PSP0201

WEEK 5

WRITE UP

ID	NAME	ROLE
1211102582	AMEER IRFAN BIN NORAZIMAN	LEADER
1211101873	MUHAMMAD NABEEL SHAMIME BIN KHAEROZI	MEMBER
1211102269	MUHAMMAD ANIQ SYAHMI BIN SHAHARIL	MEMBER
1211101915	NURDINA AISHAH BINTI KASUMA SATRIA	MEMBER

Day 16 - Help? Where is Santa?

Tools Used: Kali Linux, Firefox,Terminal

Solutions:

Question 1

Start the terminal in Kali and use nmap ip address to find the port number.

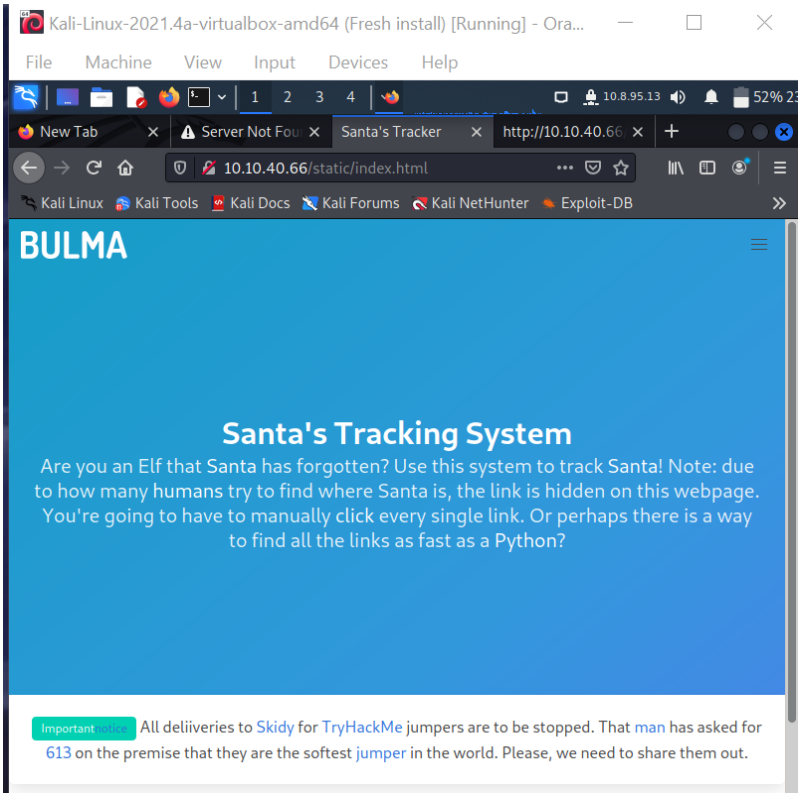
```
┌──(kali㉿kali)-[~]
└─$ nmap 10.10.40.66
Starting Nmap 7.92 ( https://nmap.org ) at 2022-07-11 23:32 EDT
Nmap scan report for 10.10.40.66
Host is up (0.21s latency).
Not shown: 998 closed tcp ports (conn-refused)
PORT   STATE SERVICE
22/tcp open  ssh
80/tcp open  http

Nmap done: 1 IP address (1 host up) scanned in 38.01 seconds

┌──(kali㉿kali)-[~]
└─$
```

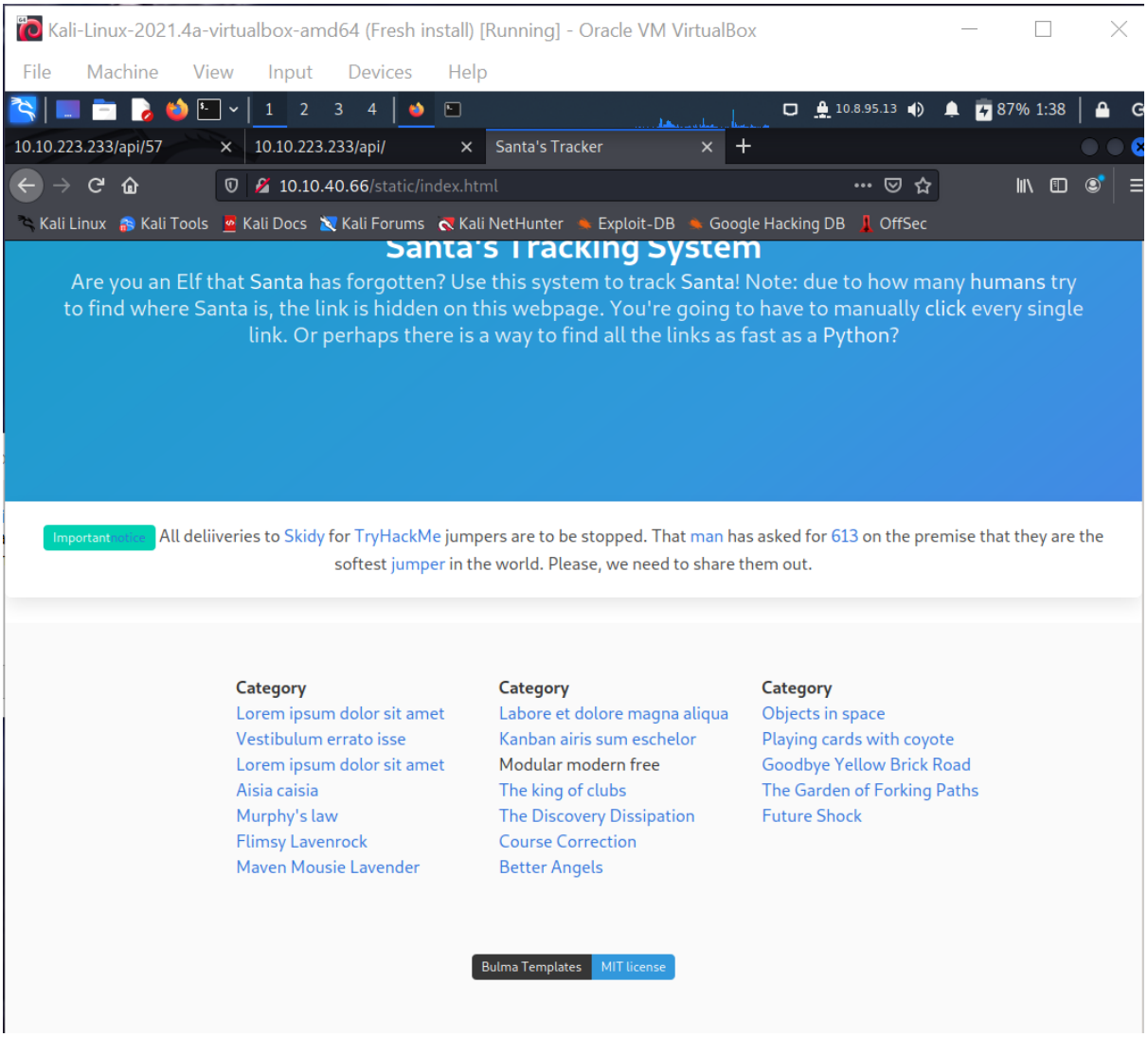
Question 2

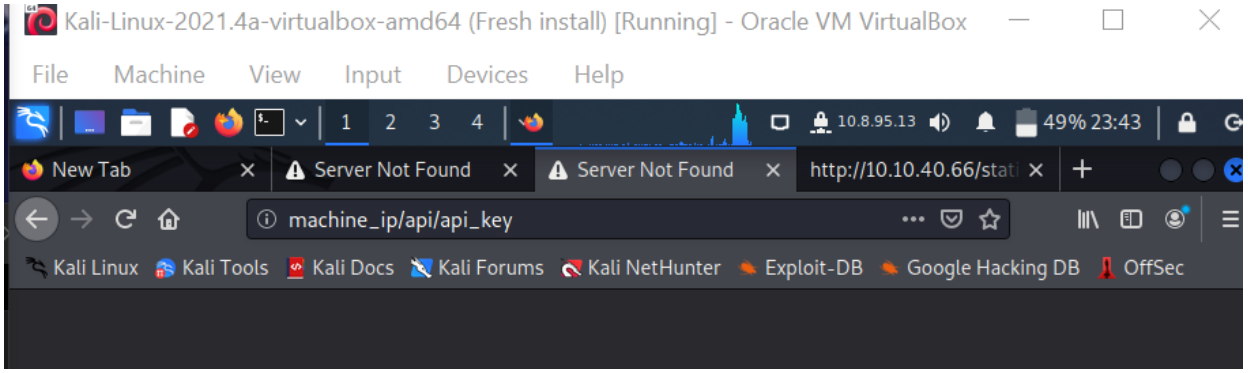
Paste the webpage link given by Santa in FireFox.



Question 3

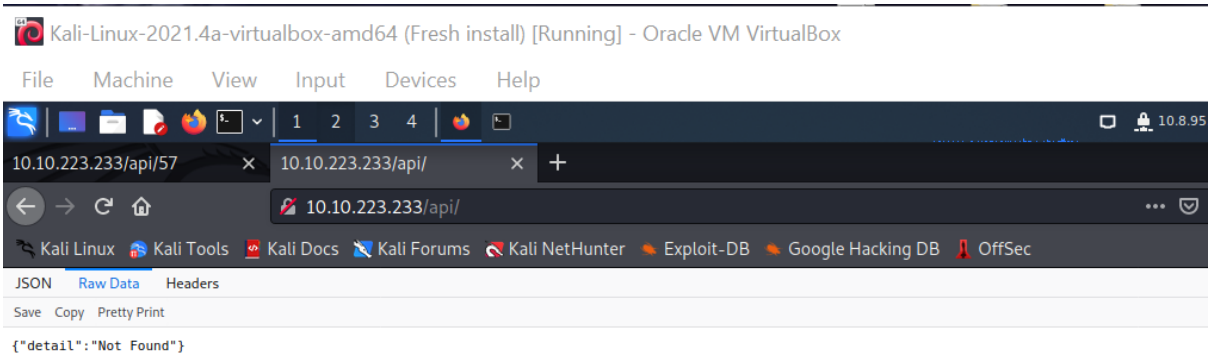
Clicked on the hidden link in Santa webpage





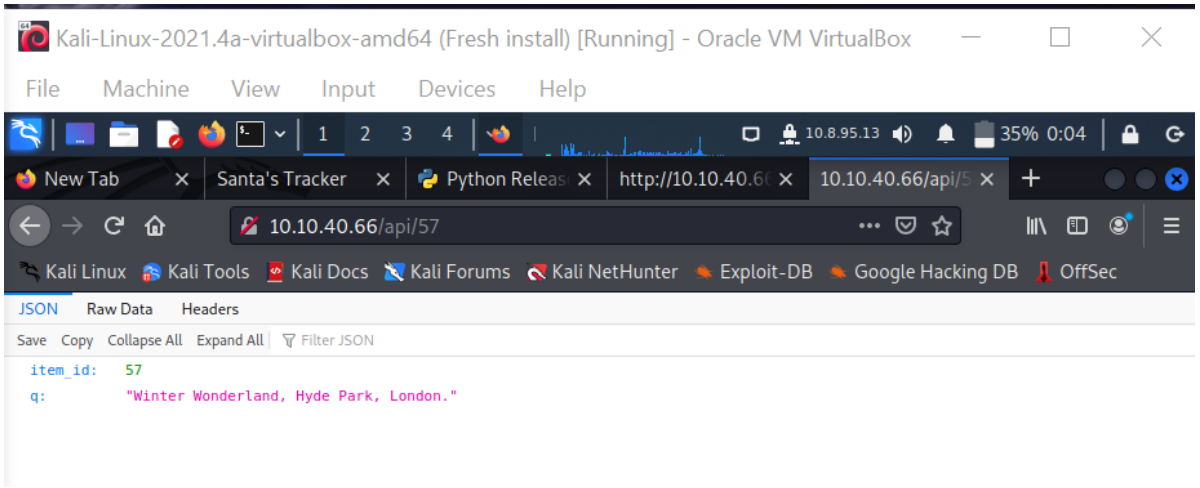
Question 4

Delete the api_key at the end of the link and click enter,



Question 5 and 6

Fill in the hidden link found in BULMA and as for the api key try and error any odd number from 1 till 100.



