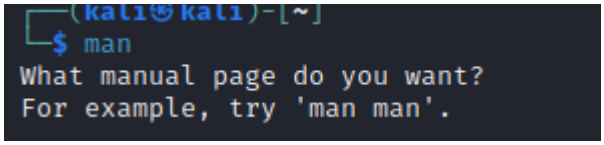
Teh Jia Xuan
Tute 1

Task 1 – Basic Linux Operations - Finding Help and File/Directory Manipulation (20%)

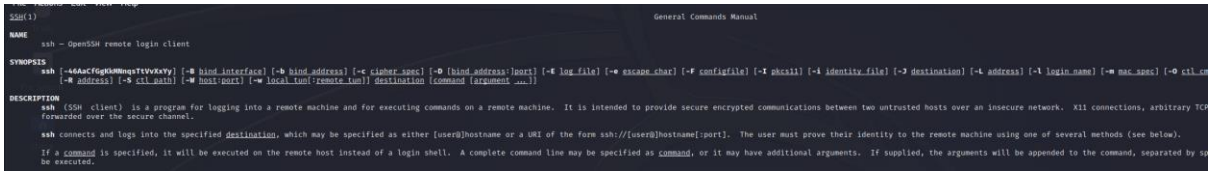
1. Which text-based command provides information on the use of other Linux commands and utilities?

man, this provides the manual on the use of linux commands



2. List the command line for finding help on the usage of ssh?

man ssh



3. How do you access Linux manual pages? List the full command line for accessing a particular section.

man [section] [command]

4. List the command-lines for creating directories.

mdkir [directory name]
mdkir [directory name] [directory name], for more directories at once

```
┌──(kali㉿kali)-[~]
└─$ mkdir hihi

┌──(kali㉿kali)-[~]
└─$ ls
Desktop  Documents  Downloads  hello.c  hi  hihi  hii  Music  Pictures  Public  string.sh  Templates  Videos  volatility3
```

5. List the command-lines for deleting sub-directories.

rmdir [directory name]
rmdir -r [directory name], deleting directory and content within it

```
┌──(kali㉿kali)-[~]
└─$ ls
Desktop  Documents  Downloads  hello.c  hi  hihi  hii  Music  Pictures  Public  string.sh  Templates  Videos  volatility3

┌──(kali㉿kali)-[~]
└─$ rmdir hihi

┌──(kali㉿kali)-[~]
└─$ ls
Desktop  Documents  Downloads  hello.c  hi  hii  Music  Pictures  Public  string.sh  Templates  Videos  volatility3
```

6. List the command-line for creating a zero-length file.
touch [filename]

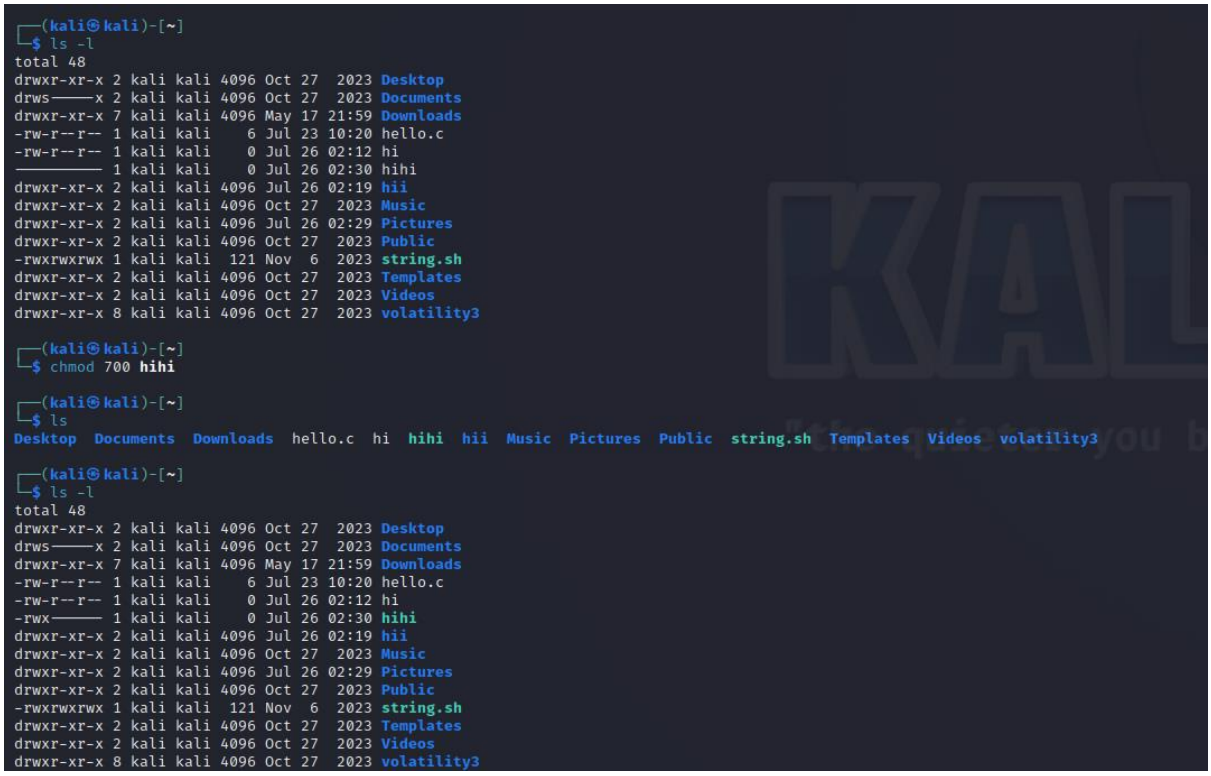
```
┌──(kali㉿kali)-[~]
└─$ touch hihi

┌──(kali㉿kali)-[~]
└─$ ls
Desktop  Documents  Downloads  hello.c  hi  hihi  hii  Music  Pictures  Public  string.sh  Templates  Videos  volatility3
```

