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I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.

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1.Introduction

The UNIX operating system has become widely used and successful, offering lessons for the future of operating systems. The widespread adoption and success of the UNIX operating system, and aims to identify the reasons for its success and draw lessons for the future of operating systems. (B. Kernighan, 1982).

Unix has been one of the most influential systems in the development of modern operating systems, such as Linux and macOS, mainly due to its key features—simplicity, modularity, and portability. It had a hierarchical file system, strong networking capabilities, and a command-line interface.

2. Objectives

The primary goal of this report is to test a few basic and crucial Linux commands that would help interact with the system, identify the user, and enable file management. During this hands-on exercise, one aims to develop the expertise in some basic operations in Linux, such as making or editing files, combining several files, obtaining information about the system, and making effective use of logging utilities like the script command. The steps that are being documented in the report will also help understand and replicate these tasks in similar environments.

- To Use ls, ls -a, and ls -a -l to understand file listings, including hidden files and detailed information about files.
- To check for the file existences and contents.
- To Learn to merge multiple files into one.
- To Use the date command to display the current date and time.
- To Understand how to finish and save the session using the script command.

3. Required tool

The following are the tools that I used to make this report:

- Kali Linux

Kali Linux, known initially as BackTrack Linux, is a free and open-source Linux-based operating system geared at advanced penetration testing and security auditing. Kali Linux has hundreds of tools that perform different information security activities, including penetration testing, security research, computer forensics, and reverse engineering. (Jena, 2024)

- Oracle Virtual box

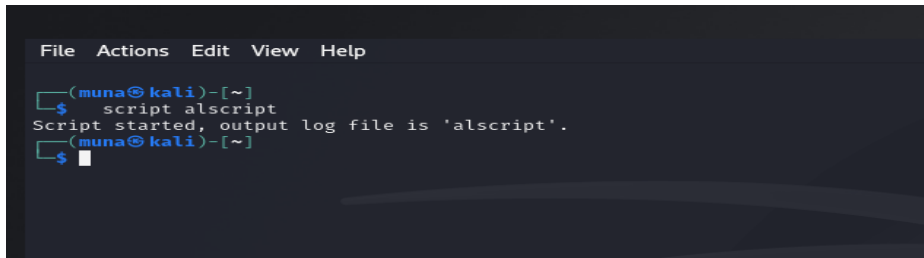
Oracle VM VirtualBox is a tool for virtualizing x86 and AMD64/Intel64 computing architecture, enabling users to deploy desktops, servers, and operating systems as virtual machines. You can use this solution to deploy as many virtual machines as the host architecture has the resources for. (Ashtari, 2022)

4. Task in detail:

Here, we will do the task in prompt that is given by a tutor.

4.1. Giving script commands to save input and output terminal commands

The script command starts logging a terminal session. It saves the input and output of a terminal session into a file, The system will respond with "Script started, Output log file is 'alscript'."

A terminal window with a dark background and light blue text. The window has a menu bar with 'File', 'Actions', 'Edit', 'View', and 'Help'. The prompt is '(muna@kali)-[~]'. The user enters '\$ script alscript'. The system responds with 'Script started, output log file is 'alscript''. The prompt returns to '(muna@kali)-[~]'.

```
File Actions Edit View Help
(muna@kali)-[~]
$ script alscript
Script started, output log file is 'alscript'.
(muna@kali)-[~]
$
```

Figure 1: Giving script commands to save input and output terminal commands

4.2. Giving whoami commands to know the recent user

The command 'whoami' shows the name of the user who is running the OS.

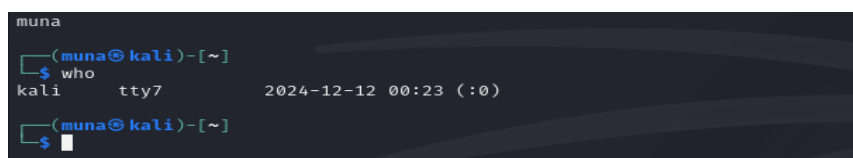
A terminal window with a dark background and light blue text. The prompt is '(muna@kali)-[~]'. The user enters '\$ whoami'. The system responds with 'muna'. The prompt returns to '(muna@kali)-[~]'.

```
(muna@kali)-[~]
$ whoami
muna
(muna@kali)-[~]
$
```

Figure 2: Giving whoami commands to know the recent user

4.3. To view all users from 'who' command

The 'who' command shows the name of the user logged onto the system.