The Thought Process

For day 16, as one of the Santa elves that got left behind, we had to find Santa's location. Luckily Santa has given a webpage “**10.10.40.66**/static/index.html” to help elves find their way back home. However Santa never told the elves the port number to the web server so we had to open the terminal and type in nmap **(10.10.40.66)**, there were two ports 22 and 80, and we picked 80 as it uses http service. Then, we logged into FireFox and pasted the webpage given by Santa. We then saw the webpage template BULMA, somewhere in the web there's a hidden link, so we clicked one by one and eventually a link "machine_ip/api/api_key" appeared. Then we place our ip address **(10.10.40.66)** and as for the api_key we try and error to get the correct one. Finally Santa's location appeared, which is "Winter Wonderland, Hyde Park, London." As for question 4, to find the raw data we deleted the api-key and clicked the Raw Data tab and we used a new ip address **(10.10.223.233)** as we had trouble with the previous ip address when refreshing the page.

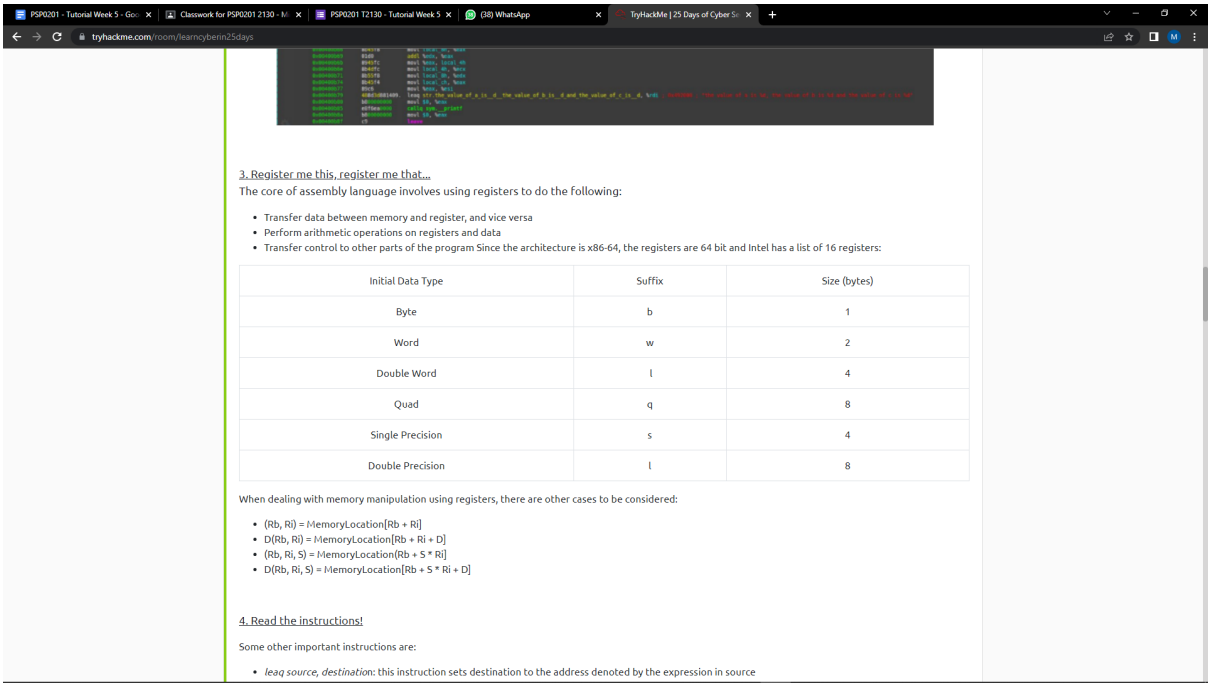
Day 17 - ReverseELFneering

Tools Used: Kali Linux, Firefox,Terminal

Solutions:

Question 1

Match the data type with the size in bytes:



3. Register me this, register me that...

The core of assembly language involves using registers to do the following:

- Transfer data between memory and register, and vice versa
- Perform arithmetic operations on registers and data
- Transfer control to other parts of the program Since the architecture is x86-64, the registers are 64 bit and Intel has a list of 16 registers:

Initial Data Type	Suffix	Size (bytes)
Byte	b	1
Word	w	2
Double Word	l	4
Quad	q	8
Single Precision	s	4
Double Precision	l	8

When dealing with memory manipulation using registers, there are other cases to be considered:

- (Rb, Ri) = MemoryLocation[Rb + Ri]
- D(Rb, Ri) = MemoryLocation[Rb + Ri + D]
- (Rb, Ri, S) = MemoryLocation[Rb + S * Ri]
- D(Rb, Ri, S) = MemoryLocation[Rb + S * Ri + D]

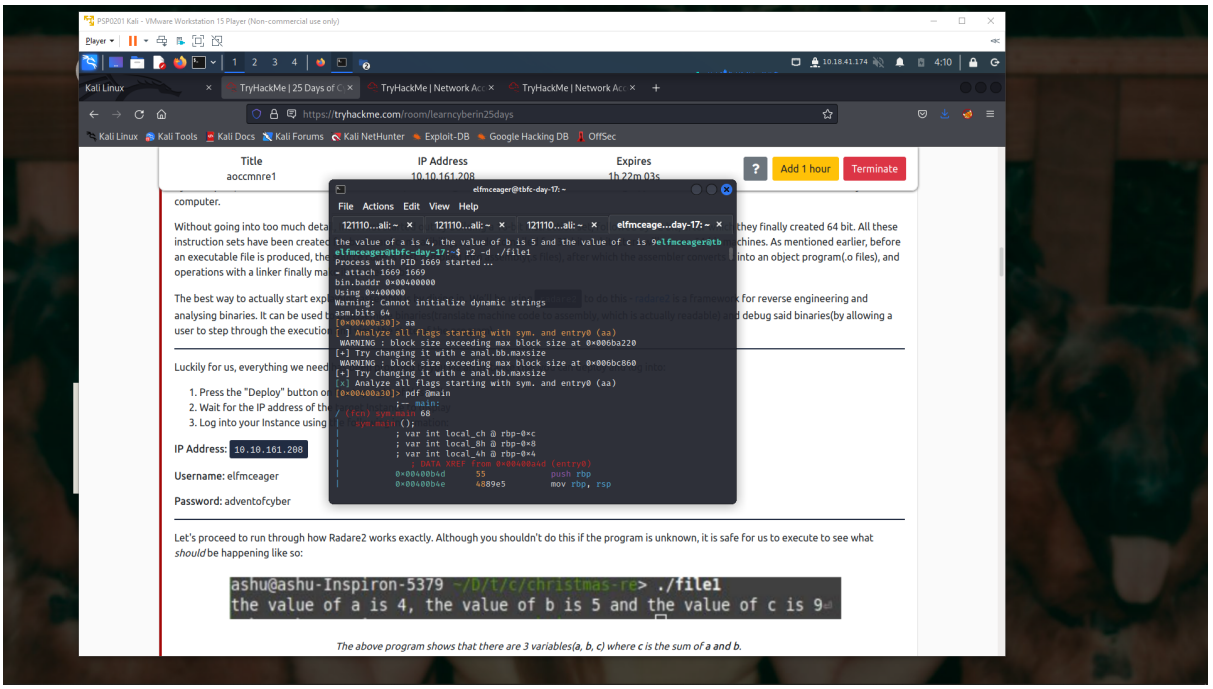
4. Read the instructions!

Some other important instructions are:

- *leaq source, destination*: this instruction sets destination to the address denoted by the expression in source

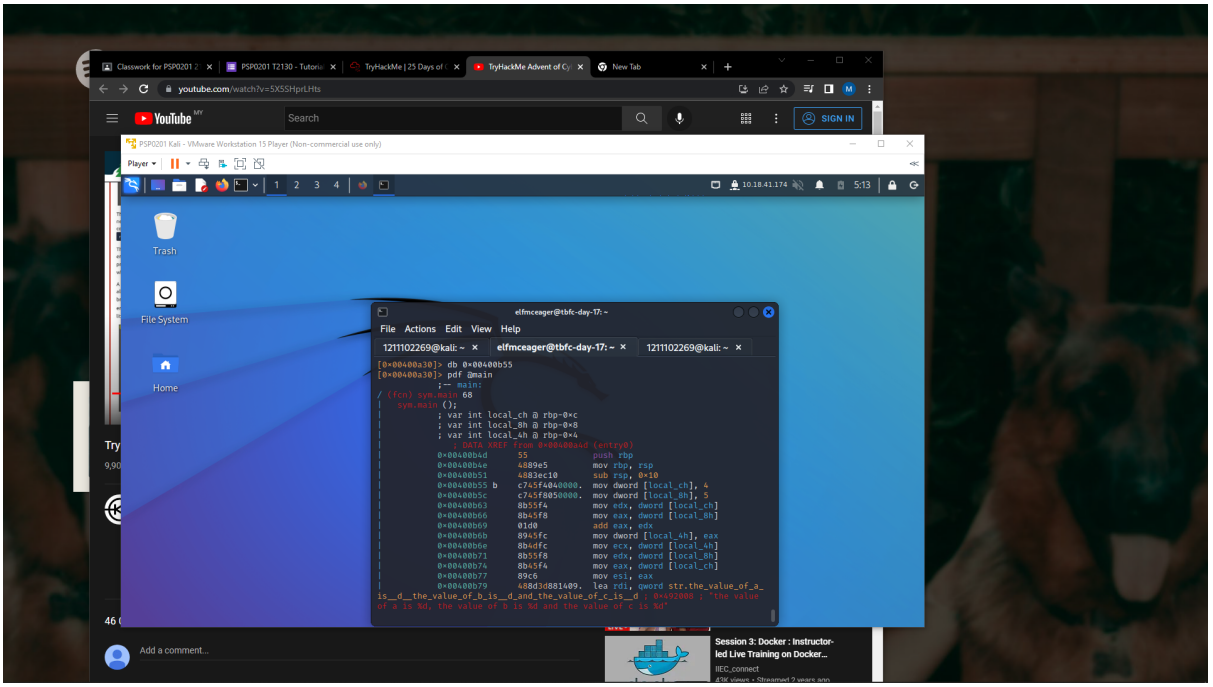
Question 2:

