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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

Unix is a powerful, multiuser, multitasking operating system initially developed in the 1960s by Ken Thompson, Dennis Ritchie. Unix is known for its simplicity, portability and robust security features. Later on Unix become the foundation for popular OS like linux and macOS.

The concepts of hierarchical file systems, process management and inter process communication was introduced by Unix. Unix empowers users to perform complex operations by combining commands and its legacy is still continues to influence operating systems globally. (Abraham Silberschatz, 2021)

2. Objectives

The aim of this report is to check some basic and essential Linux commands that will assist in interacting with the system, detecting the user, and file management. In this practical exercise, you will try to master the basic of such operations in linux as creating or editing files, concatenating multiple files, fetching information about the system and utilizing logging utilities like the script command efficiently. The steps documented in the report will also aid in understanding and replicating these tasks in similar environments.

To use ls, ls -a and ls -al command to understand the file listing 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 tools and software's

3.1 kali Linux

kali Linux is a Debian-based GNU/Linux distribution to be used for penetration testing, digital forensics and ethical hacking. Originally created by offensive security and released in 2013 as the replacement for BackTrack, Kali Linux provides an extensive collection for tools used for penetration testing, security auditing, and more all of which come pre-installed. Because of its missing lettuce, extensive compatibility and support for a broad variety of hardware platforms Kali has been one of the go to platforms for security test research for both academic and profession world. (Wills, 2020)

3.2 Oracle VirtualBox

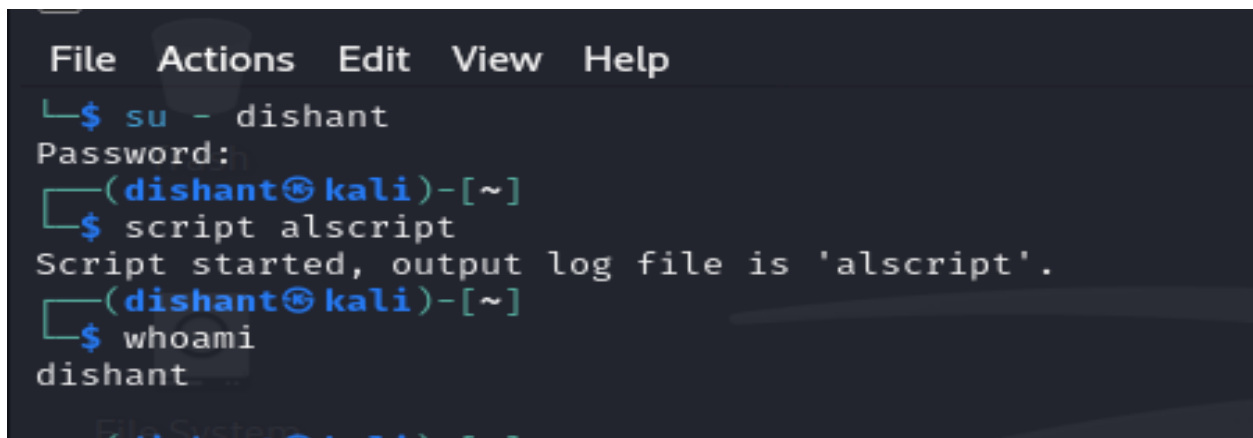
Oracle VirtualBox is a powerful open source virtualization program that allows to run multiple operating systems at the same time on one piece of hardware. It's versatile for testing, development and deployment, supporting multiple host and guest Operating Systems and is developed and supported by Oracle Corporation. (VirtualBox, n.d.)

4. Task in detail:

Here, we will do the task in prompt given by our 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 "Script started, Output log file is 'alscript'."

