Cybersecurity — Assignment 2

Access the Virtual Machine you set up in class. Answer the following questions in a word or pages document. Complete tasks using the terminal where indicated. Set up a GitHub repo and submit repo link as submission.

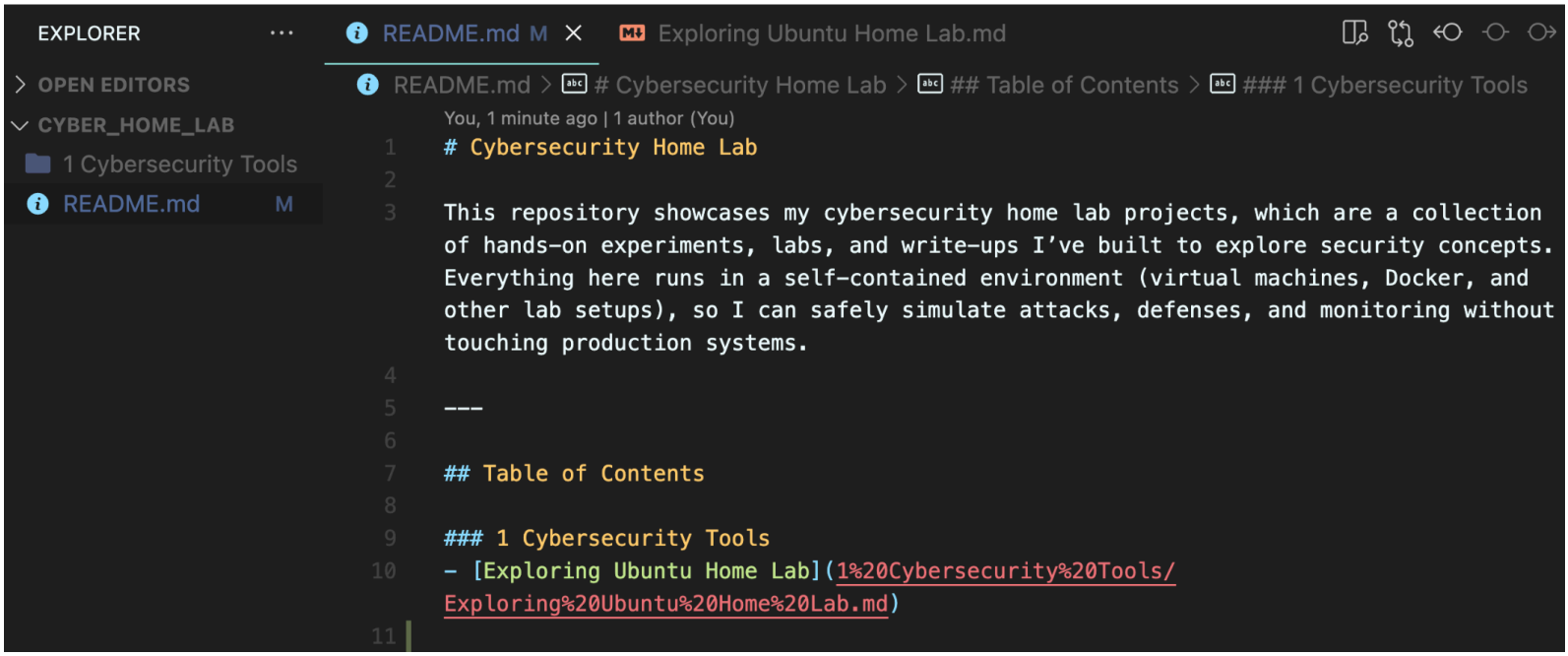
You will then set up a GitHub repo that will be your "Network Security Home Lab" to add to your portfolio when applying for jobs. Each assignment pertaining to your VM will be a separate "chapter".

GitHub Directions:

Most of you should have Git on your computer and a GitHub account. If not, Module 2 has a PDF going over how to set that up. Any issues, let me know.

1. In your computer, create a folder for all of your labs (network_security)
2. Open up **Visual Studio Code** (or use another text editor of your choice) and open the folder.
3. Create a README.md file which will include a brief explanation of what this repo is for (You can use mine as an example).
4. Create an md file for this assignment. You can create it in your text editor. I personally use **Obsidian** to create all of my assignments, pdfs, handouts, etc. and then just paste it into my README depending on what makes sense (Obsidian is nice because you can have all of your markdown files in one localized “Vault").
5. Create another md file for this lab/assignment. DON'T name it "Assignment 2"! Make it interesting for employers/other users. You can name it like “The Linux Command Line and Security Basics", or something else that grabs people's attention.
6. Complete the lab below. For each command you use, explain briefly what each does and take screenshots. You can do the basics, or be as complex as you would like. If you want a job in cybersecurity, I suggest being as detailed as possible. DO NOT copy paste info from chatGPT or another language model; people in the industry are not dumb and will be able to tell. Use it as a resource, but use your own words! Show your passion and expertise.

7. In your original README, add this assignment as a "chapter". See my repo as an example: https://github.com/kaitlinchoffmann/cybersecurity_home_lab. In markdown, spaces need %20 see below:



8. **YOUR SUBMISSION**: Submit the link to your GitHub repo.

Command Line for Beginners:

If you didn't already, I highly suggest you follow along and complete the tutorial below before moving on to rest of the tasks.

https://ubuntu.com/tutorials/command-line-for-beginners#1-overview

Do the following in your terminal. Take screenshots of your commands and output where necessary:

1. When you first ssh and open your virtual machine, you should be told how many updates that can be applied. Enter the command to list the updates available.
2. Update and Upgrade your system.
3. Reboot your system. (You may have to wait a few minutes to ssh again).

User Tasks:

4. Change the current user to **root** using the command **`sudo su root`**. What does the prompt look like?
5. Create a new user with the name **bobby** using the command **`useradd`**. Next, create another user with the name **sally** using the command **`adduser`**. What is the difference between the two?
6. Change the current user to sally. What does the prompt look like now?
7. While you're logged in as sally still, try to create a new user with the name earl. What happens? Why?
8. Enter **`exit`** until you are the original user, ubuntu, again. Delete the user earl. I didn't show you the command, but Google it! "Googling" skills are a great skill in CS; It's impossible to know everything.
9. Change the password of sally to something you can remember using **`sudo passwd sally`**
10. For the rest of the tasks, use the ubuntu user. Even though it's easier to complete tasks/commands, why is it bad practice to stay logged in as root?
11. Enter the command to see what your user id is.

Group Tasks:

12. What groups does ubuntu belong to?
13. Give sally the ability to execute sudo commands. Next, try to create a new user while logged in as sally.
14. Create a new group called cybersec
15. Add sally to the group, cybersec
16. Check to see which groups sally belongs.

Permission and Access Control Lists:

17. Create a new directory called **lab1**. Enter the command to find the permissions of the directory. Who is the owner and group owner of this directory? What permissions does the owner, group and other have?
18. Change your directory to lab1. Create a new bash file called, ***helloWorld***. When ran, your program should just print "Hello World!". (Don't forget to make your bash file executable).

19. Enter the command **ls -la helloWorld**. What are the reading, writing, and executing permissions for the owner, group and other?
    a. Change the permissions so the group also has w and x permissions.
20. Use the **getfacl** command to view the ACL of the file.
21. Using the **setfacl** command, allow the user, sally, the ability to read and write to the file.

OPTIONAL — In case you want to learn more:

The following is a free textbook on learning the Linux command line. It has great reviews, and is an awesome resource if you are interested in learning more: https://linuxcommand.org/tlcl.php