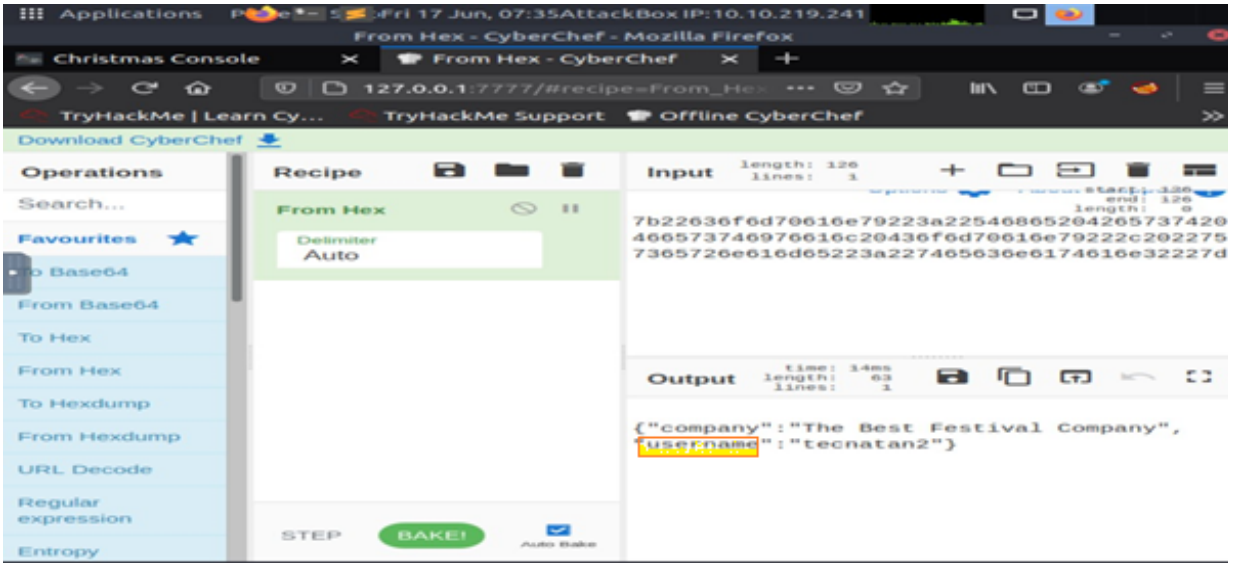
The value for the company field in the cookie is **The Best Festival Company**



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

Question 6

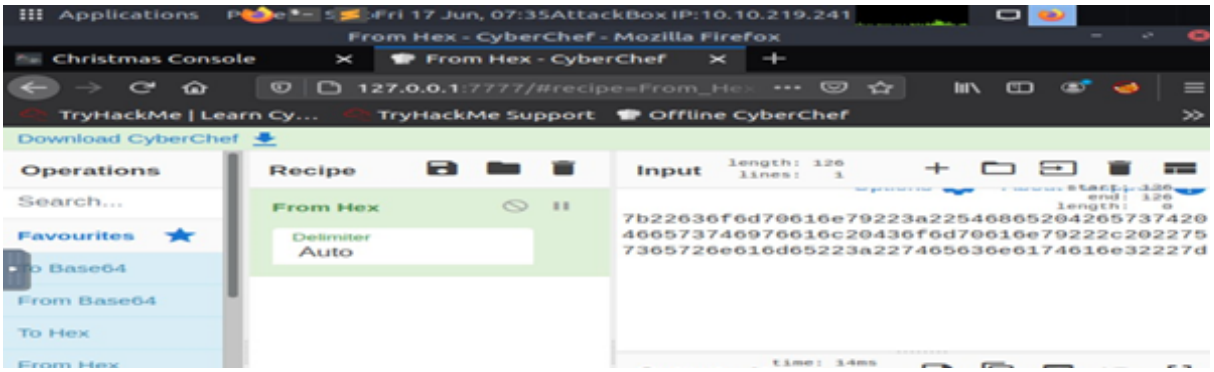
The other field found in the cookie is username.



Question 7

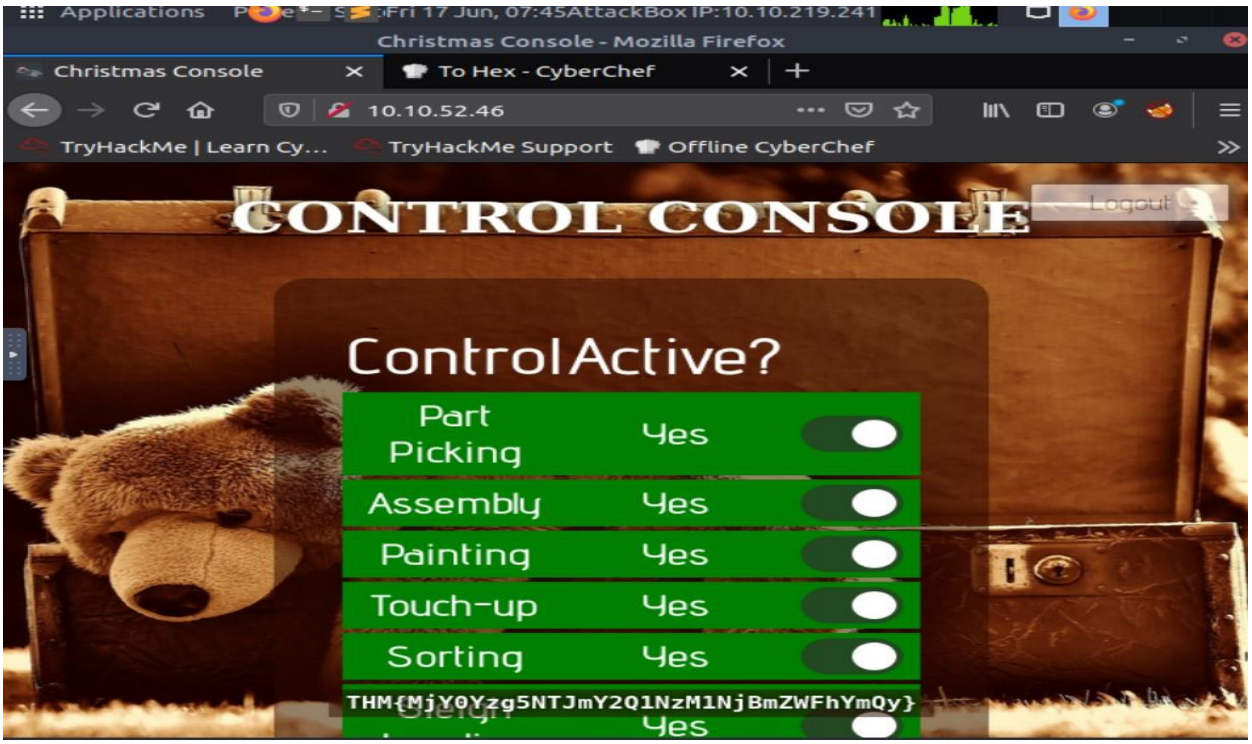
The value of Santa's cookie is

7b22636f6d70616e79223a22546865204265737420466573746976616c20436f6d70616e79222c2022757365726e616d65223a2273616e7461227d



Question 8

When the line is fully active, the flag is given THM{MjY0Yzg5NTJmY2Q1NzM1NjBmZWFhYmQy}



Thought Process/Methodology:

start machine, copy the IP address from THM, we will need to open up firefox by clicking on the icon batch at your right hand side toolbar. Navigate to the address bar and type in that IP address (10.10.52.46). Then, we were shown a login/registration page. We proceeded to register an account by entering your username and password with at least 5 letters and login again. After logging in, we open the browser's developer tool by pressing f12 on our keyboard. To view the site cookie, we will need to go to storage by clicking the little arrow on the upper toolbar. Looking at the cookie value, we deduced it to be a hexadecimal value because including the 0, we have 16 numbers and proceeded to convert it to text using Cyberchef. Select and drag "From Hex" to the recipe pane. "Company" and "Username" are viewed. JSON (javascript object notation) statement is found with the username element. Using Cyberchef, we changed 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 automatically, which in turn showed the flag.

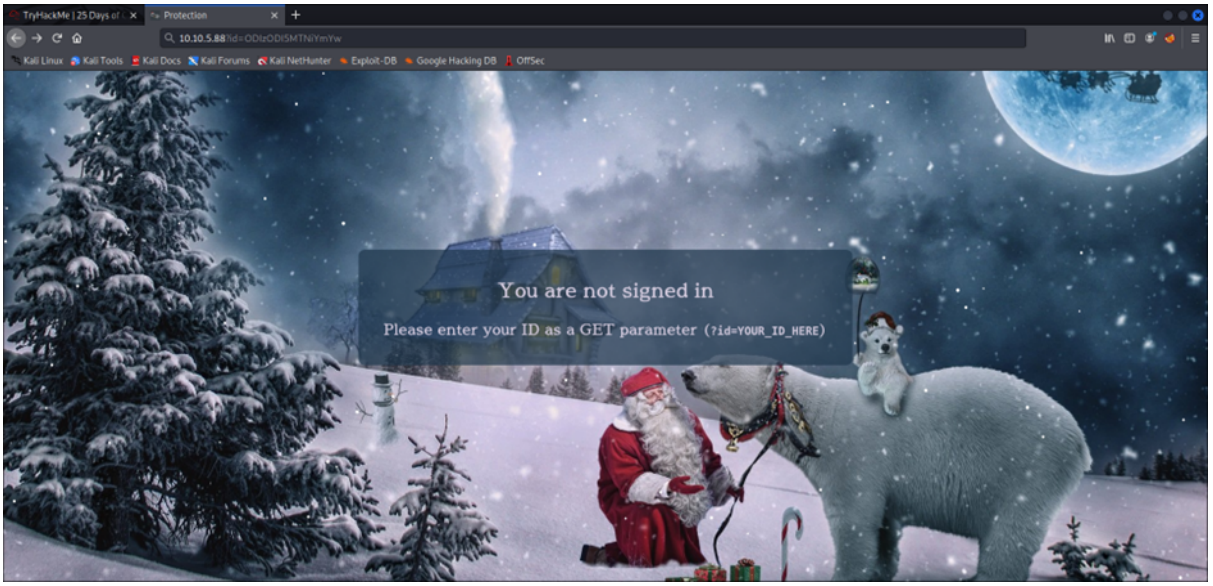
Day 2: Web Exploitation -The Elf Strikes Back!