What is the command to analyse the program in radare2?**(aa)**



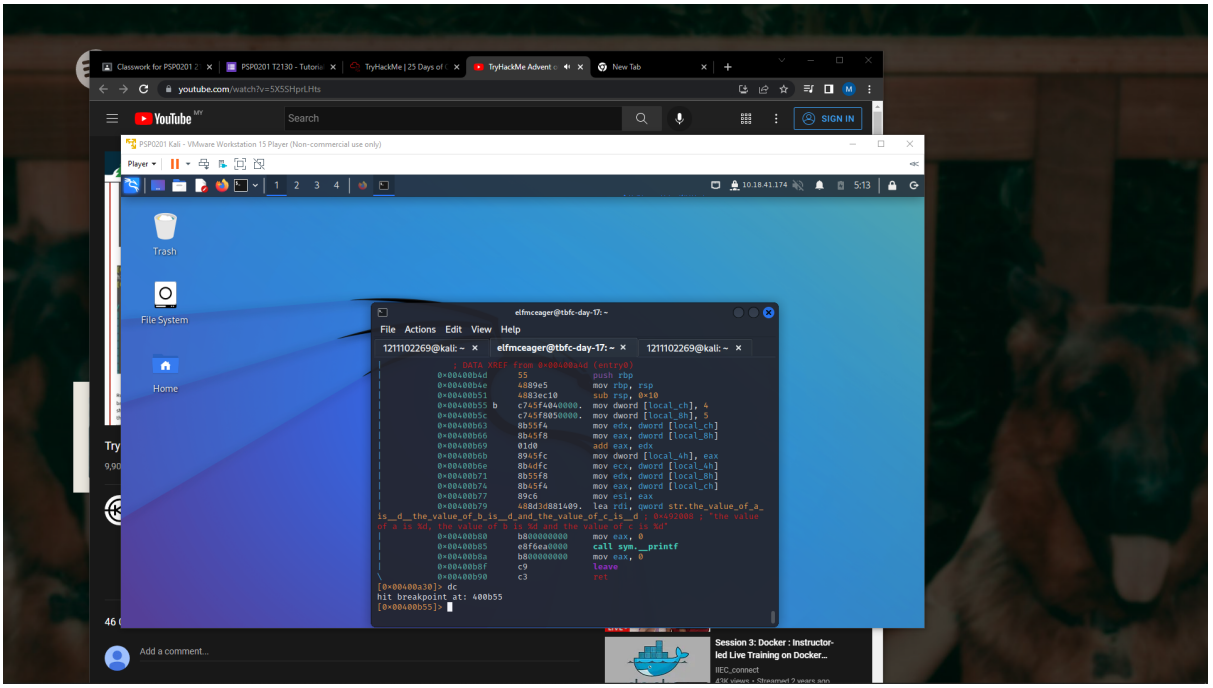
Question 3:

What is the command to set a breakpoint in radare2?**(db)**



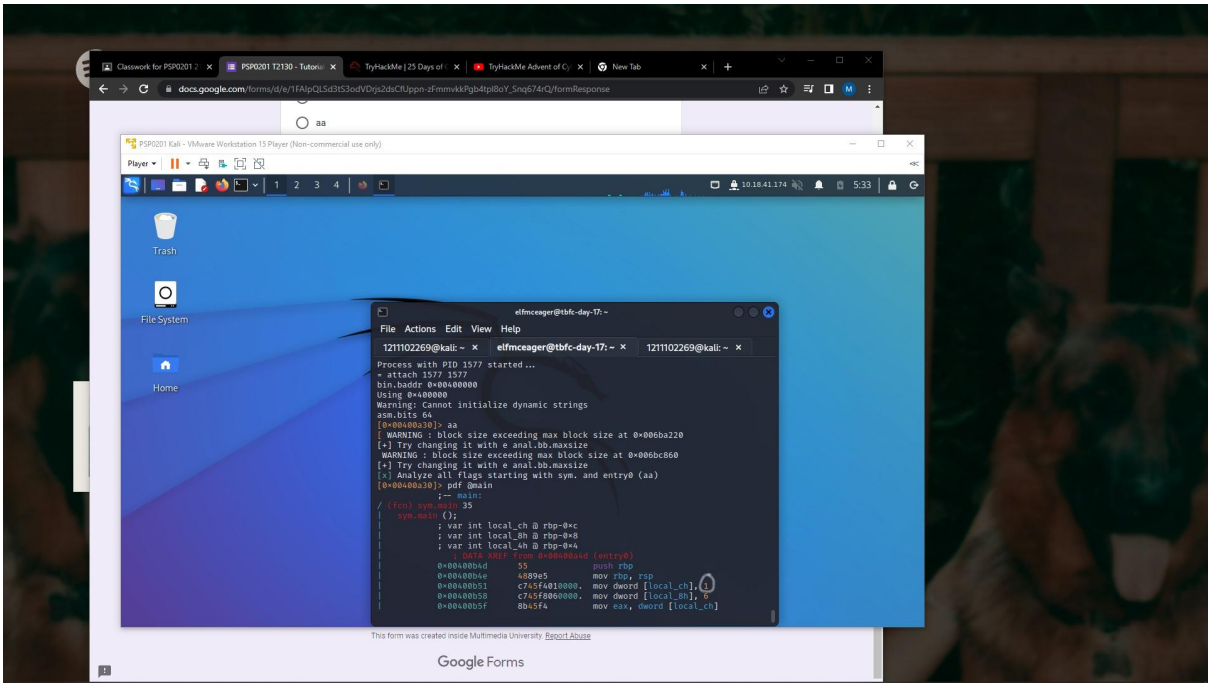
Question 4:

What is the command to execute the program until we hit a breakpoint?**(dc)**



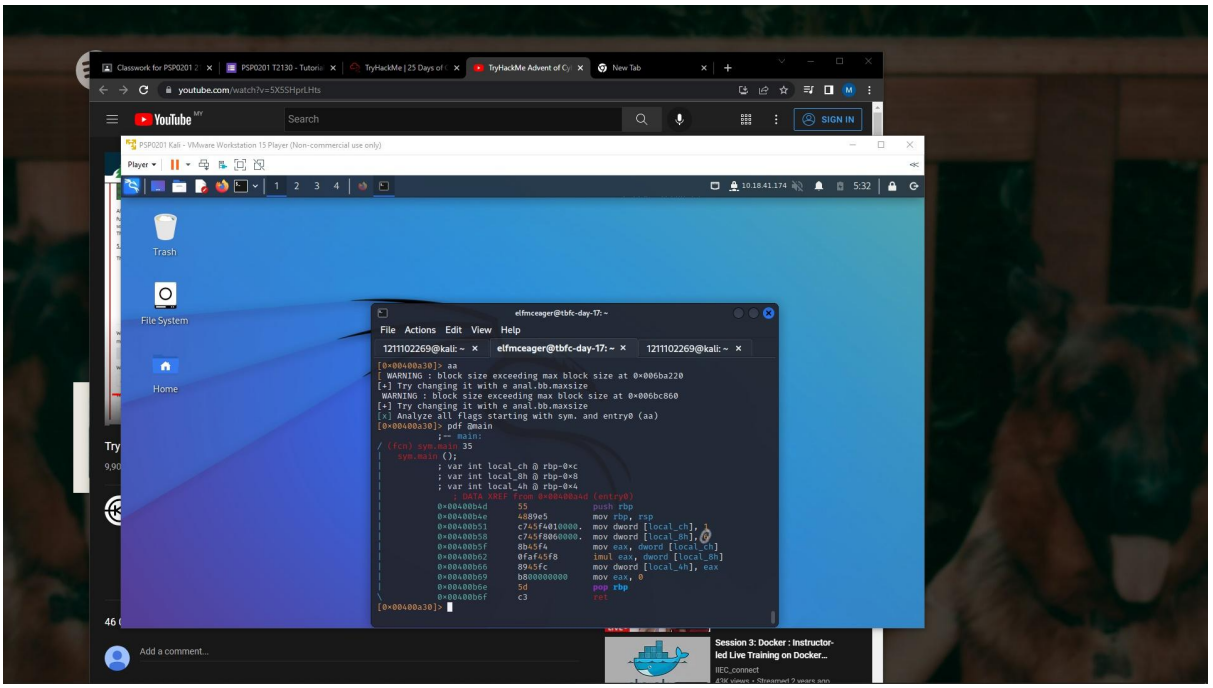
Question:5

What is the value of local_ch when its corresponding movl instruction is called (first if multiple)?**(1)**



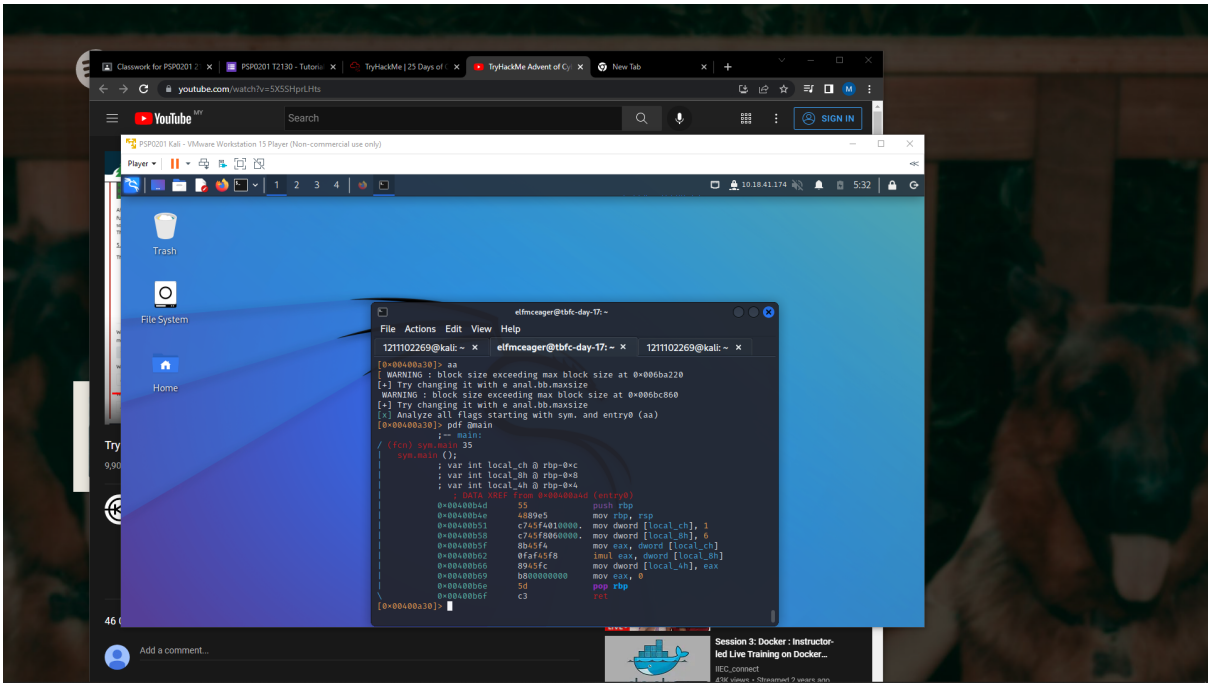
Question 6

What is the value of eax when the imull instruction is called?**(6)**



Question 7:

What is the value of local_4h before eax is set to 0?**(6)**



The Thought Process

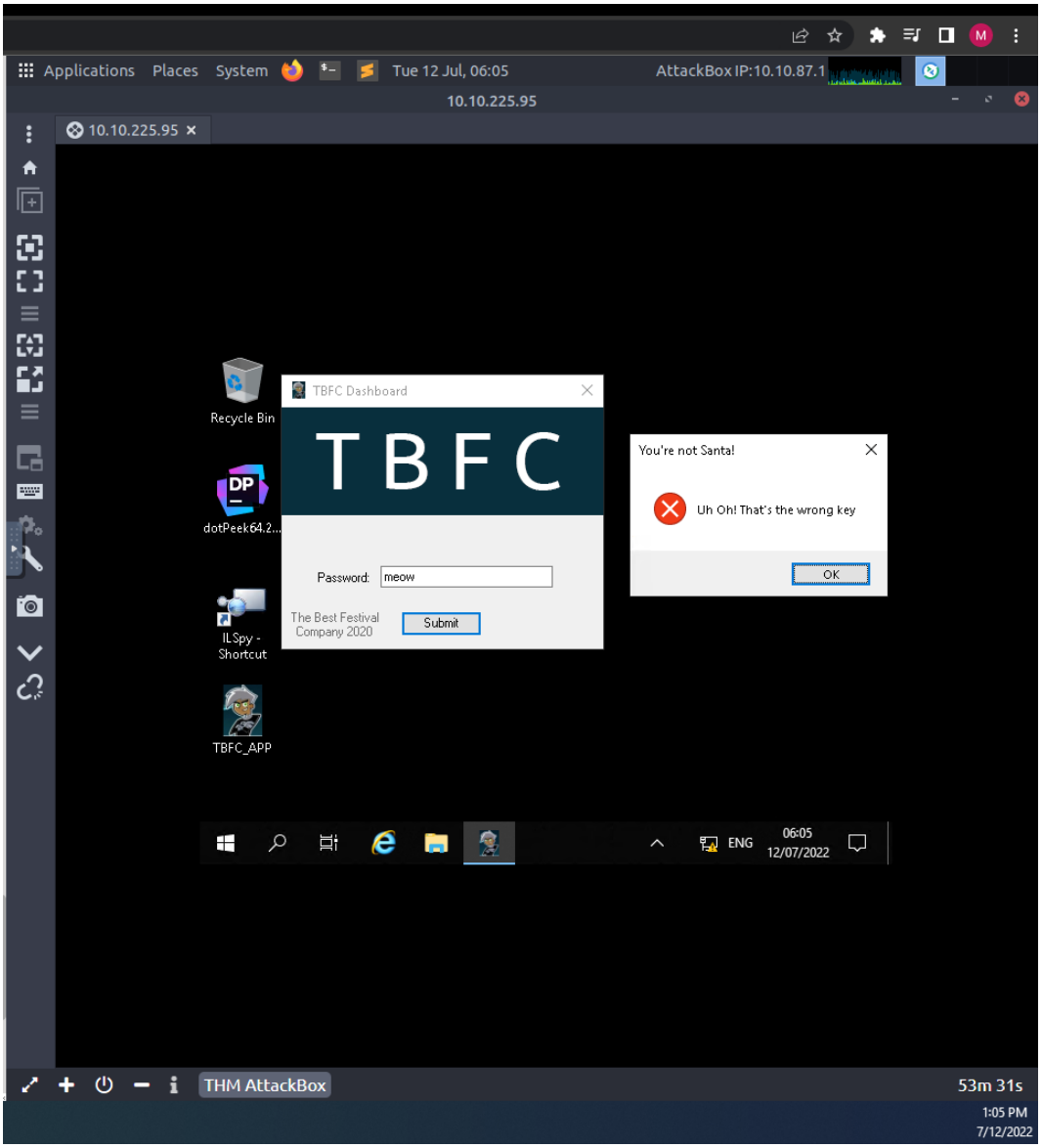
For Day 17,the match data type can be found at tryhackme website itself. To get the answer for the next question,we need to open the terminal because we need to login. For the login process,we need to open the terminal and key in the IP address that is given,the username and the password.Then,we need to run command r2 - d ./file1. This will open the binary in debugging mode. After that, just type (aa) command to analyse the program in radare2. For the next question, we need to run some commands to see how it works and get the answer. We run commands like afl to find a list of the functions. Then, we run the command pdf@main. From there,we start looking at the program from the 4th instruction(movl $4). We want to analyse the program while it runs. The best way to do it is by setting a breakpoint. So to set a breakpoint, we use command (db).Since we want to look at the program from the 4th instruction,we type db 0x0040b55 as shown on the screen. If we want to ensure that we already set the breakpoint,we can run the command pdf@main and we can see the breakpoint indicator(b). For the next question,we can continue from our exercise. We just simply run the command (dc). We can see that it started to hit the breakpoint. From that, we know that command (dc) is used to hit a breakpoint. For question 5,we need to type command r2 - d ./challenge1. Then,we type command pdf @ main.From there,we can analyse the program and we can find the answer which is (1). The next question,we need to do some multiplication. So,we are going to move the 1 to the eax and multiply it by 6. For the last question, we just need to take the value from eax which is (6) and copy it.

Day 18 : The Bits of Christmas

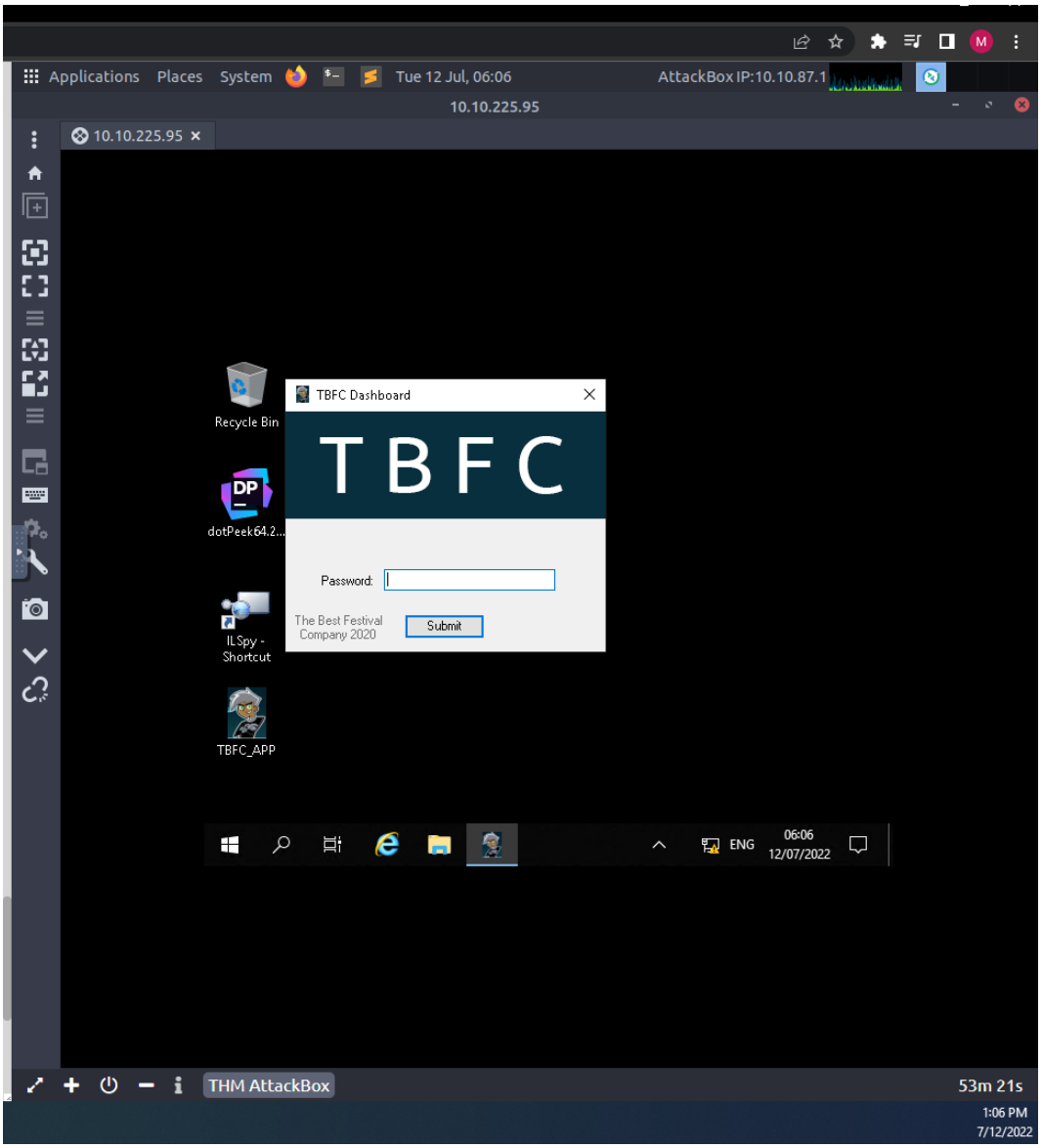
Tools used: TryHackMe, Firefox, Cyberchef

Solutions:

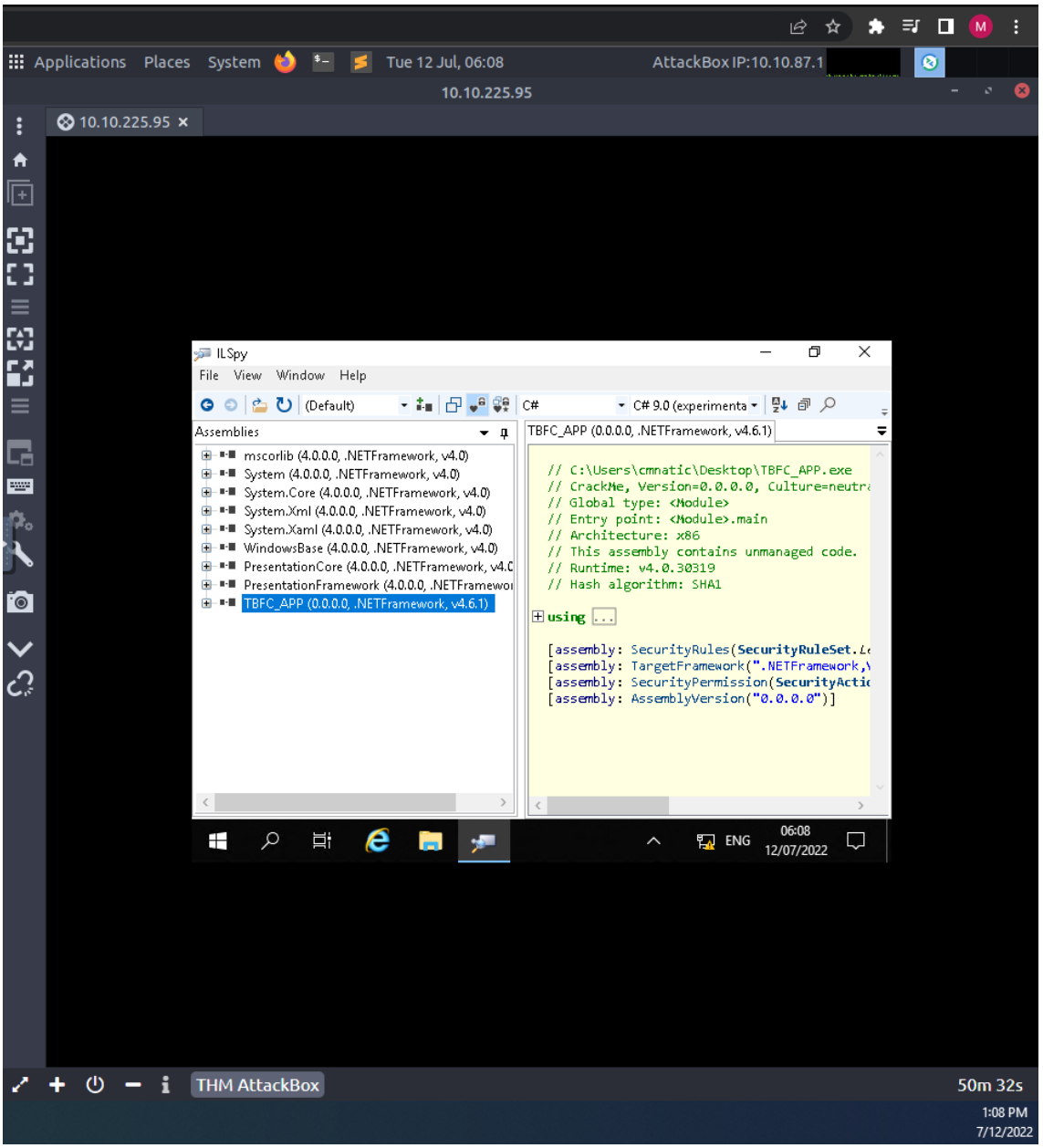
Question 1: The message that we received from TBC_APP when we entered the wrong password