Task 3 – Basic Linux Operations – Access Control (20%)

7. Set the permissions for your home directory such that no one besides yourself can read your home directory's contents. List the command line.

chmod 700



8. What does chmod 4775 filename do?

Chmod is for setting permissions for a file or directory, the first number 4 is setuid bit, it stands for set user id bit, it is used to set permissions that only the owner can run it. This set for files that require higher privileges to perform tasks. The other 3 letter 775 stands for standard permissions. The first letter 7 stands for the owner has read, write and execute permissions. The second letter 7 stands for the group member have read, write and execute permissions. The third letter 5 stands for others have read and execute permissions. So the file can only be run by the file owner's permissions and read, write and execute by the owner and group and read and execute for others.

9. How do you set the executable permission on a file (to make it executable)? List the command-line.

chmod u+x "filename"
chmod g+x "filename"
chmod o+x "filename"
chmod a+x "filename"
For all users to set executable permissions: chmod 755 "filename"

```
┌──(kali㉿kali)-[~]
└─$ ls -l
total 48
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Desktop
drws------x 2 kali kali 4096 Oct 27  2023 Documents
drwxr-xr-x 7 kali kali 4096 May 17 21:59 Downloads
-rw-r--r-- 1 kali kali    6 Jul 23 10:20 hello.c
-rw-r--r-- 1 kali kali    0 Jul 26 02:12 hi
-rwx------ 1 kali kali    0 Jul 26 02:30 hihi
drwxr-xr-x 2 kali kali 4096 Jul 26 02:19 hii
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Music
drwxr-xr-x 2 kali kali 4096 Jul 26 02:29 Pictures
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Public
-rwxrwxrwx 1 kali kali  121 Nov  6  2023 string.sh
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Templates
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Videos
drwxr-xr-x 8 kali kali 4096 Oct 27  2023 volatility3

┌──(kali㉿kali)-[~]
└─$ chmod g+x hihi

┌──(kali㉿kali)-[~]
└─$ ls -l
total 48
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Desktop
drws------x 2 kali kali 4096 Oct 27  2023 Documents
drwxr-xr-x 7 kali kali 4096 May 17 21:59 Downloads
-rw-r--r-- 1 kali kali    6 Jul 23 10:20 hello.c
-rw-r--r-- 1 kali kali    0 Jul 26 02:12 hi
-rwx--x--- 1 kali kali    0 Jul 26 02:30 hihi
drwxr-xr-x 2 kali kali 4096 Jul 26 02:19 hii
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Music
drwxr-xr-x 2 kali kali 4096 Jul 26 02:29 Pictures
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Public
-rwxrwxrwx 1 kali kali  121 Nov  6  2023 string.sh
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Templates
drwxr-xr-x 2 kali kali 4096 Oct 27  2023 Videos
drwxr-xr-x 8 kali kali 4096 Oct 27  2023 volatility3
```