Tools used: Kali Linux, Firefox

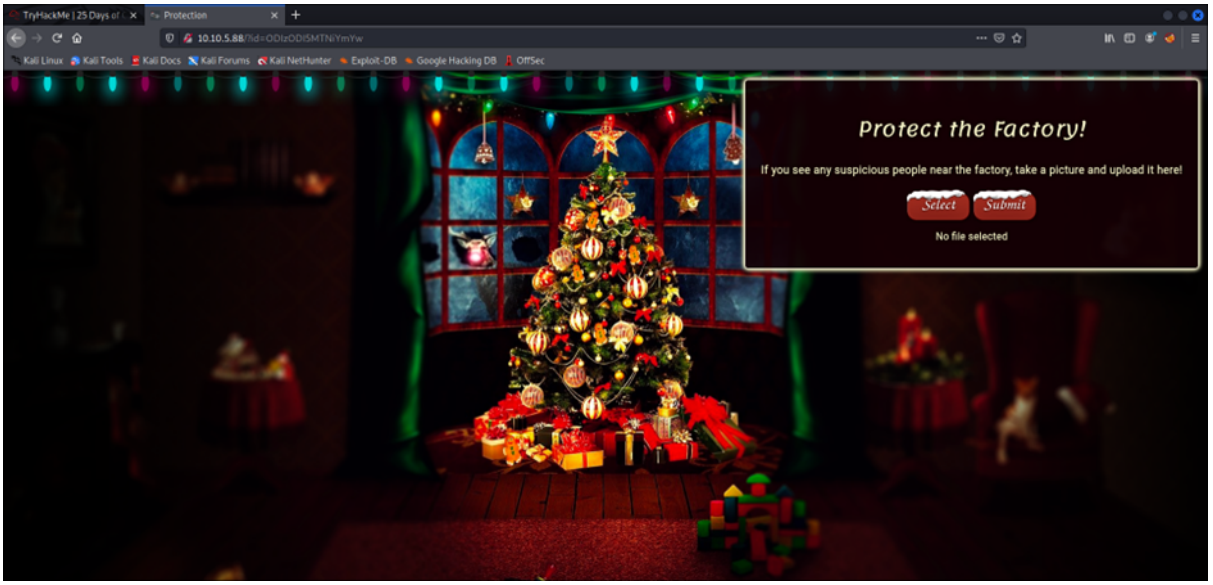
Solutions:

Question 1

?id=ODIzODI5MTNiYmYw is entered after the IP address as a GET parameter to sign in.

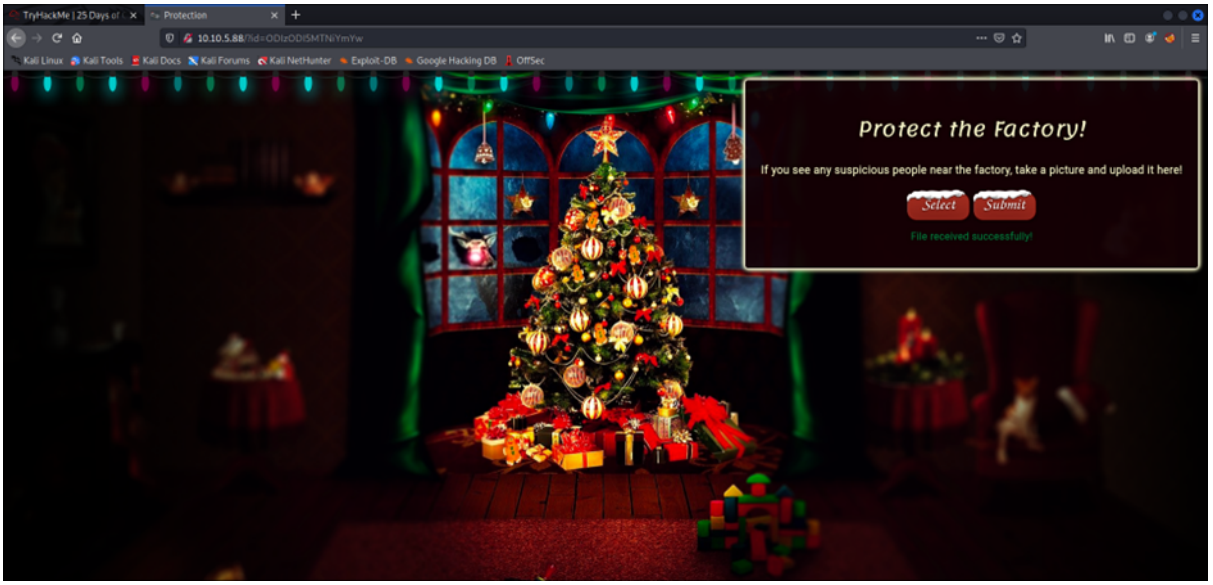


After signing in, the upload page is shown.



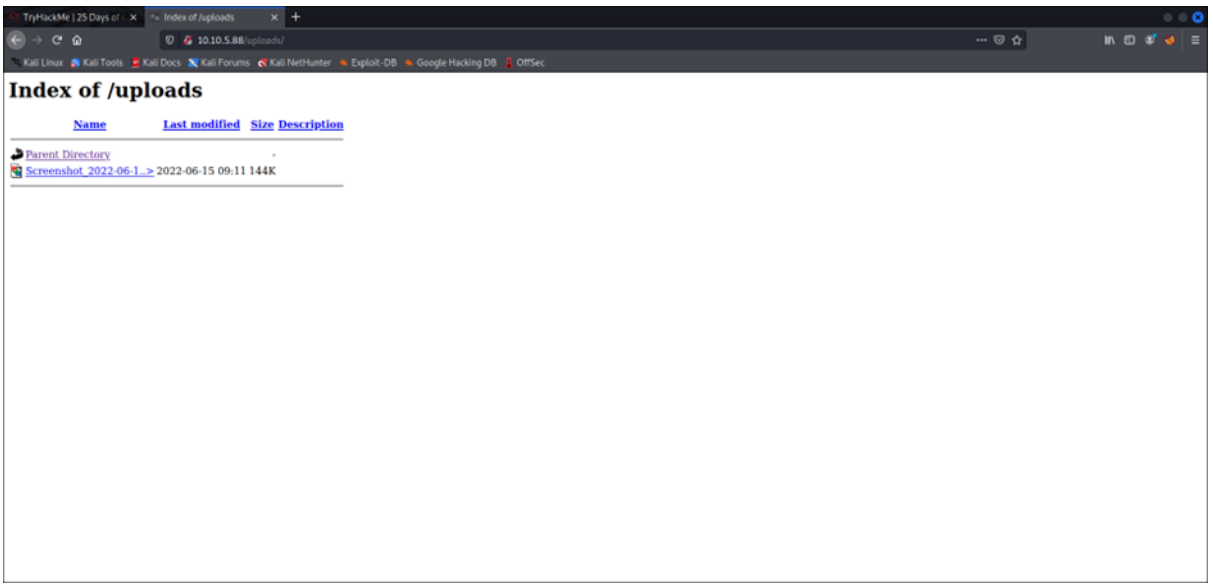
Question 2

The select button is clicked and we found that the supported file types are in .jpg .PNG and .jpeg format, hence only image files are accepted by the site. Image is then uploaded and submitted.



Question 3

The uploaded files are found at the /uploads/, a subdirectory on the web server.