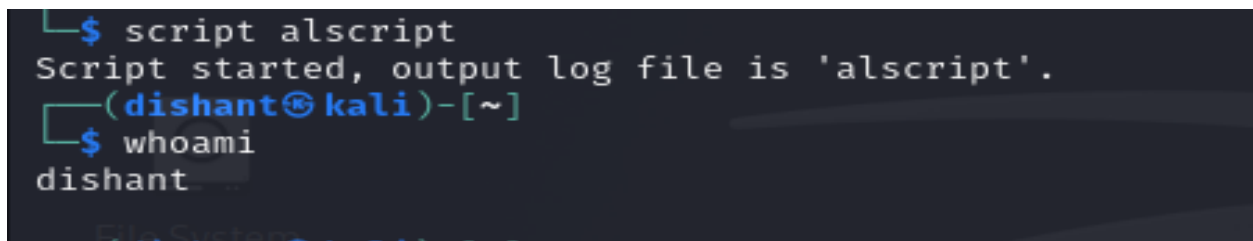
A terminal window with a dark background and light-colored text. The menu bar at the top shows 'File', 'Actions', 'Edit', 'View', and 'Help'. The terminal shows a user switching to the 'dishant' user with 'su - dishant', entering a password, and then running 'script alscript'. The system responds with 'Script started, output log file is 'alscript''. The user then runs 'whoami' and the output is 'dishant'.

```
File Actions Edit View Help
└─$ su - dishant
Password:
└─(dishant@kali)-[~]
└─$ script alscript
Script started, output log file is 'alscript'.
└─(dishant@kali)-[~]
└─$ whoami
dishant
```

Figure 1: Typing script alscript

4.2 Typing whoami command

Whoami command shows the name of the current user running in OS.

A terminal window with a dark background and light-colored text. The terminal shows the user running 'script alscript', receiving the response 'Script started, output log file is 'alscript''. Then, the user runs 'whoami' and the output is 'dishant'.

```
└─$ script alscript
Script started, output log file is 'alscript'.
└─(dishant@kali)-[~]
└─$ whoami
dishant
```

Figure 2: Typing whoami command

4.3 Typing who command

Who command shows the name of the all users in OS.

```
(dishant@kali)-[~]
$ who
kali      tty7          2024-12-08 01:36 (:0)

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

Figure 3: Typing who command

4.4 Typing the finger command

The finger command is used to see the more information about your account.

```
(dishant@kali)-[~]
$ who
kali      tty7          2024-12-08 01:36 (:0)

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

Figure 4: Typing the finger command

4.5 Date command

Date command shows the current date and time.

```
(dishant@kali)-[~]
$ date
Fri Dec 13 10:36:30 PM EST 2024
```

Figure 5: Typing date command

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

ls command will list down or display all visible files and directories within the existing working directory. Hidden files and directories starting with a period simply are not listed.

```
(dishant@kali)-[~]  
$ ls  
alscript combinedTest test1 test2
```

Figure 6: Typing ls command

ls -a command will list down all visible and hidden files and directories within the existing working directory.

```
dishant@kali: ~  
File Actions Edit View Help  
(dishant@kali)-[~]  
$ ls -a  
. .. alscript .bash_history .bash_logout .bashrc .bashrc.original combinedTest .config .face .face.icon .java .local .profile test1 test2 .zshrc
```

Figure 7: Typing ls -a command

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

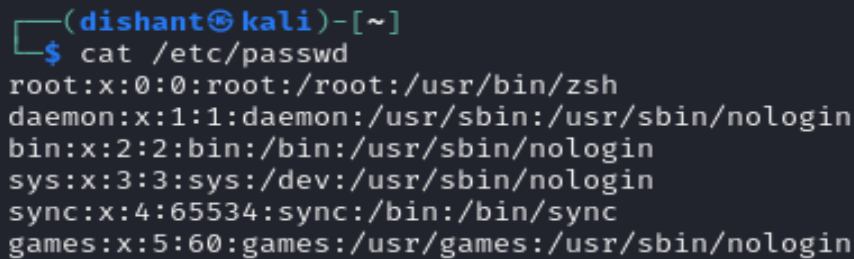
```
(dishant@kali)-[~]  
$ ls -al  
total 80  
drwx----- 5 dishant dishant 4096 Dec 13 22:36 .  
drwxr-xr-x 4 root root 4096 Dec 12 00:36 ..  
-rw-rw-r-- 1 dishant dishant 0 Dec 13 22:36 alscript  
-rw----- 1 dishant dishant 209 Dec 12 01:14 .bash_history  
-rw-r--r-- 1 dishant dishant 220 Dec 12 00:36 .bash_logout  
-rw-r--r-- 1 dishant dishant 5551 Dec 12 00:36 .bashrc  
-rw-r--r-- 1 dishant dishant 3526 Dec 12 00:36 .bashrc.original  
-rw-rw-r-- 1 dishant dishant 72 Dec 12 01:11 combinedTest  
drwxr-xr-x 6 dishant dishant 4096 Dec 12 00:36 .config  
-rw-r--r-- 1 dishant dishant 11759 Dec 12 00:36 .face  
lrwxrwxrwx 1 dishant dishant 5 Dec 12 00:36 .face.icon → .face  
drwxr-xr-x 3 dishant dishant 4096 Dec 12 00:36 .java  
drwxr-xr-x 3 dishant dishant 4096 Dec 12 00:36 .local  
-rw-r--r-- 1 dishant dishant 807 Dec 12 00:36 .profile  
-rw-rw-r-- 1 dishant dishant 19 Dec 12 01:08 test1  
-rw-rw-r-- 1 dishant dishant 53 Dec 12 01:11 test2  
-rw-r--r-- 1 dishant dishant 10868 Dec 12 00:36 .zshrc
```