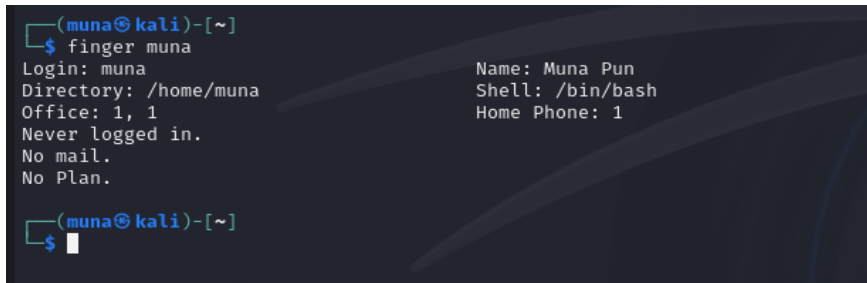
A terminal window with a dark background and light blue text. The prompt is '(muna@kali)-[~]'. The user enters '\$ who'. The system responds with 'kali tty7 2024-12-12 00:23 (:0)'. The prompt returns to '(muna@kali)-[~]'.

```
muna
(muna@kali)-[~]
$ who
kali tty7 2024-12-12 00:23 (:0)
(muna@kali)-[~]
$
```

Figure 3: To view all users from 'who' command

4.4. Typing the finger command

Typing the 'finger muna' to see more information about your account.

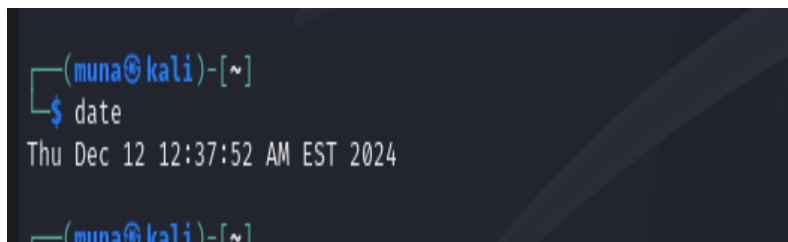


```
(muna@kali)-[~]  
$ finger muna  
Login: muna                      Name: Muna Pun  
Directory: /home/muna           Shell: /bin/bash  
Office: 1, 1                     Home Phone: 1  
Never logged in.  
No mail.  
No Plan.  
  
(muna@kali)-[~]  
$
```

Figure 4: Typing the finger command

4.5. Date command to see current time and date

We should Type date, to see today's date and the current time.



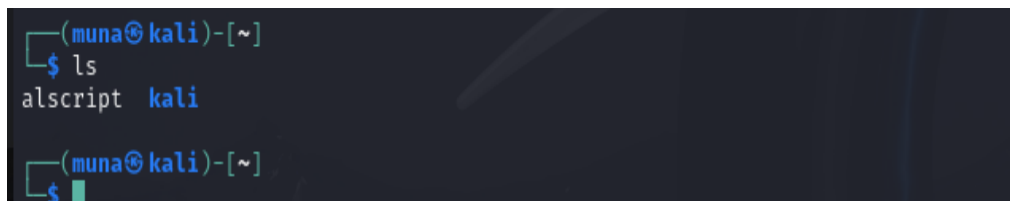
```
(muna@kali)-[~]  
$ date  
Thu Dec 12 12:37:52 AM EST 2024  
  
(muna@kali)-[~]  
$
```

Figure 5: Date command to see current time and date

4.6. Typing ls, ls -a, ls -al command

- Using Three various commands to find different kinds of files.