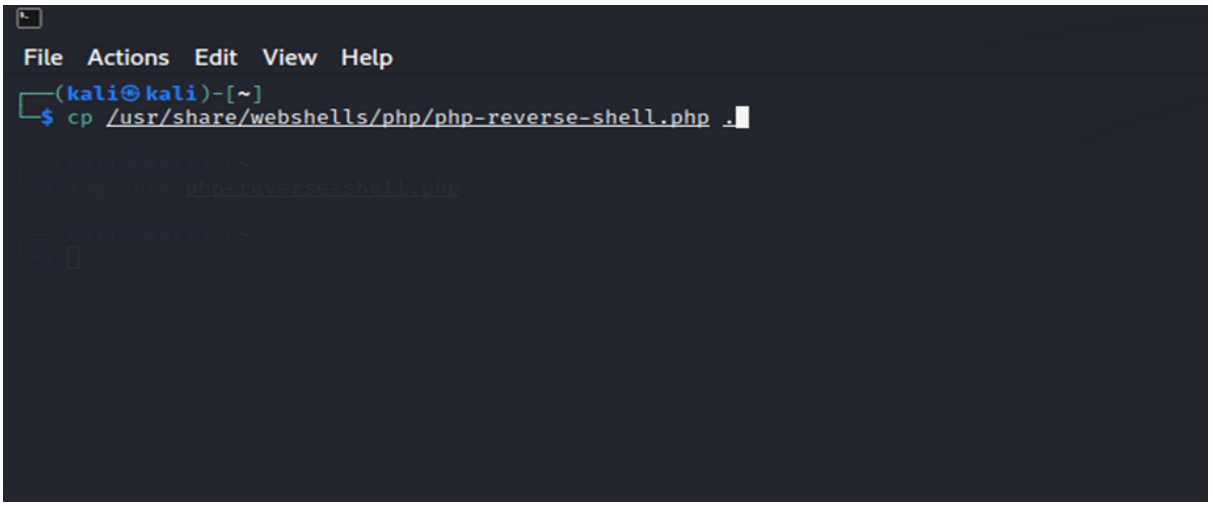


Question 4

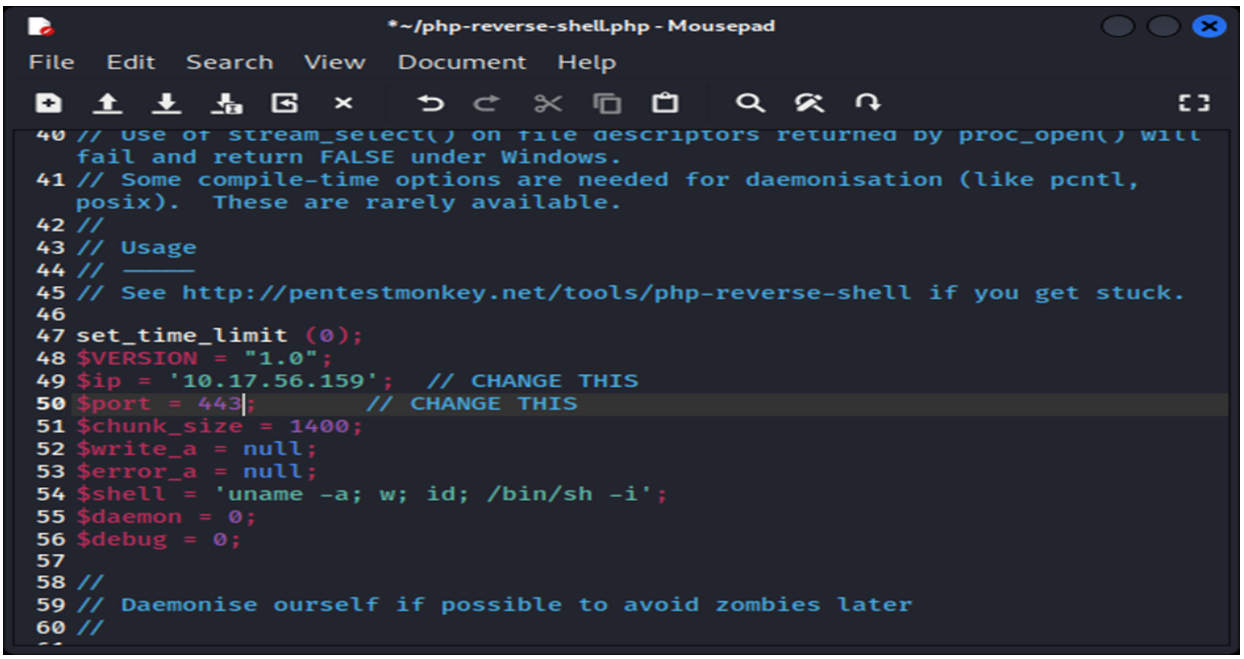
By reading netcat parameter's exceptions, -l is used to specify that nc should listen for an incoming connection rather than initiate a connection to a remote host. -v is to have nc give more verbose output. -n do not do any DNS or service lookups on any specified addresses, hostnames or ports. -p specifies the source port nc should use, subject to privilege restrictions and availability.

Question 5

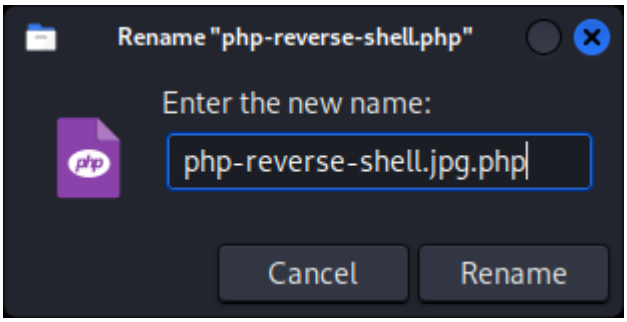
To activate our reverse shell and catch it in a netcat listener, we first copied the webshell into our current directory.



The file is opened and edited by changing the IP to the tryhackme IP and the port to 443.

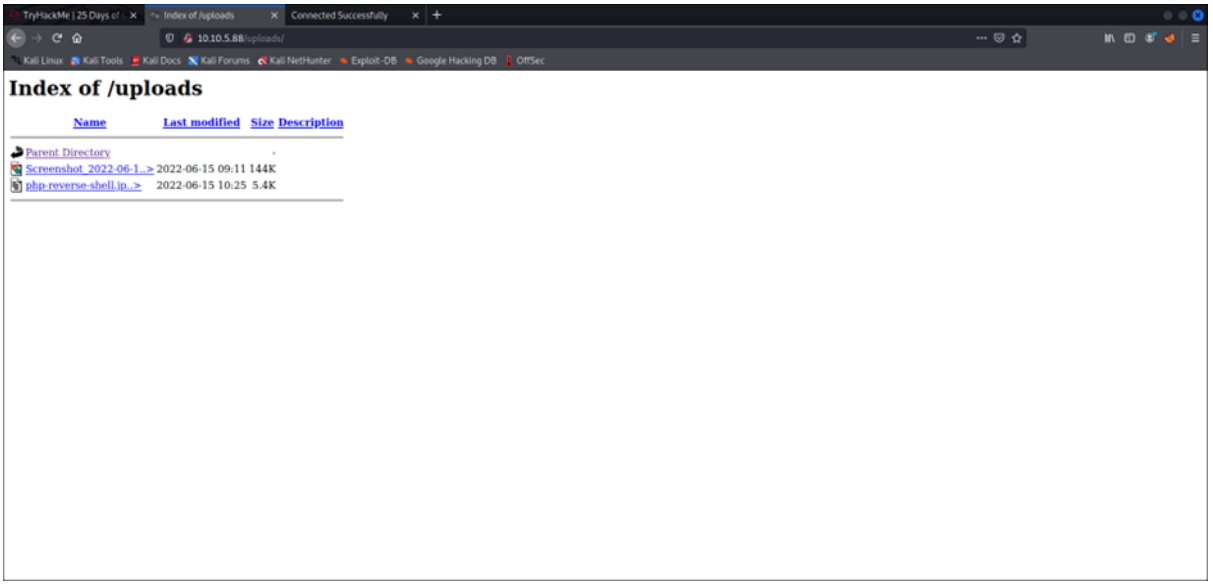


As the upload page only accepts image files, the reverse shell is renamed by adding a .jpg.

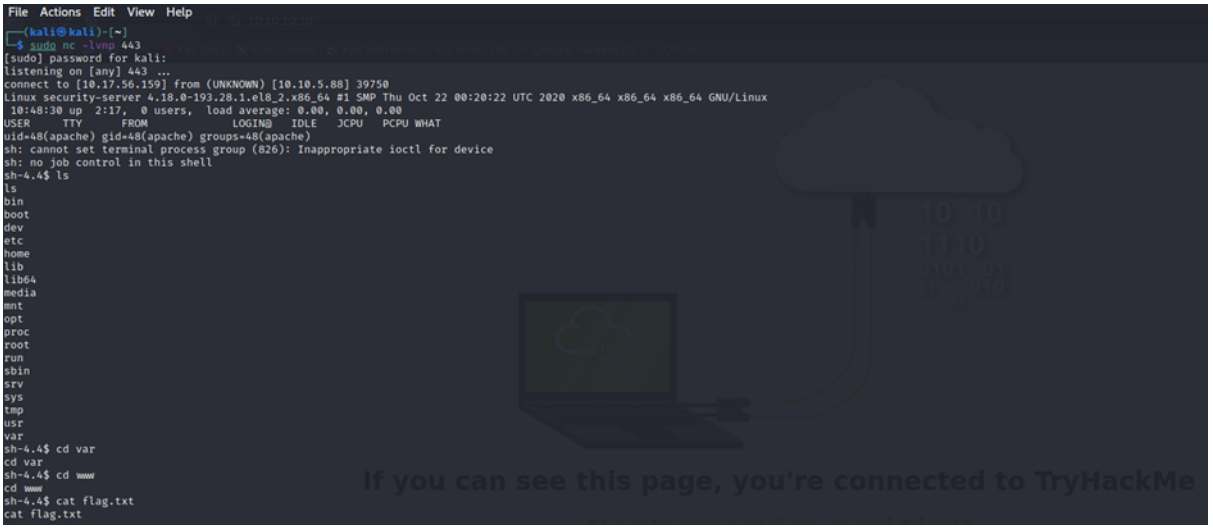


The file is uploaded and submitted.

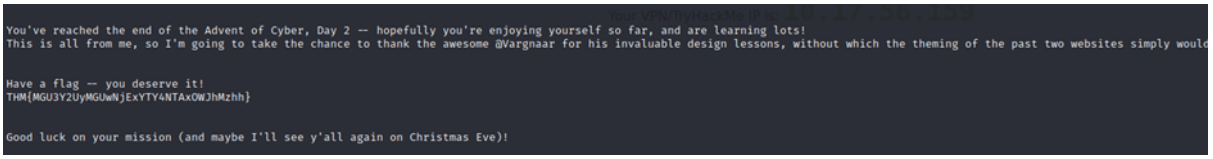
We now see our reverse shell file in the /uploads/ section.



Command line sudo nc -lvnp 443 is entered to receive a connection to the reverse shell. Then, by clicking the reverse shell file in the /uploads/ section, we are successfully connected.



The flag in /var/www/flag.txt can now be viewed.



Thought process/ methodology

Our IP is entered followed by the ID value provided as the GET parameter to sign in. After signing in, the upload page is shown. The select button is clicked and we found that the supported file types are in .jpg .PNG and .jpeg format, hence only image files are accepted by the site. We test the site by uploading and submitting an image file. After submitting the image, we tried to access the image by trying something like /uploads, /images, /media, or /resources. We successfully

found the image in the /uploads section. To activate our reverse shell and catch it in a netcat listener, we first copied the webshell into our current directory. We proceeded to change the IP address to the tryhackme IP and the port to 443 according to the instructions. Then we tried to upload the reverse shell php file in the upload page. However as the upload page only accepts image files, we tried to rename the reverse shell file by adding the .jpg extension. The file is then successfully uploaded and command line sudo nc -lvnp 443 is entered to receive a connection to the reverse shell. We then proceed to the uploads section and click on the reverse PHP file and we are connected. To view the flag in the /var/www/flag.txt, we opened the file using cd and cat, which in turn showed the flag.

Day 3: Web Exploitation -Christmas Chaos

Tools used: Kali Linux, Firefox

Question 1

The name of the botnet mentioned in the text that was reported in 2018 is Mirai.

Question 2

Starbucks pays in USD for reporting default credentials according to the text is $250 .

Question 3

The agent assigned from the Dept of Defence that disclosed the report on Jun 25th was ag3nt-j1.

Question 4

The port number for Burp is 8080.

Question 5

The proxy type for Burp is HTTP.