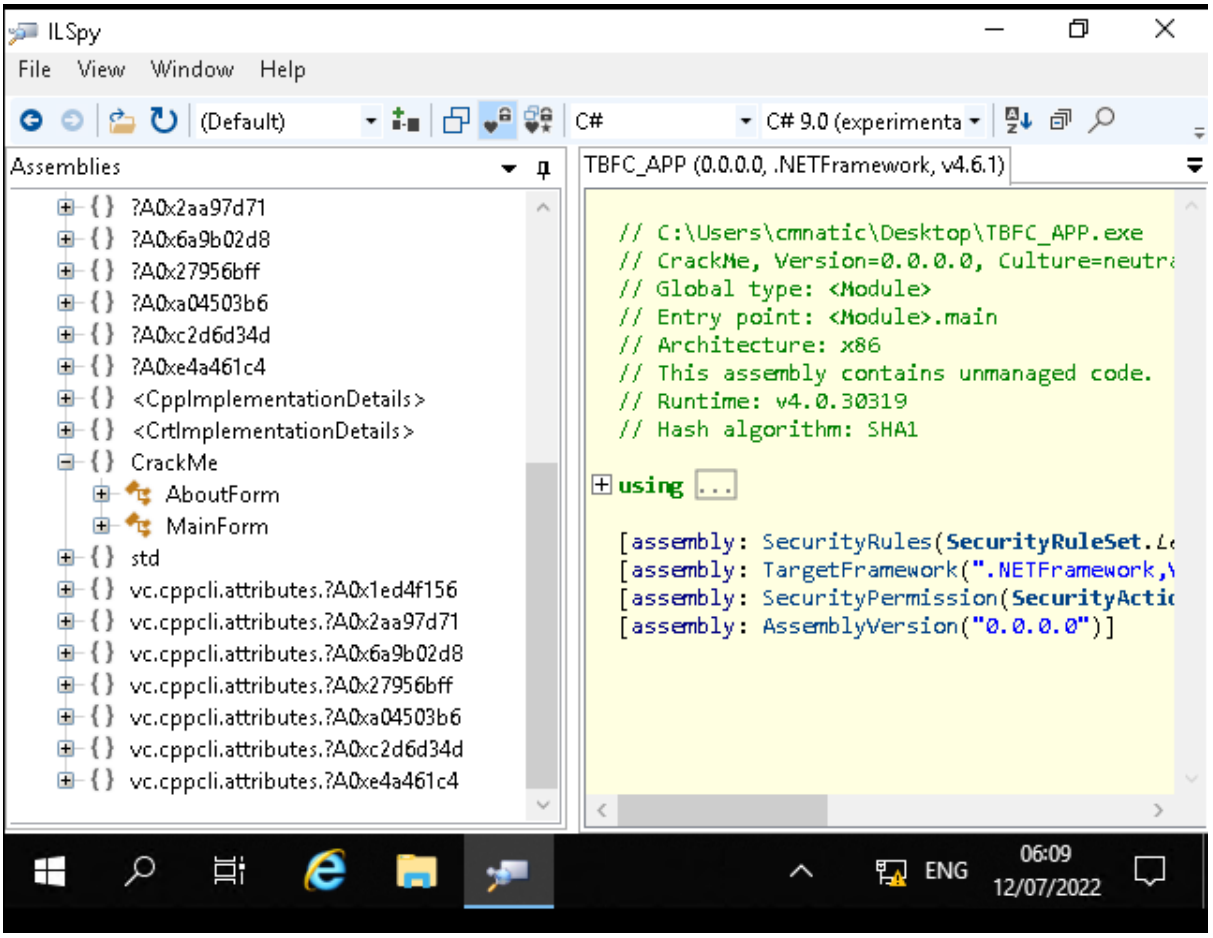


Question 2: TBFC stands for The Best Festival Company

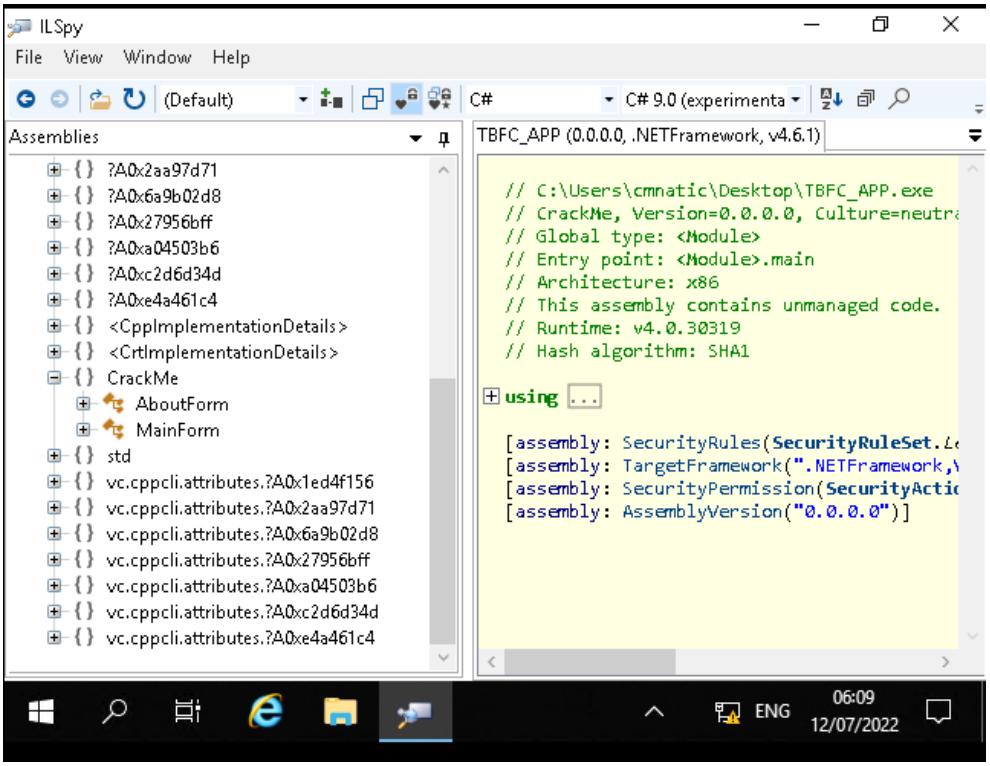


Question 3: The module that catches our attention (CrackMe)



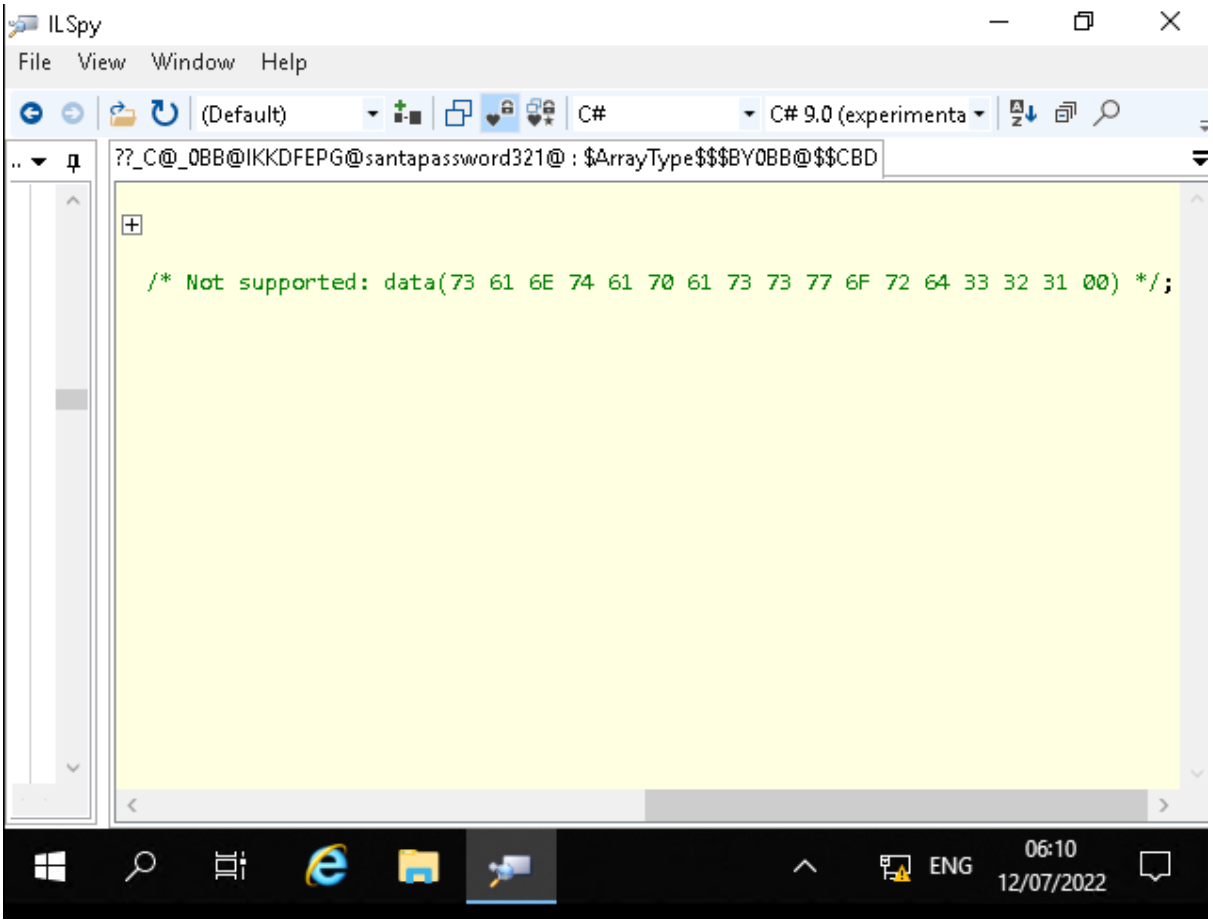


Question 4 : The form that contains information that we are looking for (MainForm)