ls: This command will list down or display every that is visible, such as all files and directories within the existing working directory. Hidden files and directories starting with a period simply are not listed, just like how.



```
(muna@kali)-[~]  
$ ls  
alscript  kali  
  
(muna@kali)-[~]  
$
```

Figure 6: Typing ls command

ls -a: This command feature encompasses the listing of all files—both visible and hidden. Usually, hidden files start with a.(for example, .hiddenfile).

```
(muna@kali)-[~]
$ ls -a
.  alscript  .bashrc  .config  .face.icon  kali  .profile
.. .bash_logout .bashrc.original .face  .java  .local  .zshrc
(muna@kali)-[~]
$
```

Figure 7: Typing a ls -a

ls -al: The command gives a detailed listing of all visible and hidden files and directories. It will display permissions to files, ownership, size, and the last modification date.

```
File Actions Edit View Help
alscript kali
(muna@kali)-[~]
$ ls -a
.  alscript  .bashrc  .config  .face.icon  kali  .profile
.. .bash_logout .bashrc.original .face  .java  .local  .zshrc
(muna@kali)-[~]
$ ls -al
total 68
drwx----- 6 muna muna 4096 Dec 12 00:34 .
drwxr-xr-x 3 root root 4096 Dec 12 00:27 ..
-rw-rw-r-- 1 muna muna 0 Dec 12 00:34 alscript
-rw-r--r-- 1 muna muna 220 Dec 12 00:25 .bash_logout
-rw-r--r-- 1 muna muna 5551 Dec 12 00:25 .bashrc
-rw-r--r-- 1 muna muna 3526 Dec 12 00:25 .bashrc.original
drwxr-xr-x 6 muna muna 4096 Dec 12 00:25 .config
-rw-r--r-- 1 muna muna 11759 Dec 12 00:25 .face
lrwxrwxrwx 1 muna muna 5 Dec 12 00:25 .face.icon -> .face
drwxr-xr-x 3 muna muna 4096 Dec 12 00:25 .java
drwx----- 15 kali kali 4096 Dec 12 00:24 kali
drwxr-xr-x 3 muna muna 4096 Dec 12 00:25 .local
-rw-r--r-- 1 muna muna 807 Dec 12 00:25 .profile
-rw-r--r-- 1 muna muna 10868 Dec 12 00:25 .zshrc
(muna@kali)-[~]
$
```

Figure 8: Typing a ls -al

4.7. Commanding the 'cat /etc/passwd'

The command cat stands for concatenate. This command is very versatile and is used for the display as well as manipulation of a file's contents. 'cat/etc/passwd': when this command is used, the file 'passwd' is mentioned. So, this file contains the details of user accounts on the computer.


```

(muna@kali)-[~]
$ cat /etc/passwd
root:x:0:0:root:/root:/usr/bin/zsh
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:usr/sbin/nologin
systemd-timesync:x:992:992:systemd Time Synchronization:/:usr/sbin/nologin
messagebus:x:100:102::/nonexistent:/usr/sbin/nologin
tss:x:101:104:TPM software stack,,:/var/lib/tpm:/bin/false
strongswan:x:102:65534::/var/lib/strongswan:/usr/sbin/nologin
tcpdump:x:103:105::/nonexistent:/usr/sbin/nologin
sshd:x:104:65534::/run/ssh:/usr/sbin/nologin
usbmux:x:105:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:999:65534:dnsmasq:/var/lib/misc:/usr/sbin/nologin
avahi:x:106:108:Avahi mDNS daemon,,:/run/avahi-daemon:/usr/sbin/nologin
speech-dispatcher:x:107:29:Speech Dispatcher,,:/run/speech-dispatcher:/bin/false
pulse:x:108:110:PulseAudio daemon,,:/run/pulse:/usr/sbin/nologin
lightdm:x:109:112:Light Display Manager:/var/lib/lightdm:/bin/false
saned:x:110:114::/var/lib/saned:/usr/sbin/nologin
polkitd:x:991:991:User for polkitd:/:usr/sbin/nologin
rtkit:x:111:115:RealtimeKit,,:/proc:/usr/sbin/nologin
colord:x:112:116:colord colour management daemon,,:/var/lib/colord:/usr/sbin/nologin
nm-openvpn:x:113:117:NetworkManager OpenVPN,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
nm-openconnect:x:114:118:NetworkManager OpenConnect plugin,,:/var/lib/NetworkManager:/usr/sbin/nologin
_gerala:x:115:65534::/nonexistent:/usr/sbin/nologin