Question 6

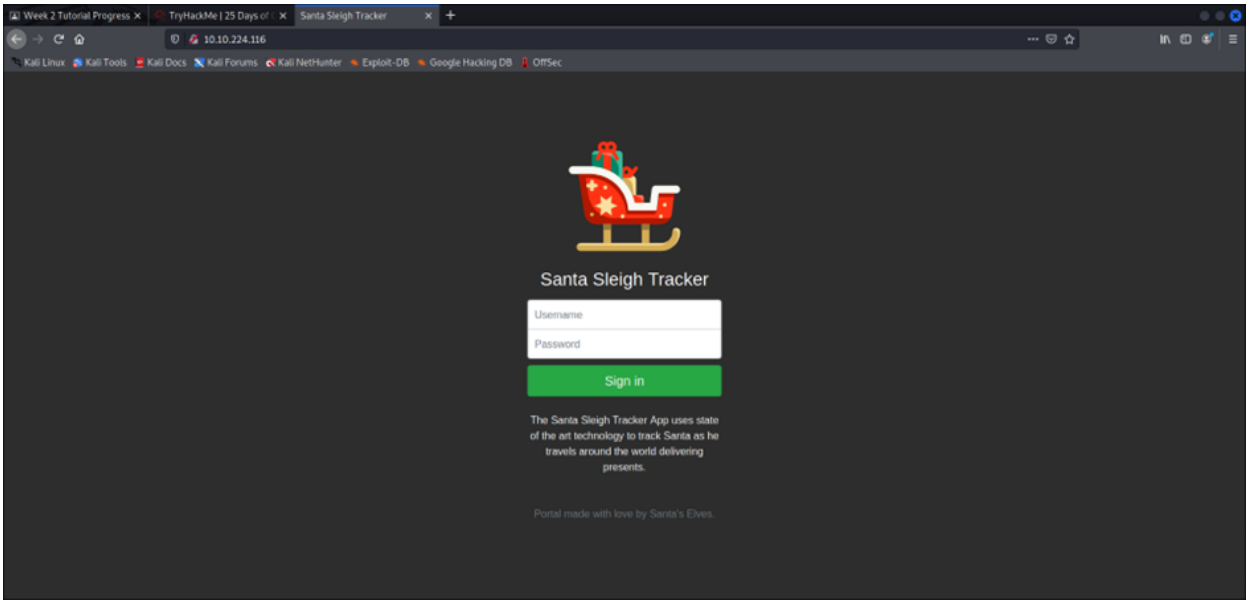
By opening the decoder in BurpSuite, the URL encoding for PSP0201 is %50%53%50%30%32%30%31.

Question 7

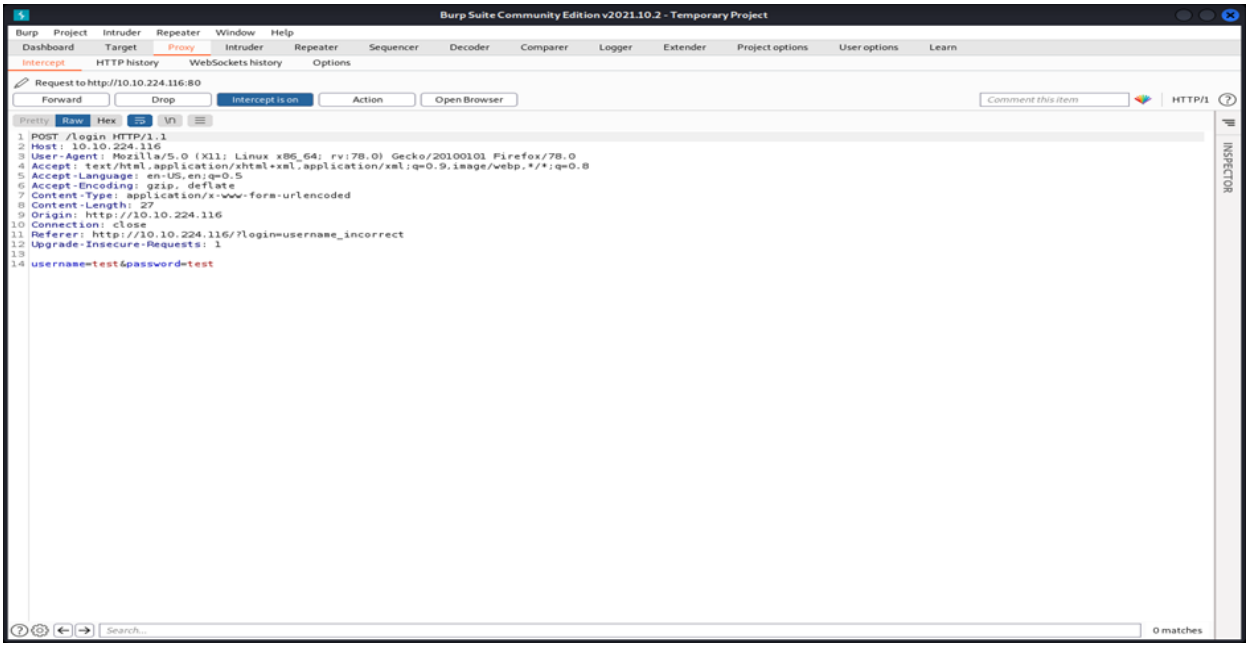
According to the text, Cluster bomb uses multiple payload sets. Different payload for each defined position up to maximum 20. Iterates through each payload set in turn, so all permutations of payload combinations are tested.

Question 8

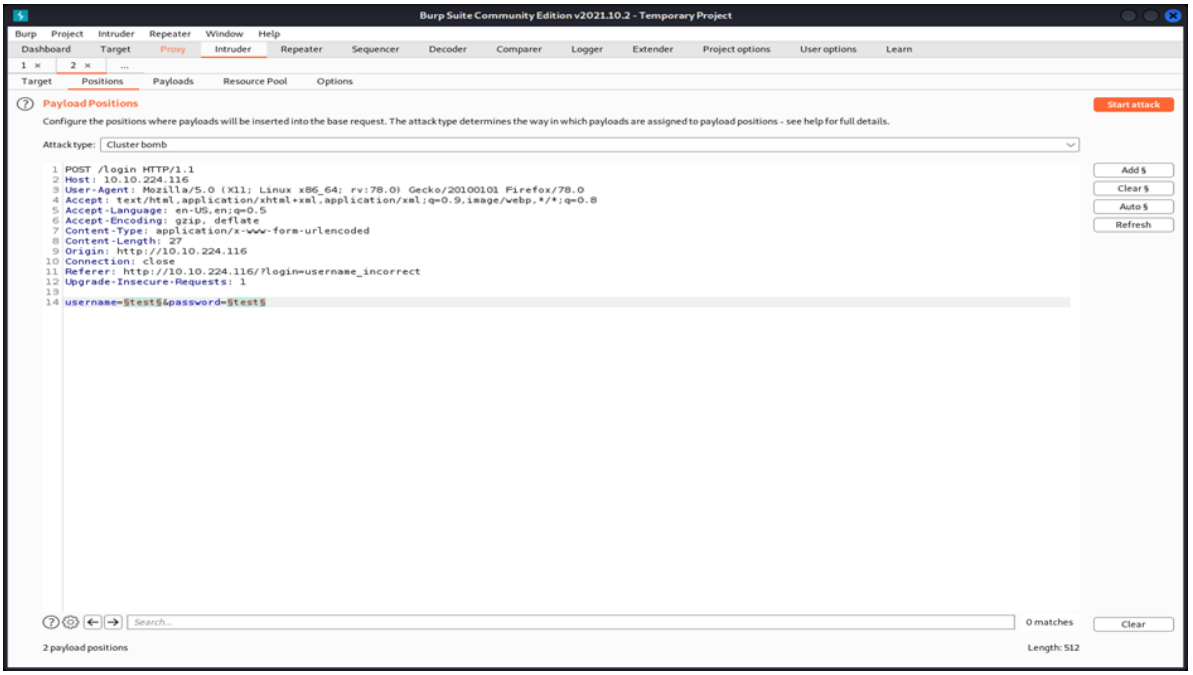
To obtain the flag, the IP entered shows a sign in page. The Foxy Proxy is clicked, and Burp is selected.



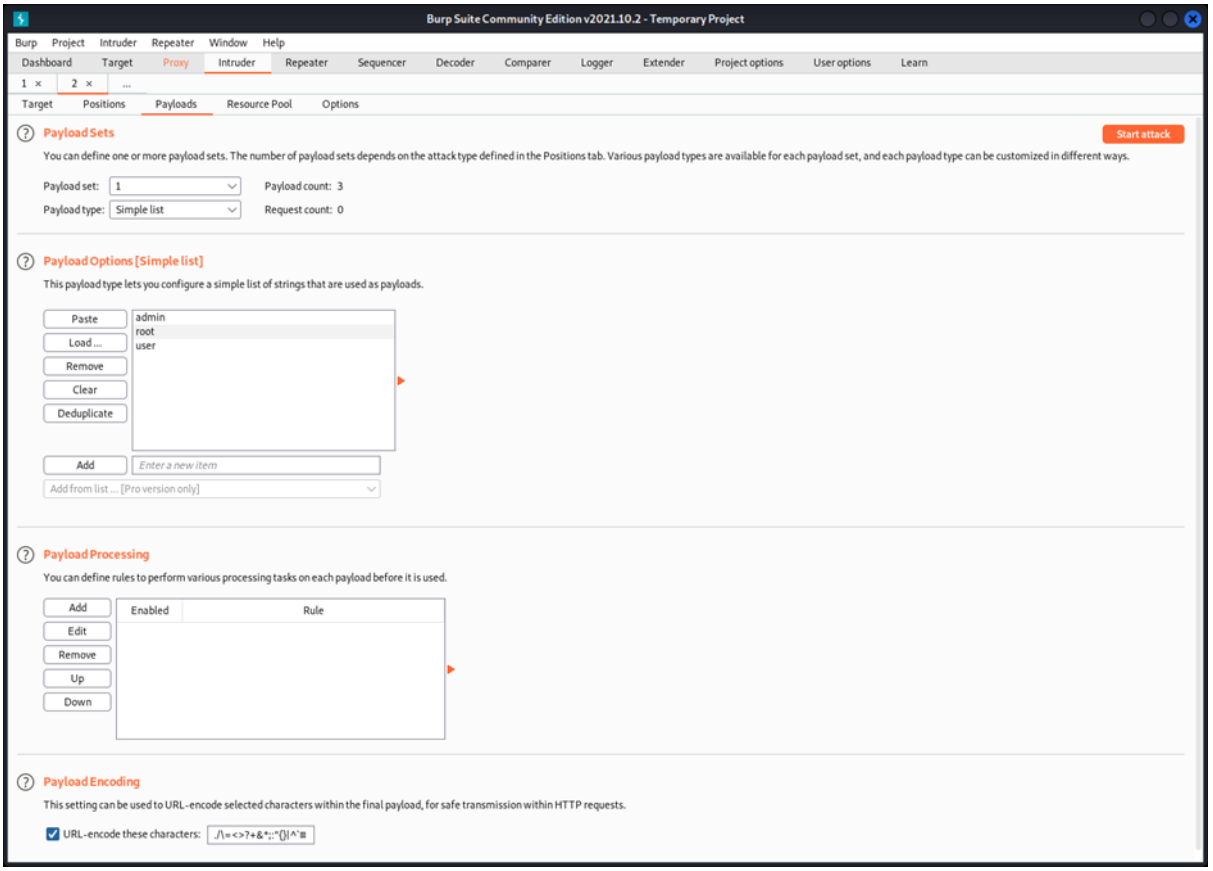
The BurpSuite application is started, the intercept is turned on in the proxy tab. Then, head back to the sign in page, enter the credentials and sign in. A pop out window is shown as below.