10.List the command-line for inspecting the permissions assigned to a particular file “hello.c”.

ls -l hello.c

```
┌──(kali㉿kali)-[~]
└─$ ls -l hello.c
-rw-r--r-- 1 kali kali 6 Jul 23 10:20 hello.c
```

Task 4 – Linux Shell (40%)

[Hint: Read the manual pages on your shell and then answer the following questions. You can run the

command echo $SHELL in the terminal to figure out the shell you are running]

11. How do you get the last command-line re-displayed?

Press up arrow key

12.Which key-stroke invokes filename completion?

Tab

13.Locate the file in your home directory/system containing the PATH variable. What does it do?

The path variable defines a list of directories that the shell will search through to find executable files when we type a command

14.How do you inspect its value?

echo $PATH

```
┌──(kali㉿kali)-[~]
└─$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/local/games:/usr/games
```

15.What does the shell function alias do?

Alias allow us to create a shortcut for a long command. So we can replace the long and frequently use command with a shorter one

16.How does which command work?

which command is to find file that can be run for that command. How which work is it reads the PATH environment variable. It searches through each directory and it returns the full path to that executable if it found any.

17.How do you execute a program file in the shell? List the command-line.

./[filename]

18.How are the contents of a text file displayed? List the command-line.

Cat [filename]

```
┌──(kali㉿kali)-[~]
└─$ nano hihi

┌──(kali㉿kali)-[~]
└─$ cat hihi
hhihihihihihi testing
```

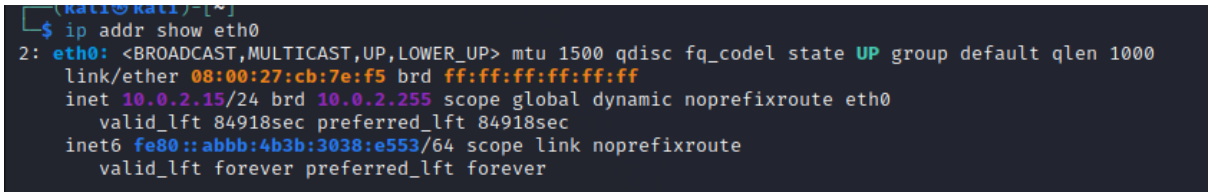
19.List the command-line for search all files with an extension .html on the system

sudo find / -type f -name “*.html”

Task 5 – Basic Networking (20%)

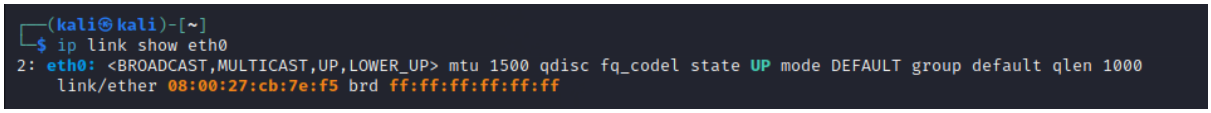
20.Which command can show the IP address for the ethernet card (eth0)?

Ip addr show eth0



21.Which command can show the Hardware address for the ethernet card (eth0)?

Ip link show eth0



22.What is the function of /etc/hosts file?

This file is a text file that used to map ip addresses to hostname, the purpose of it is to allow the system to resolve domain names without the need to query a DNS server. It is useful when the DNS server is unavailable. So when user tries to access the website the system will first looks at the /etc/hosts file and it finds the website in that file and it gets the ip address to the website without contacted DNS server. After that the system uses the Ip address to establish connection to the website

23.What is the function of /etc/resolv.conf?

/etc/resolv.conf is a configuration file used by linux and it tells the system how to resolve domain names into IP addresses. It works by, when we try to visit a website system will looks up to /etc/resolv.conf to find out which DNS server to query. The system will queries the DNS server listed in the order that they appear in the file, if first server don’t respond then the system will try the second one. It sends a request to DNS server to get the website’s IP address. Besides that, if we type a short hostname like youtube the system will search in /etc/resolv.conf and tries to resolve them into a proper hostname in order to search for domain.