```

Figure 9: Command 'cat /etc/passwd'

4.8. Creating file named test-1

- Create a file named test1 by typing this:

echo "This is a one-line file" > test1

```

(muna@kali)-[~]
$ echo "This is a one-line file" > test1

(muna@kali)-[~]
$ cat test1
This is a one-line file

(muna@kali)-[~]
$

```

Figure 10: Creating file named test-1

The action of placing text in a file from a certain filename can be done with the "echo '<text>' > filename" command. It will help in the creation of new files in case any is not present.

4.9. Creating a file by using a cat

- Create another file by typing the following;
where ^D means CTRL-D. cat > test2

```
(muna@kali)-[~]  
$ cat > test2  
this is a file tow  
my name is muna  
this is a third line  
(muna@kali)-[~]
```

Figure 11: Creating a file by using a cat

4.10. Showing the file exists and it contains

- Show that the file exists, and what it contains.

```
(muna@kali)-[~]  
$ /home/muna  
-bash: /home/muna: Is a directory  
  
(muna@kali)-[~]  
$ dir /home/muna  
alscript kali test1 test2
```

Figure 12: Showing the file exists and it contains

4.11. Combining the test 1 and test 2

- Combine test1 and test2 file.

```
(muna@kali)-[~]  
$ cat test1 test2 > combinedTest  
  
(muna@kali)-[~]  
$ cat combinedTest  
This is a one-line file  
this is a file tow  
my name is muna  
this is a third line  
(muna@kali)-[~]  
$ ls  
alscript combinedTest kali test1 test2
```

Figure 13: Combining the test 1 and test 2

4.12. Exiting a script by 'exit' command

- Exit the script with the command "exit".

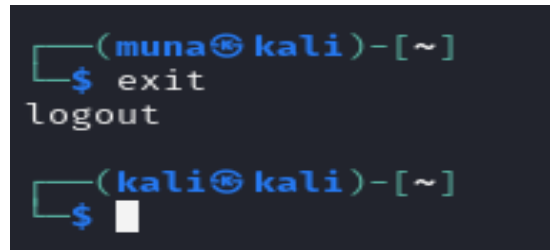
A terminal window with a dark background. The prompt is `(muna@kali)-[~]`. The user enters `$ exit`, and the terminal outputs `logout`. The prompt changes to `(kali@kali)-[~]`, and the user enters `$` followed by a cursor.

Figure 14: Exiting a script by 'exit' command

5. Conclusion

The workshop built up in bringing up various commands on the terminal. Session logging for documenting purpose traditionally was successfully achieved with tools such as the script command. It gave very usable information about the capture of user information and account details through commands such as whoami, who, finger, etc.—basically showing the multiuser aspect of Linux. The basic commands of file listing, like ls, ls -a, ls -a -l, LH showed the differences between them—also explained file attributes.

Creation of files, changes in files, and combining files done through using echo and cat files were a useful way of revision on the basic things we have learned about operation in Linux. Furthermore, it was an interesting exercise in that those image points to a broader system management idea and the possibility of viewing system files, including /etc/passwd.

We learnt about the working of Linux right from the base level, which in turn made us kind of self-assured about the manipulation of some critical commands during the workshops. It's this exercise that seemed to underline the need for sequential instructions, accuracy in jotting down the output received, and the depth in detailing while troubleshooting or doing tasks in a Linux-based environment. This exercise in totality was a good chance to set up a Linux foundational skill that will serve as the platform for further exploration and master of this versatile OS.

6. References

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