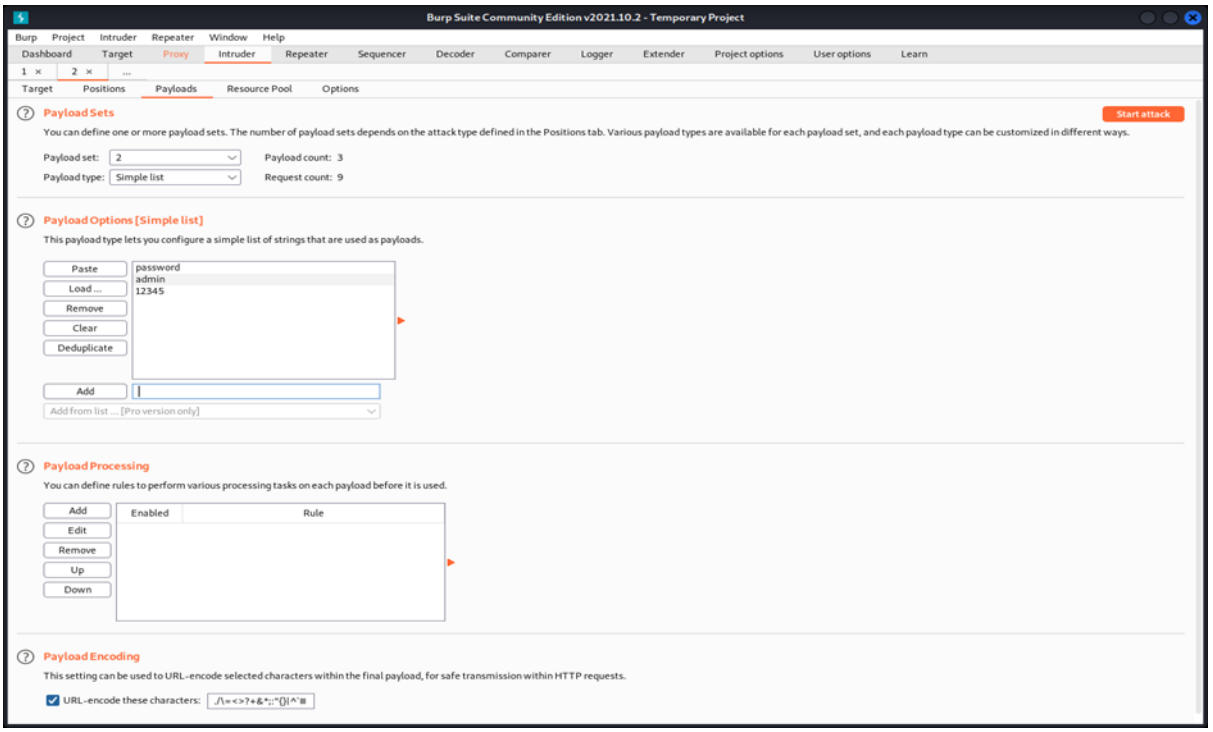
Right click anywhere and send it to the intruder. Proceed to the intruder tab, clear the pre-selected positions. Then, highlight the username and password values and click add. The attack type is changed to cluster bomb.



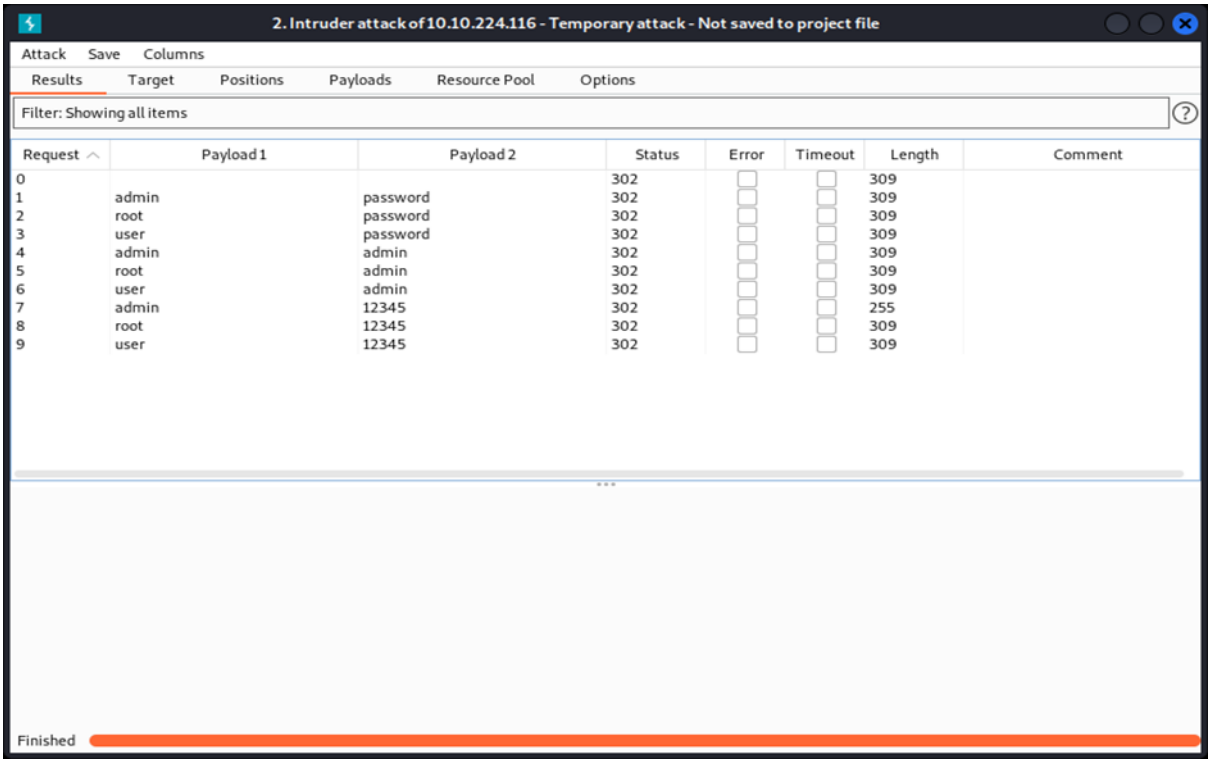
Head over to the payloads tab. For payload set 1 (username), the admin, root and user are added in the payload options.



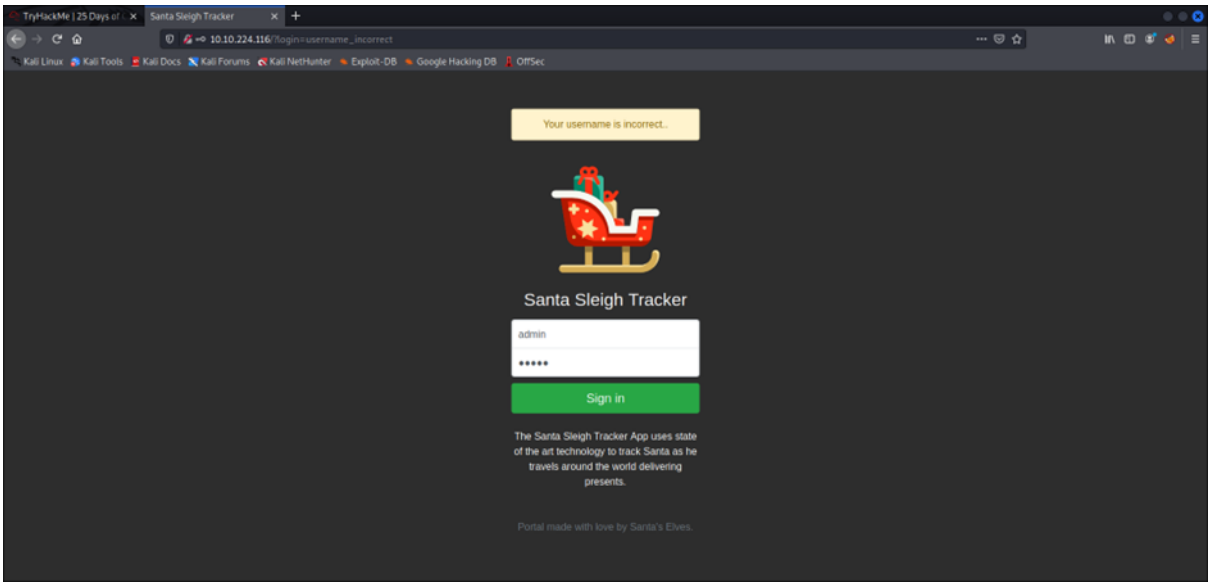
For payload set 2 (password), password, admin, 12345 is added in the payload options.



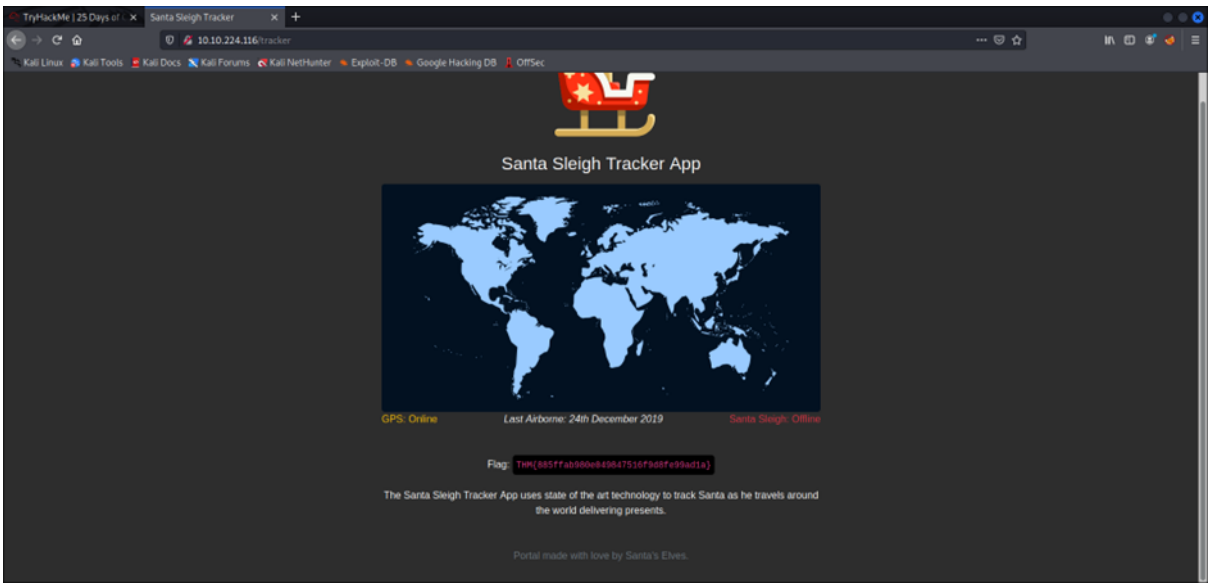
Starting with the attack, we can see that the length is different for username admin and password 12345.