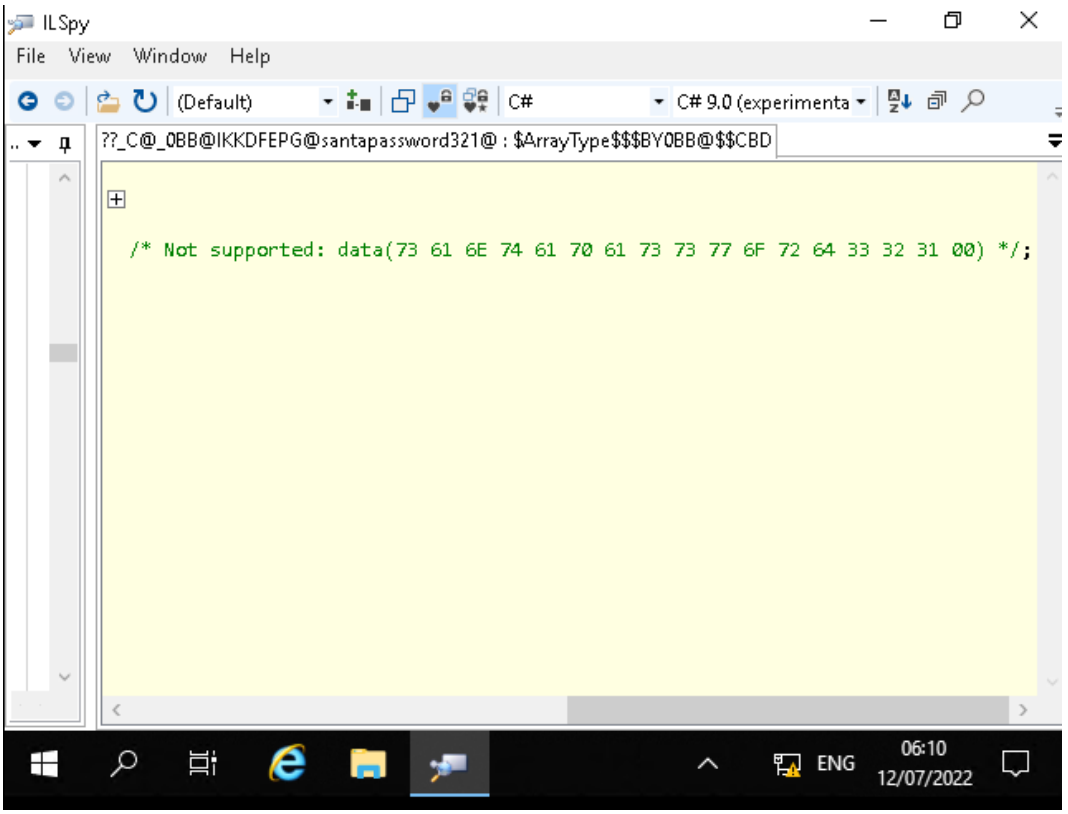


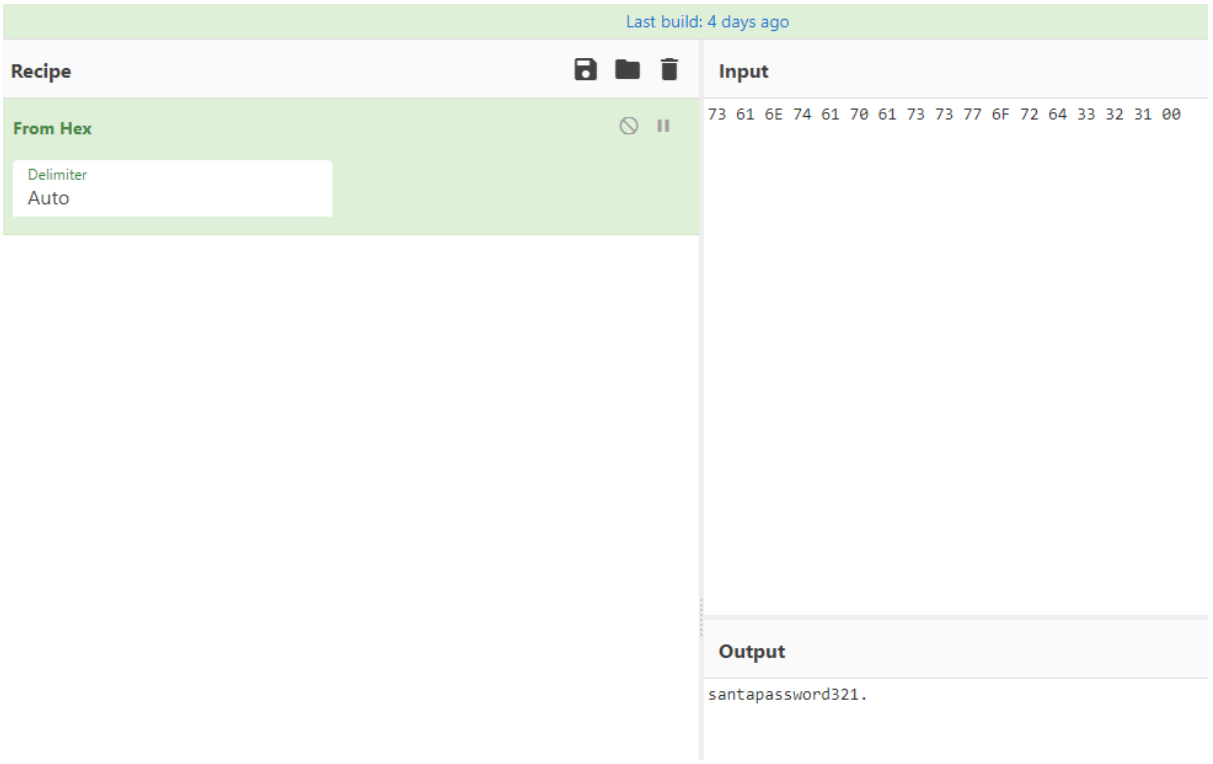
Question 5: The method that contains the information we seek (buttonActivate_Click)

The picture below are in metod **(buttonActivate_click)**

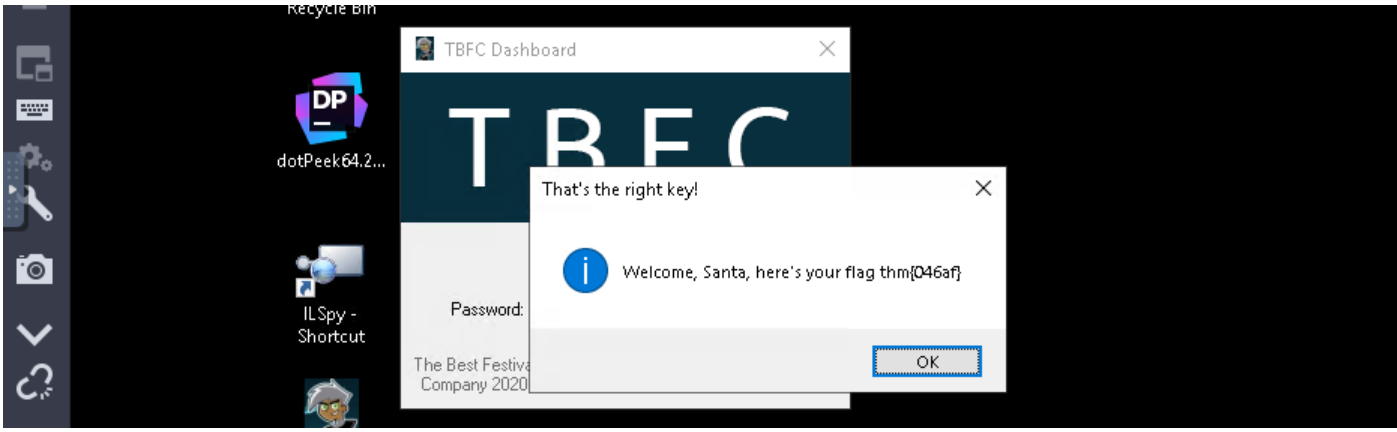


Question 6: The Santa's password **(santapassword321)**





Question 7: The flag we received when we logged in **(thm{046af})**



The Thought Process:

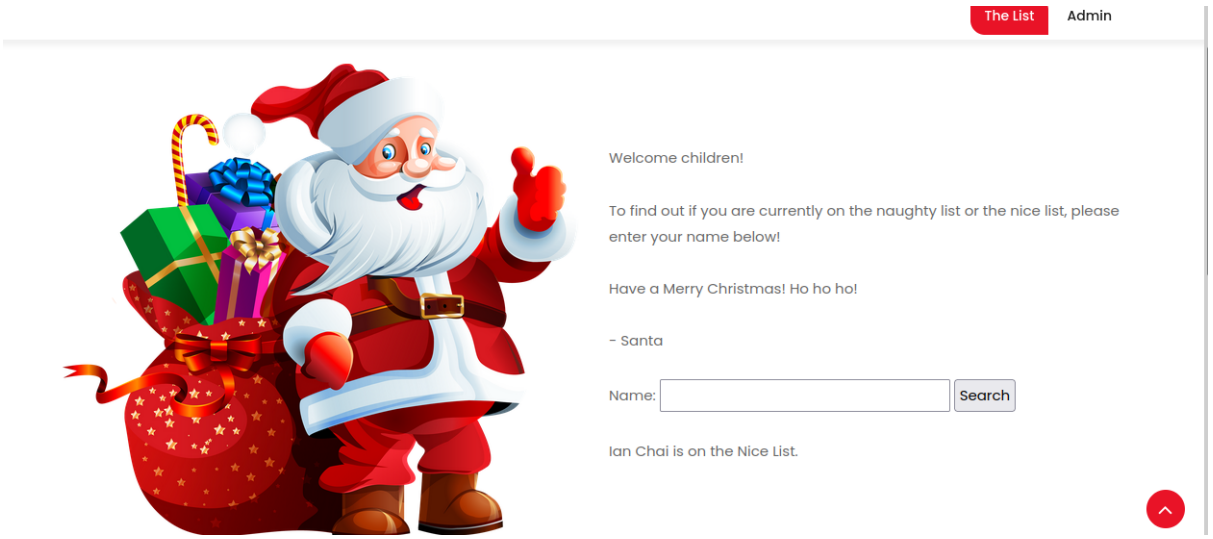
First of all, we open the Remmina on TryHackMe Attackbox to connect to the instance with the RDP client by referring to the notes that were provided in THM. Once we have done that, we open up ILSpy and decompile TBFC_APP. Then, we noticed there was a module called **"CrackMe"** that contained 2 forms which were **"AboutForm"** and **"MainForm"**. We took a look at both forms and each form contained its own methods and information. In the end, we noticed that the method **"buttonActivate_Click"** in **"MainForm" contained** information that mentions **"santapassword321"**. But before we took that as the password, we double clicked on it and noticed that there was data stored in Hexadecimal form. From there, we used CyberChef to decode the Hexadecimal code to achieve the password. Once we receive the password, we insert the password into the TBFC Dashboard to get the flag.

Day 19: The Naughty or Nice List

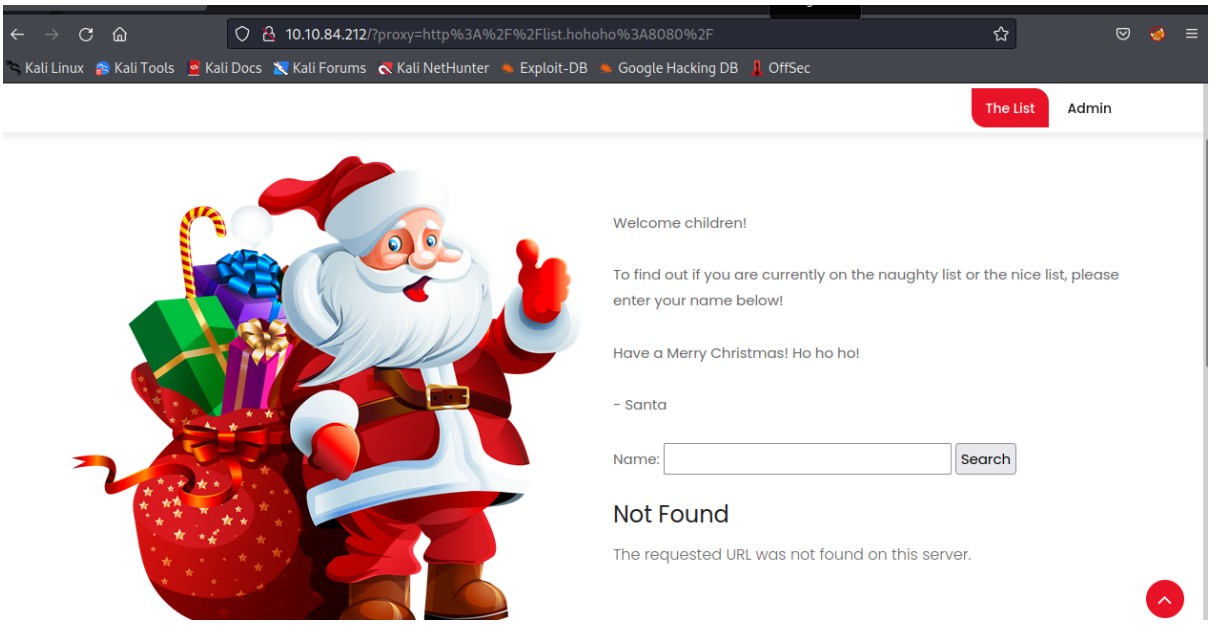
Tools Used: Kali Linux, Firefox

Solutions:

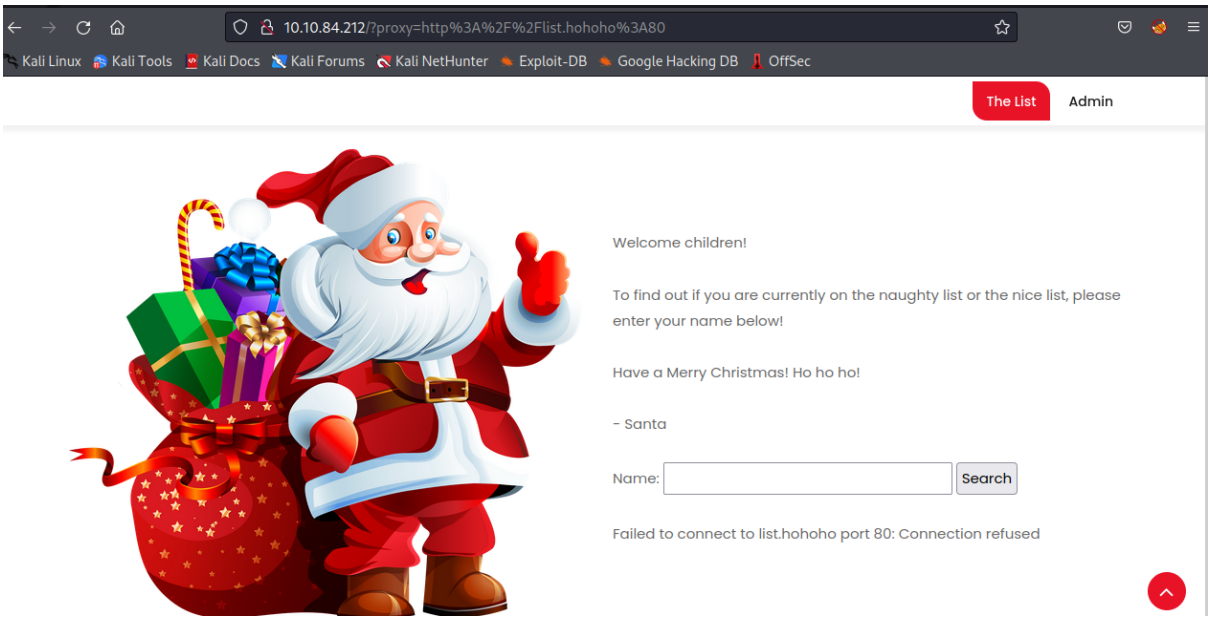
Question 1: The list for each person



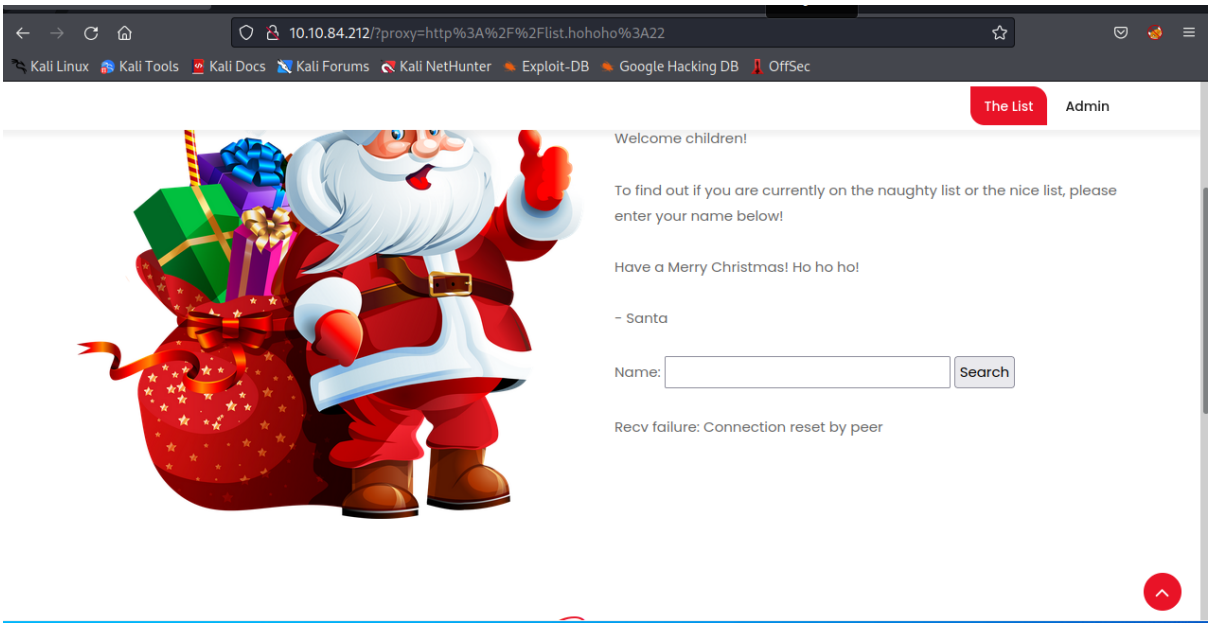
Question 2: What is displayed on the page when you use "/?proxy=http%3A%2F%2Flist.hohoho%3A8080%2F"?



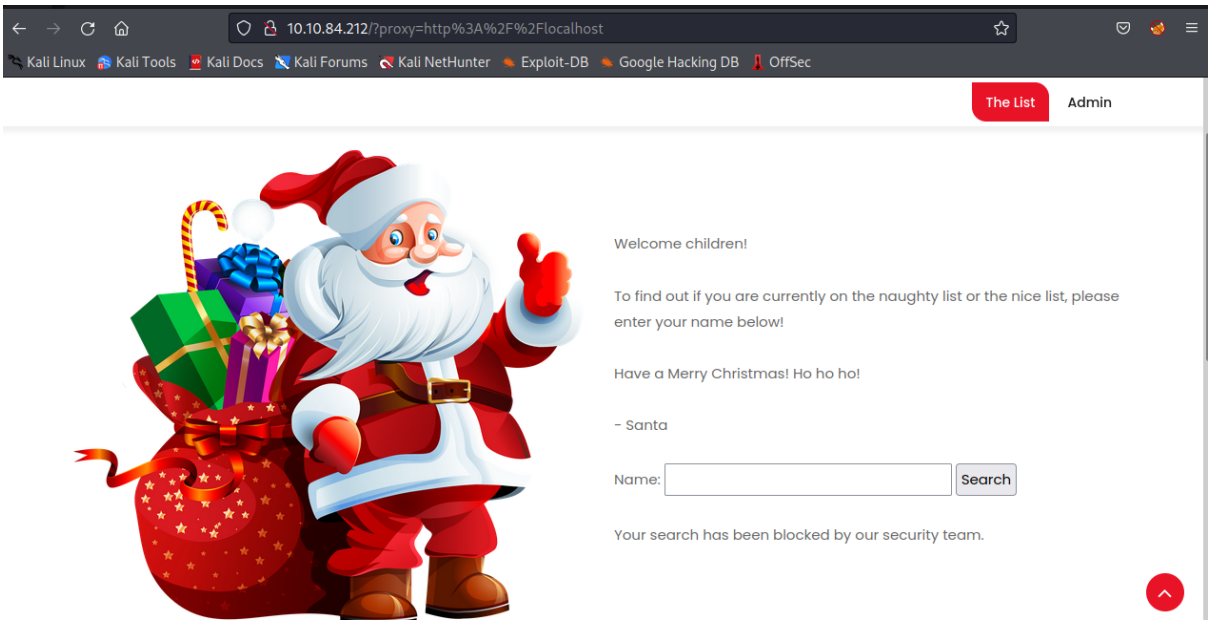
Question 3: What is displayed on the page when you use "/?proxy=http%3A%2F%2Flist.hohoho%3A80"?



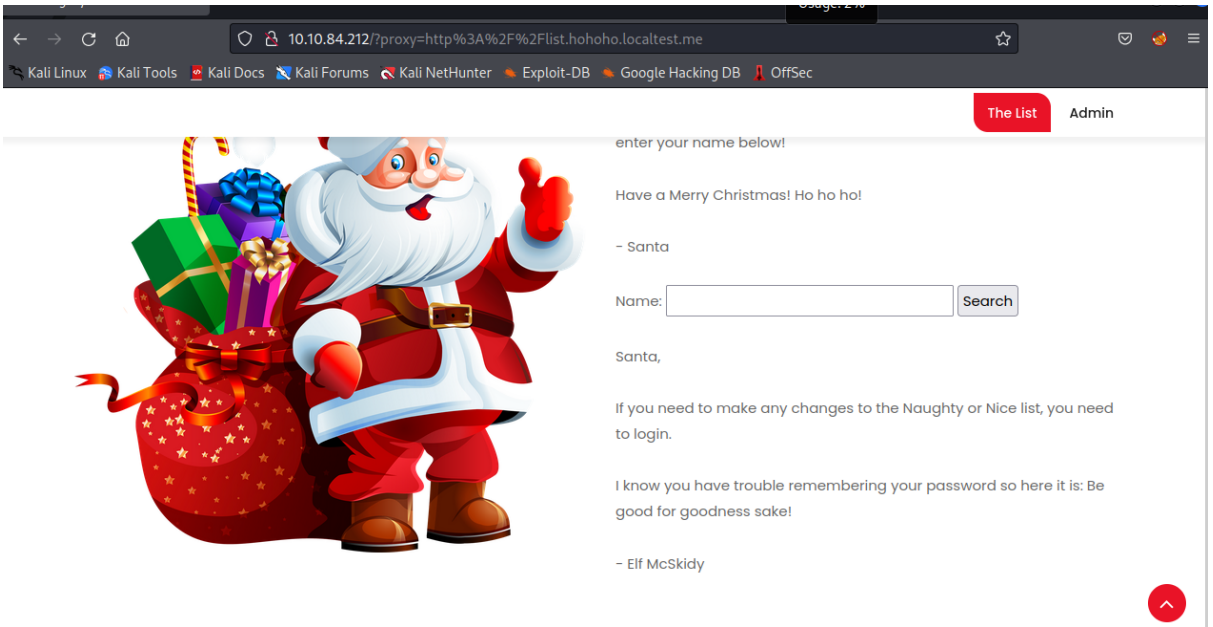
Question 4: What is displayed on the page when you use "/?proxy=http%3A%2F%2Flist.hohoho%3A22"?