Key in username admin and password 12345 in the sign in section.



We have successfully signed in, the flag is shown.



Thought process/ methodology

The IP is entered which shows a sign in page. We have no clue about the username and password. Based on the instructions, we have selected burp in the foxy proxy tab and turned on the intercept in the BurpSuite application. We head back to the sign in page, enter any credentials and sign in. a pop out window appeared, we right clicked it and sent it to the intruder. We then proceeded to the intruder tab. We clear the pre-selected positions, then highlight the username and password values and click add. The attack type is changed to cluster bomb. We noted that this attack iterates through each payload set so every combination is tested. In the payloads tab, we then test the username and password with a list of common default usernames and passwords. As we started the attack, we noticed that the length for username admin and password 12345 differs from others. We noted that typically all incorrect logins will have the same status or length, if a combination is correct it will be different. So, we came to a conclusion that username admin and password 12345 could be the right credentials to sign in, we then proceeded to enter the username and password which in turn showed the flag.

Day 4: Web Exploitation -Santa's Watching

Tools used: Kali Linux, Firefox

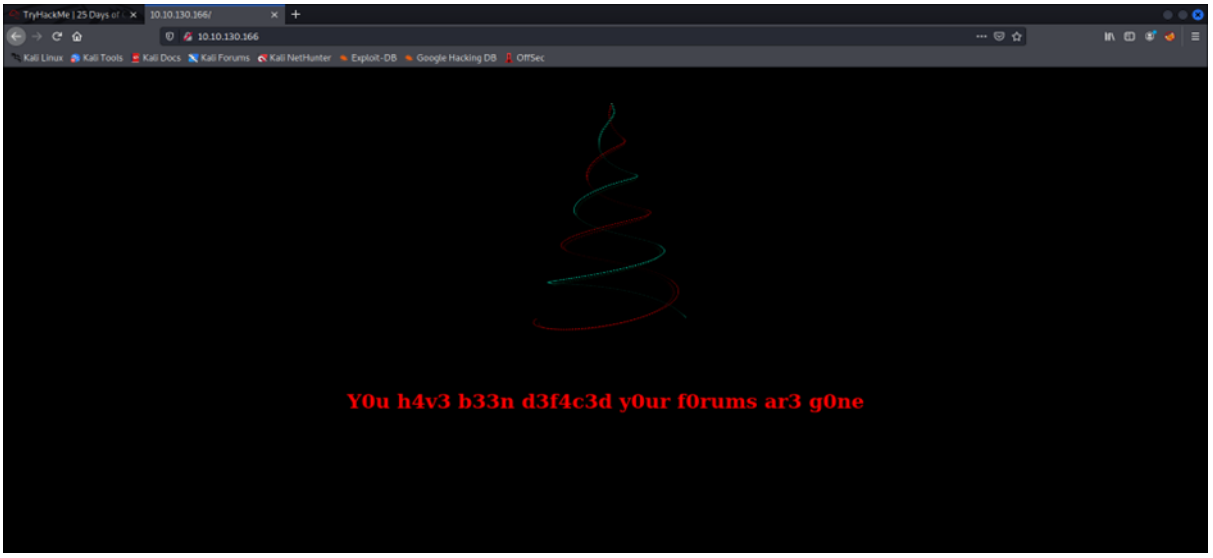
Solutions:

Question 1

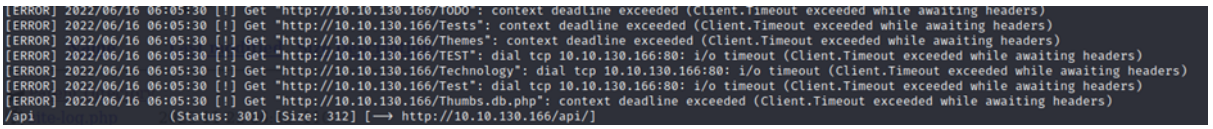
Since big.txt is in our current directory, by using wfuzz, the command would be wfuzz -c -z file,big.txt http://shibes.xyz/api.php?breed=FUZZ

Question 2

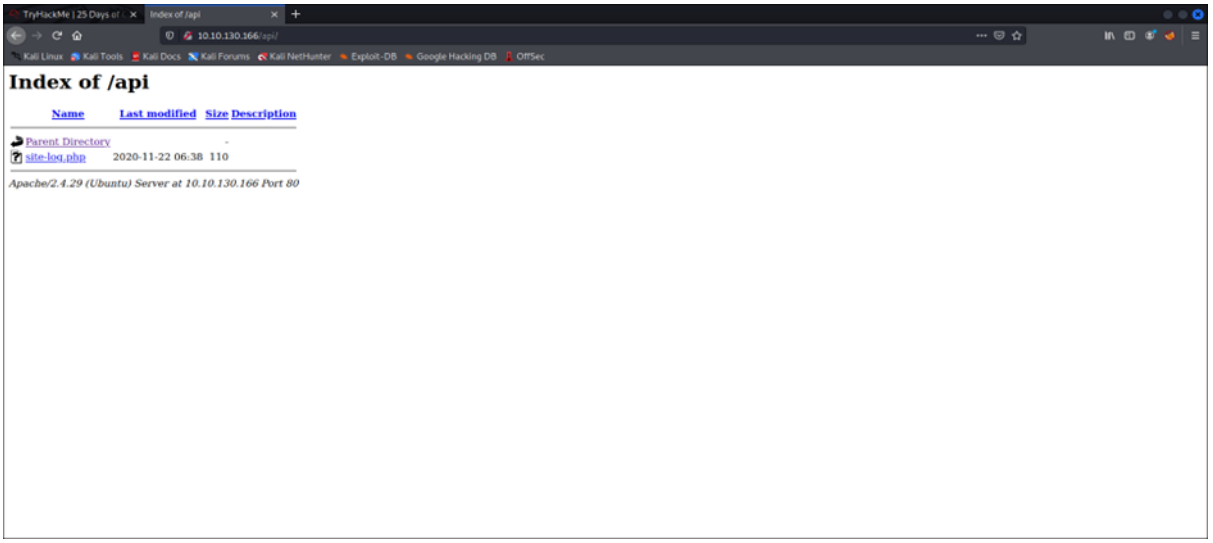
To find the file in /api directory, the IP is entered, the page is shown below.



To find the API directory, we need to use gobuster. Since we are using the default wordlist in kali linux "big.txt", the command gobuster dir -u http://10.10.130.166 -w/usr/share/wordlists/dirb/big.txt -x php is entered. The /api directory can now be viewed.

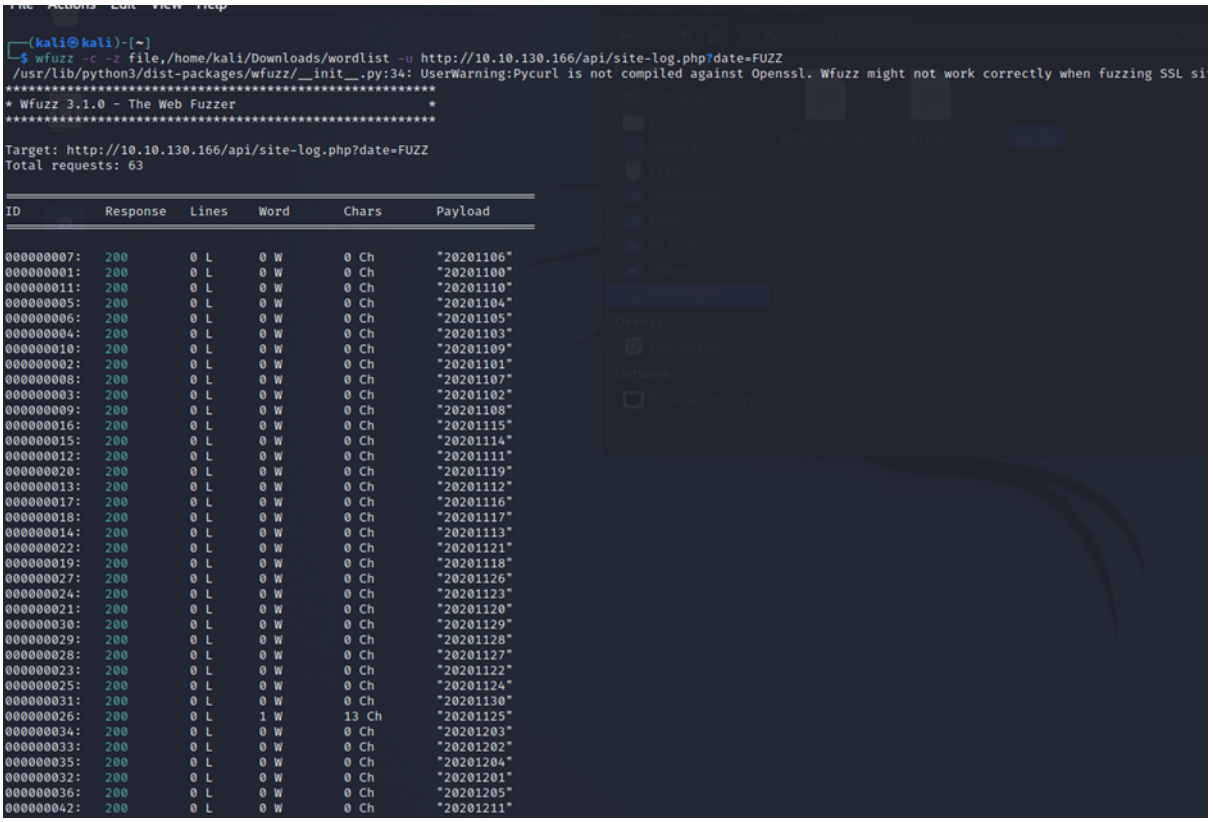


Heading back to the page, since we found the directory, /api is inserted in the URL after the IP address, the file site-log.php is found.



Question 3

To fuzz the date parameter, the provided wordlist is downloaded. The command wfuzz -c -z file,/home/kali/Downloads/wordlist -u http://10.10.130.136/api/site-log.php?date=FUZZ is entered. We can see the characters are different for date 20201125, which might be the correct date value to bypass.



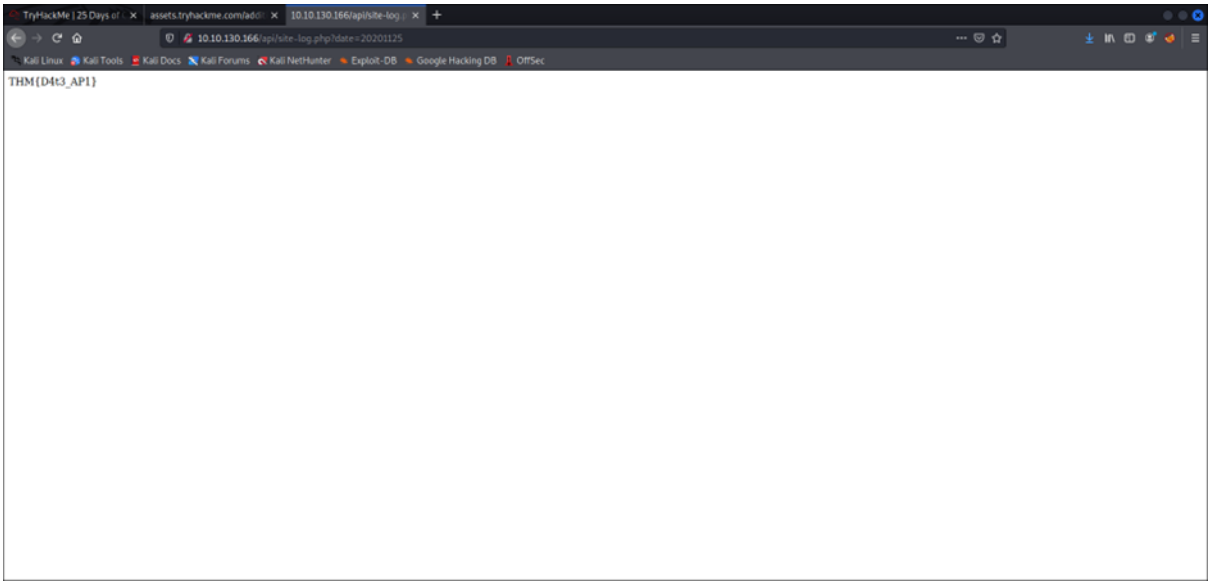
```
┌──(kali㉿kali)-[~]
└─$ wfuzz -c -z file,/home/kali/Downloads/wordlist -u http://10.10.130.166/api/site-log.php?date=FUZZ
 /usr/lib/python3/dist-packages/wfuzz/__init__.py:34: UserWarning:Pycurl is not compiled against Openssl. Wfuzz might not work correctly when fuzzing SSL si
********************************************************
* Wfuzz 3.1.0 - The Web Fuzzer                         *
********************************************************

Target: http://10.10.130.166/api/site-log.php?date=FUZZ
Total requests: 63

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

000000007:   200        0 L      0 W        0 Ch        "20201106"
000000001:   200        0 L      0 W        0 Ch        "20201100"
000000011:   200        0 L      0 W        0 Ch        "20201110"
000000005:   200        0 L      0 W        0 Ch        "20201104"
000000006:   200        0 L      0 W        0 Ch        "20201105"
000000004:   200        0 L      0 W        0 Ch        "20201103"
000000010:   200        0 L      0 W        0 Ch        "20201109"
000000002:   200        0 L      0 W        0 Ch        "20201101"
000000008:   200        0 L      0 W        0 Ch        "20201107"
000000003:   200        0 L      0 W        0 Ch        "20201102"
000000009:   200        0 L      0 W        0 Ch        "20201108"
000000016:   200        0 L      0 W        0 Ch        "20201115"
000000015:   200        0 L      0 W        0 Ch        "20201114"
000000012:   200        0 L      0 W        0 Ch        "20201111"
000000020:   200        0 L      0 W        0 Ch        "20201119"
000000013:   200        0 L      0 W        0 Ch        "20201112"
000000017:   200        0 L      0 W        0 Ch        "20201116"
000000018:   200        0 L      0 W        0 Ch        "20201117"
000000014:   200        0 L      0 W        0 Ch        "20201113"
000000022:   200        0 L      0 W        0 Ch        "20201121"
000000019:   200        0 L      0 W        0 Ch        "20201118"
000000027:   200        0 L      0 W        0 Ch        "20201126"
000000024:   200        0 L      0 W        0 Ch        "20201123"
000000021:   200        0 L      0 W        0 Ch        "20201120"
000000030:   200        0 L      0 W        0 Ch        "20201129"
000000029:   200        0 L      0 W        0 Ch        "20201128"
000000028:   200        0 L      0 W        0 Ch        "20201127"
000000023:   200        0 L      0 W        0 Ch        "20201122"
000000025:   200        0 L      0 W        0 Ch        "20201124"
000000031:   200        0 L      0 W        0 Ch        "20201130"
000000026:   200        0 L      1 W        13 Ch       "20201125"
000000034:   200        0 L      0 W        0 Ch        "20201203"
000000033:   200        0 L      0 W        0 Ch        "20201202"
000000035:   200        0 L      0 W        0 Ch        "20201204"
000000032:   200        0 L      0 W        0 Ch        "20201201"
000000036:   200        0 L      0 W        0 Ch        "20201205"
000000042:   200        0 L      0 W        0 Ch        "20201211"
```

The date value 20201125 is entered in the URL, which in turn shows the flag.



Question 4

-f stores results to filename and printer.

Thought process/methodology:

The IP is first entered. To access the hidden /api directory, we assume that we need to use gobuster. Based on the hints given, we should use the default wordlist in kali linux which is big.txt. We entered the command gobuster dir -u http://10.10.130.166 w/usr/share/wordlists/dirb/big.txt -x php, we can now view the /api directory. Since we found the directory, /api is inserted in the URL after the IP address, the file site-log.php is found. Having no clue to fuzz the date parameter, we noticed that we should use wfuzz and the wordlist given in this task. We then proceeded to download the wordlist, entered the respective command wfuzz -c -z file,/home/kali/Downloads/wordlist -u http://10.10.130.166/api/site-log.php?date=FUZZ which showed different characters for date value 20201125. We deduced that this could be a correct value to bypass the site. We then tried by entering the date value in the URL, which successfully showed the flag.

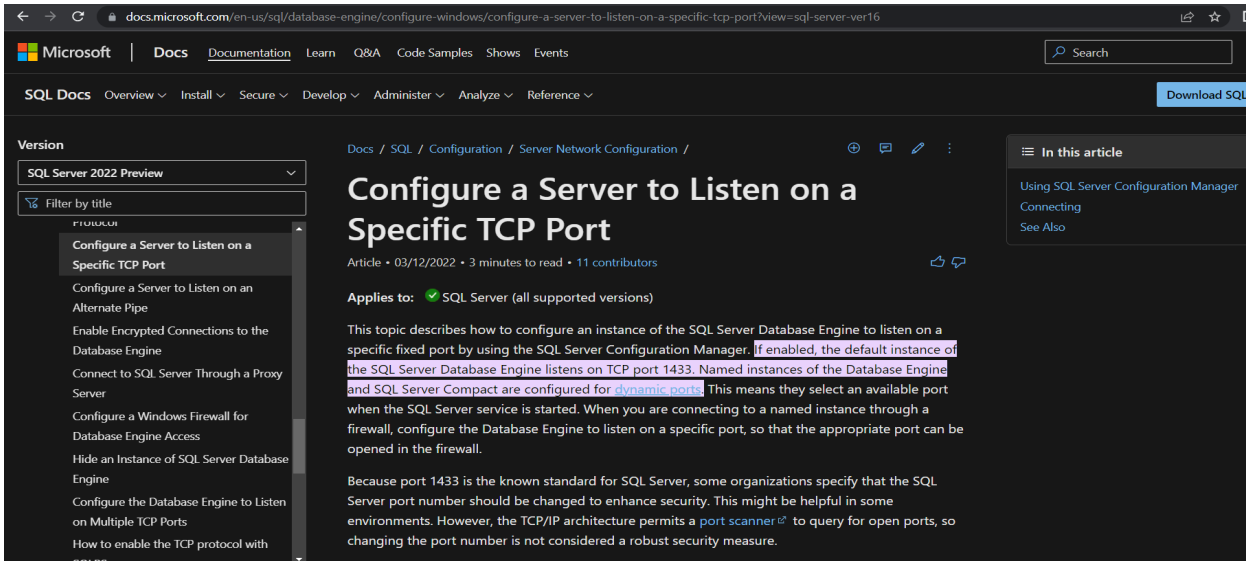
Day 5 : [Web Exploitation] Someone stole Santa's gift list!