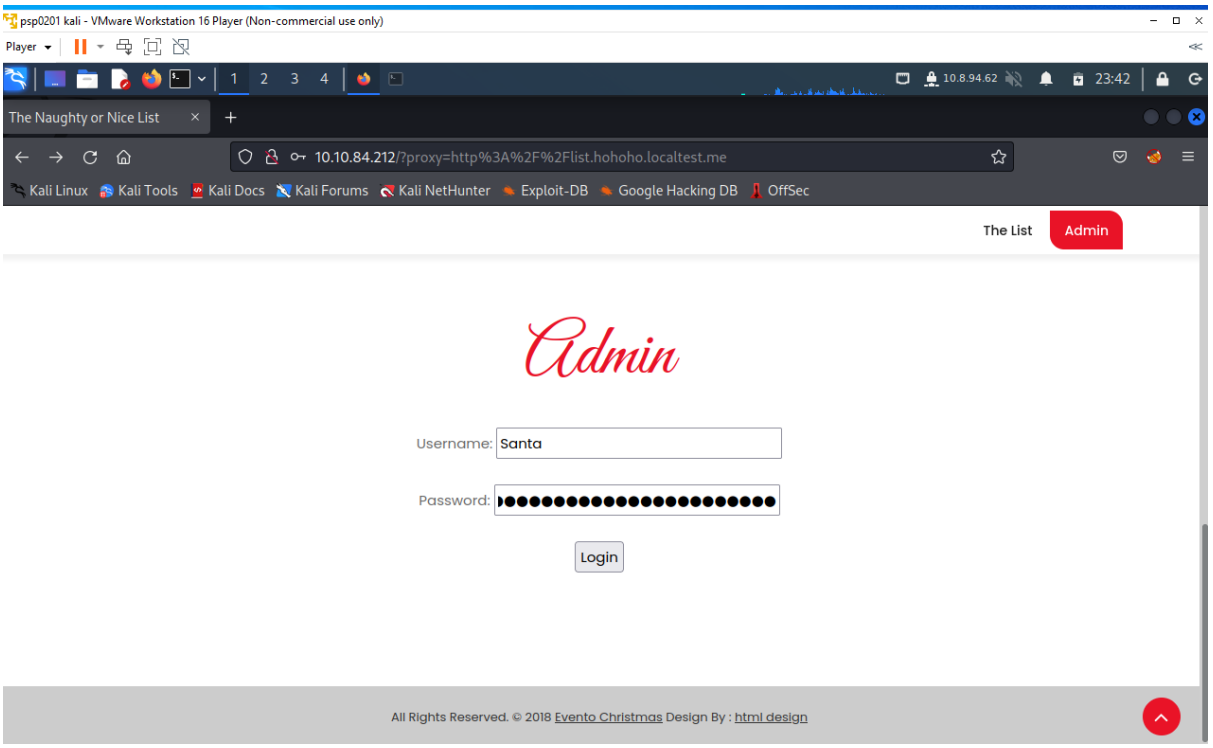
Question 5: What is displayed on the page when you use "/?proxy=http%3A%2F%2Flocalhost"?

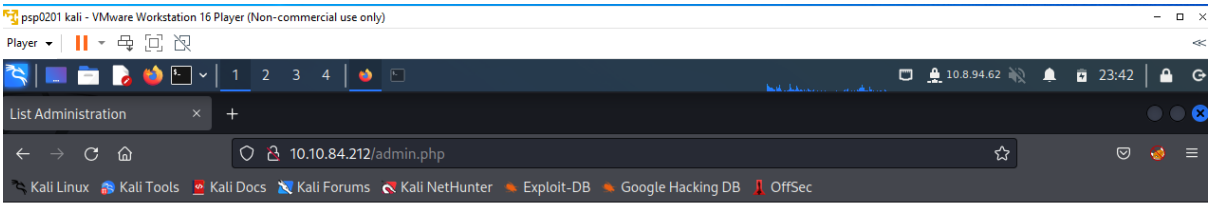


Question 6: The Santa's Password



Question 7: The challenge flag

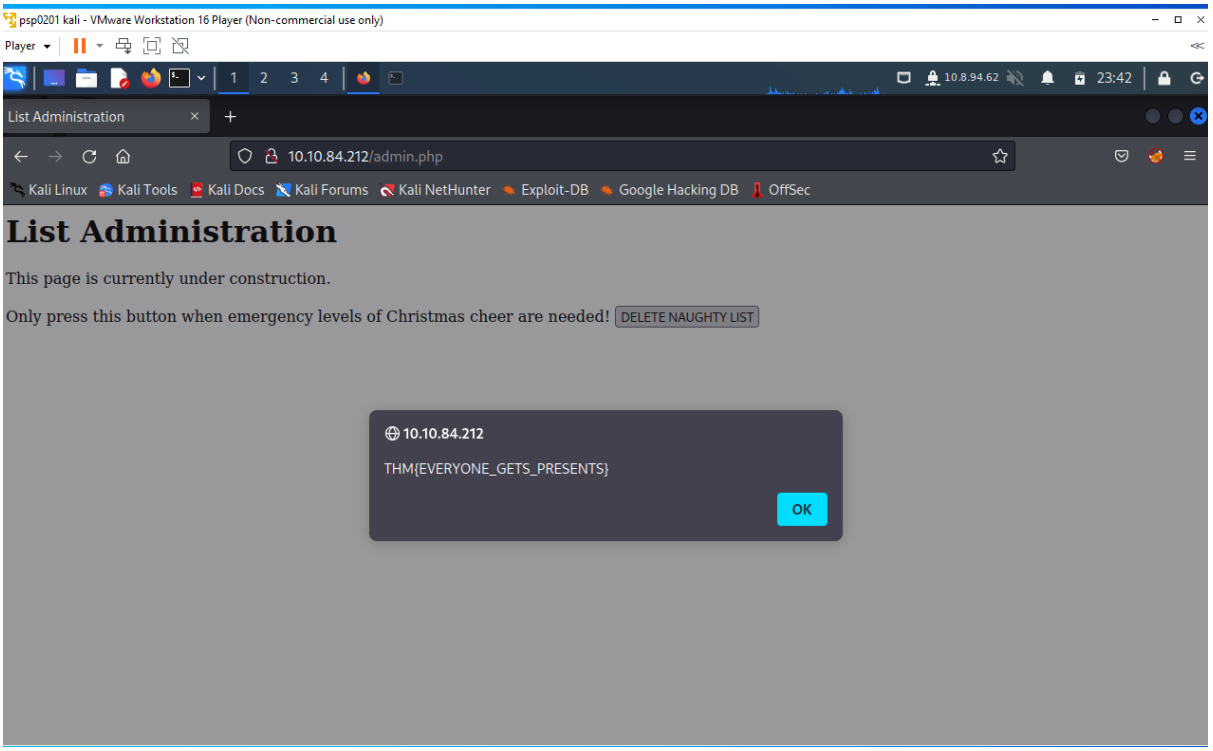




List Administration

This page is currently under construction.

Only press this button when emergency levels of Christmas cheer are needed! DELETE NAUGHTY LIST



The Thought Process

For day 19, first, we started the machine and inserted the ip address into the search bar and then the website appeared. To answer question 1, we just simply insert the names into the “Name” search bar to see whether the name is in naughty list or nice list. Next, For questions 2,3,4 and 5, we just simply insert the parameters that were given in each question into the search bar. From there, the answer for the questions will appear on the page. Next, for question 6, we need to search for Santa’s password. To achieve that, according to the notes in tryhackme, we can easily bypass it by setting the hostname in the URL to **“list.hohoho.localtest.me”**. This is because the hostname needs to be started with **“list.hohoho”**. Once we have done that, we can see on the page that the password was given. From there, we logged in via the admin section, and then we clicked the “ **DELETE NAUGHTY LIST** “ button to receive the flag.

Day 20: Powershelf to rescue

Tools Used: Kali Linux, Firefox

Solutions:

Question 1:

The parameter -l do that checked in ssh manual is ***login name***

Question 2

The first hidden elf file within the Documents folder that Elf 1 wants is ***2 front teeth***.

Question 3

The name of that movie is ***Scrooged***.

Question 4

The name of the hidden folder is ***3lfthr3e***.

```
PS C:\Windows\System32> Get-ChildItem -Hidden -Directory -Filter "*3*"


    Directory: C:\Windows\System32


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d--h--        11/23/2020   3:26 PM                3lfthr3e


PS C:\Windows\System32> cd 3lfthr3e
PS C:\Windows\System32\3lfthr3e>
```

Question 5

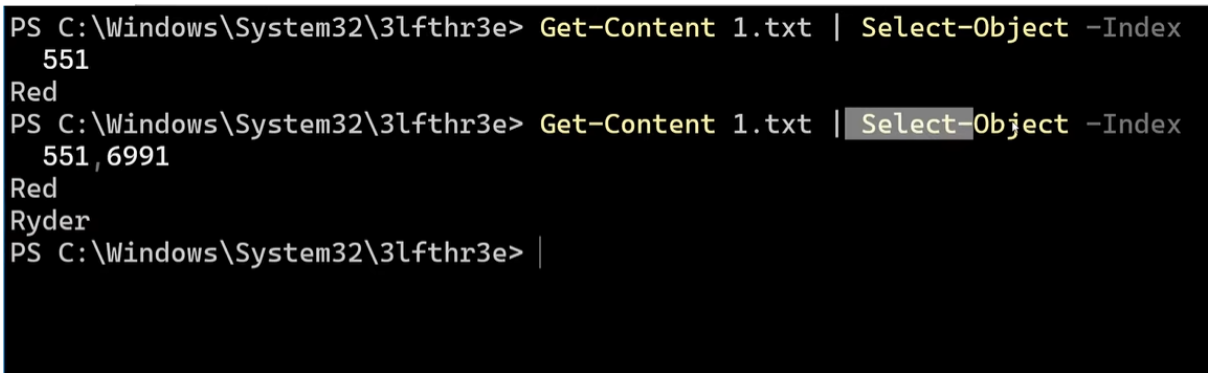
First file contains ***9999***.

```
PS C:\Windows\System32\3lfthr3e> Get-Content 1.txt | Measure-Object


Count    : 9999
Average  :
Sum      :
Maximum  :
Minimum  :
Property :
```

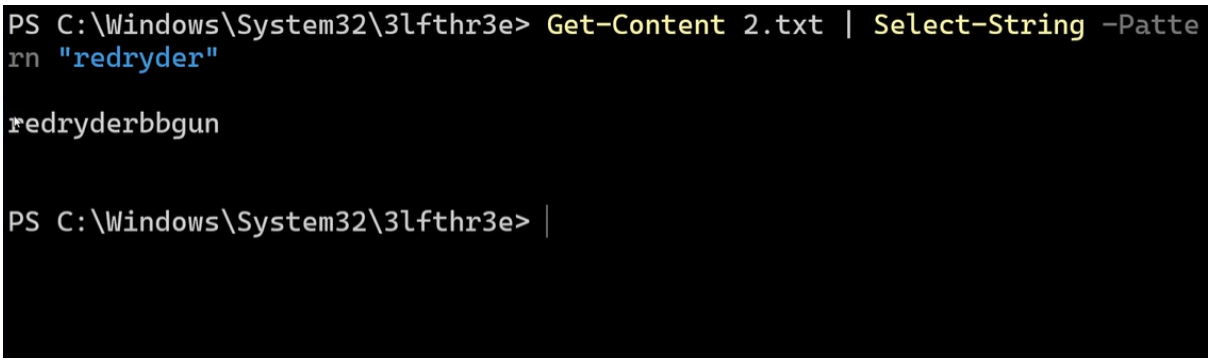
Question 6

2 words are at index 551 and 6991 in the first file is ***Red Ryder***.



Question 7

Answer is ***redryderbbun***.



Throughout Process

In order to open the powershell and obtain the IP address, we first deploy the computer. Using ssh, we log in as meagre and start the powershell. The Get-Childitem command with the -Hidden argument is then used to view what is hidden inside the Documents folder after using the cd command to navigate there. There, we discovered a "elfone.txt" file belonging to elf 1. We may view the file's content using the cat tool. The Get-Childitem command with the -Hidden argument is then used to find the hidden folder after changing the location to Desktop using the cd command. Then, using the cd command once more, we are in the elf2wo folder after discovering a folder with that name. The movie title that elf 2 requests is revealed when we use the Get-Childitem command to locate a file with the name e70smsW10Y4k.txt. Then we use the cd command to move the directory to Windows and the cd command once again to enter system32. The hidden folder with the name 3lfthr3e is then located using the Get-Childitem command with the -Hidden, -Directory, and -Filter"*3** option. The 3lfthr3e folder is then entered using the cd command, and the files in the folder are then visible using the Get-Childitem command with the -Hidden argument. The first file's contents are then seen using the Get-Content command, and the number of words it contains is determined by piping the output to Measure-Object with the -Word argument. Using the Get-Content argument in a bracket to open the first file and the index enclosed in square brackets, we can view the precise location in this file. Then, by opening the second file with the Get-Content command and pipering the output to Select-String with the -Pattern "redryder" option, we can determine what elf 3 is looking for.