Tools used: THM Attack box, Firefox

Solutions:

Question1

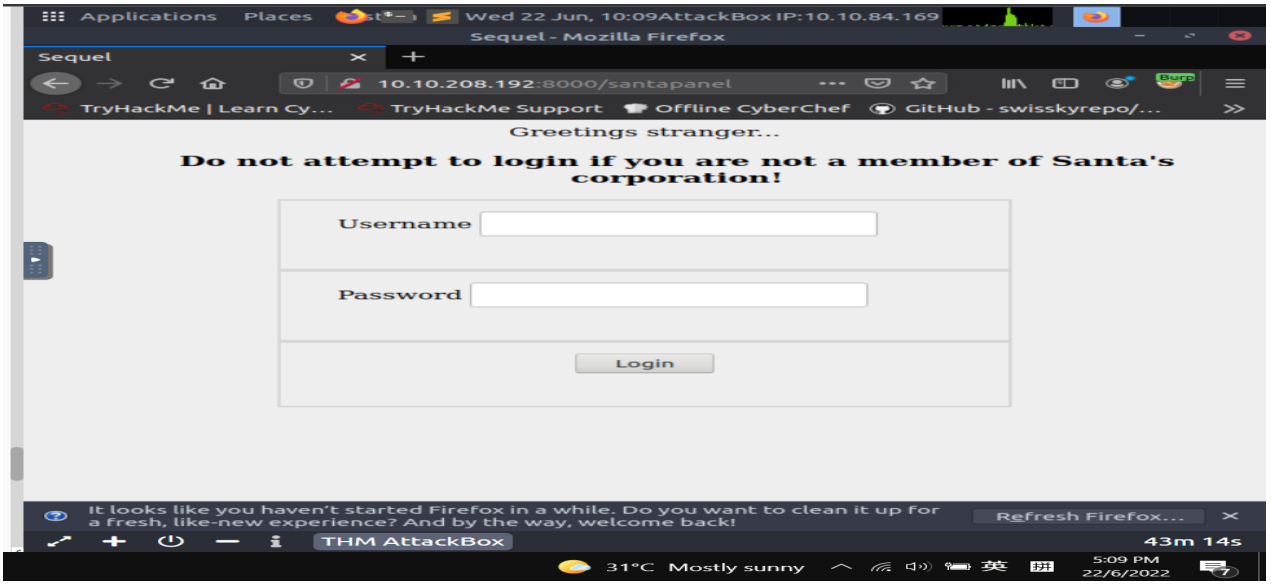
Referring to microsoft documentation with show that the default port number for sql server is 1433 and this is the website url Port number sql server



Question2

To find Santa's secret login panel, first need to copy the IP machine 10.10.208.192:8000 and enter the /santapanel database at the machine's IP address then it will be directed to the Santa's login

screen.



Question3

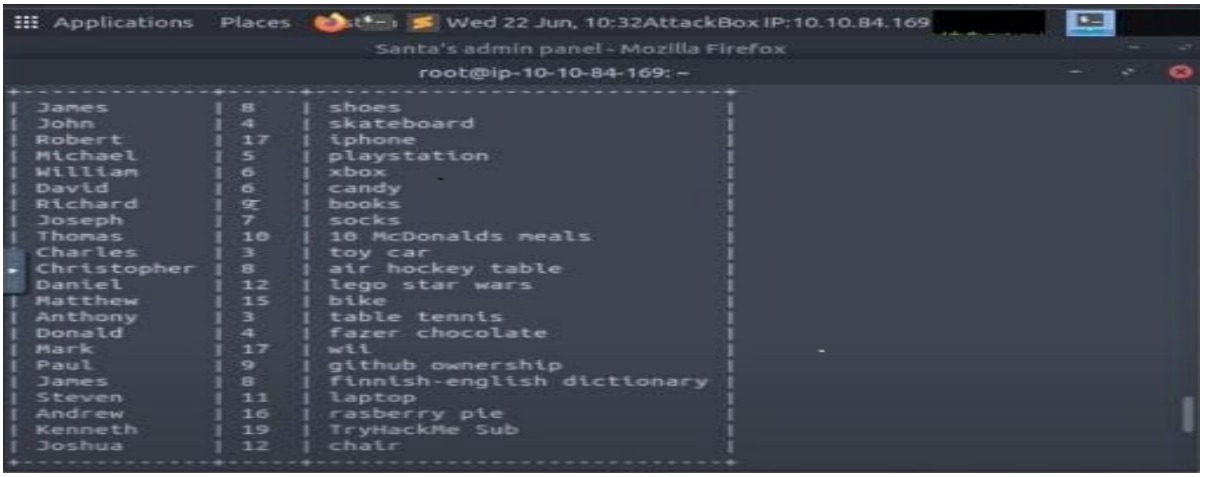
The tamper command is used in the database from the hint in Santa's TODO list to get around the sqlmap and WAF.

```
root@ip-10-10-84-169:~# sqlmap -r panel.request --tamper=space2comment --dump-al
l --dbms sqlite
```

Santa's TODO: Look at alternative database systems that are better than sqlite. Also, don't forget that you installed a **W**eb **A**pplication **F**irewall (WAF) after last year's attack. In case you've forgotten the command, you can tell SQLMap to try and bypass the WAF by using `--tamper=space2comment`

Question4

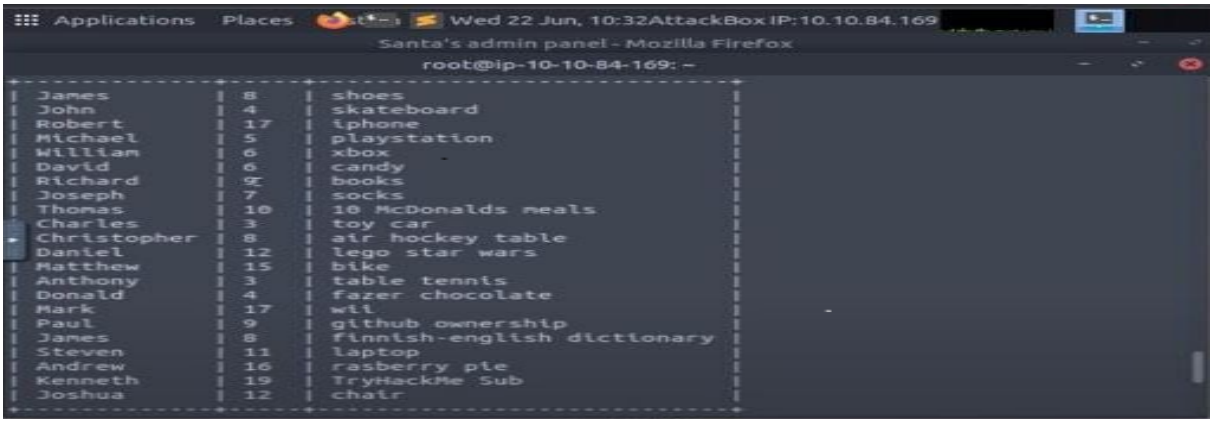
After bypassing the login page, and using the tamper command , it will reach this page which will show that there are 22 entries in the gift database.



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

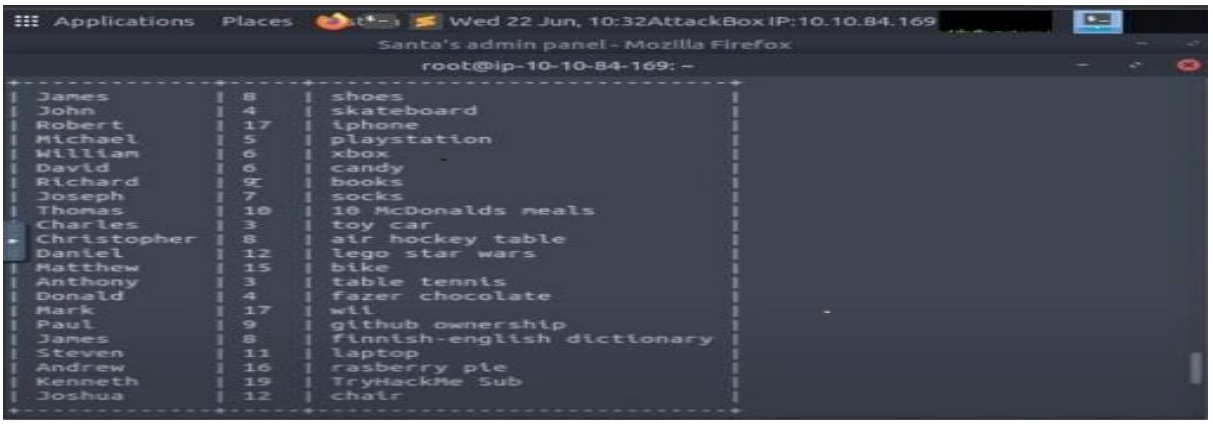
Question5

Using the same picture, it also shows the age of James which is 8 years old.



Question6

In the same table, it showed what Paul asked for, which is github ownership.

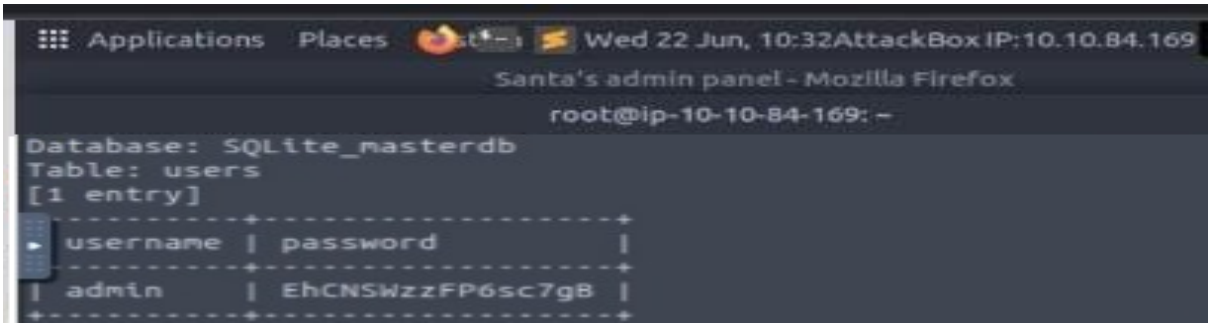


Question7

After running through the sql map in the terminal and exporting the database, the flag will be found at the hidden table which is called thmfox{All_I_Want_for_Christmas_Is_You}.

Question8

Using the same way and the admin password will be found in the admin table which is EhCNSWzzFP6sc7gB.



Thought Process/Methodology:

Opening the attackbox application in Firefox and launching it requires copying and pasting the IP address 10.10.208.192:8000 into the attackbox's URL field. We will then arrive at a page that displays "Santa's Official Forum." Entering 10.10.208.192:8000/santapanel successfully loaded a page where we had to enter our username and password to access Santa's hidden login panel. After that, we used SQL injection to get past the login screen and saw some database data. The instructions to activate the intercept and burp proxy servers in the Firefox logo are now being followed. The root directory was saved as panel.request. In order to proceed to the sqlmap, we use the command sqlmap -r intercept.request — tamper=space2comment -dump-all — dbms sqlite. In this step, we discovered that there are a total of 22 entries, plus the others in the table. Last but not least, we discovered the flag in the secret table All I Want for Christmas Is You, admin and password EhCNSWzzFP6sc7gB.