Figure 8: Typing ls -al command

4.7 Typing the 'cat /etc/passwd' command

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 executed the file 'passwd' is mentioned. So, this file contains the details of user accounts on the computer.

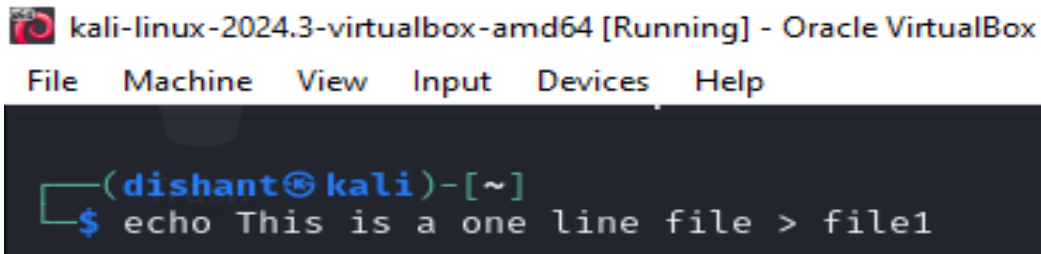


```
(dishant@kali)-[~]  
$ cat /etc/passwd  
root:x:0:0:root:/root:/usr/bin/zsh  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
bin:x:2:2:bin:/bin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin
```

Figure 9: Typing 'cat /etc/passwd' command

4.8 Creating file named file1

Creating a file named file1 using echo command.



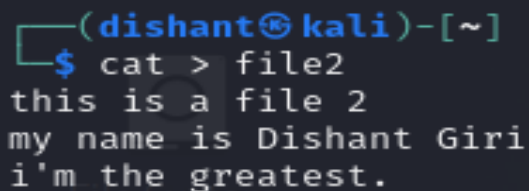
kali-linux-2024.3-virtualbox-amd64 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

```
(dishant@kali)-[~]  
$ echo This is a one line file > file1
```

Figure 10: creating file using echo command

4.9 Creating multi line file using cat command



```
(dishant@kali)-[~]  
$ cat > file2  
this is a file 2  
my name is Dishant Giri  
i'm the greatest.
```

Figure 11: creating multiline file

4.10 Showing the file exist and what it contains

```
(dishant@kali)-[~]  
$ ls  
alscript  combinedTest  file1  file2  test1  test2
```

Figure 12: files directory

```
(dishant@kali)-[~]  
$ cat file1  
This is a one line file  
  
(dishant@kali)-[~]  
$ cat file2  
this is a file 2  
my name is Dishant Giri  
i'm the greatest.
```

Figure 13: file contains

4.11 Combining file1 and file2

```
(dishant@kali)-[~]  
$ cat file1 file2 > combinedFiles  
  
(dishant@kali)-[~]  
$ cat combinedFiles  
This is a one line file  
this is a file 2  
my name is Dishant Giri  
i'm the greatest.
```

Figure 14: Combining file1 and file2

4.12 Exiting a script using 'Exit' command

A terminal window with a dark background. The prompt is `(dishant@kali)-[~]`. The user enters `$ exit`. The terminal then displays `exit` and `Script done.` on separate lines.

```
(dishant@kali)-[~]  
$ exit  
exit  
Script done.
```

Figure 15: Exiting the script

5. Conclusion

The workshop provided hands-on experience with essential Linux terminal commands, focusing on user activities, system management, and file operations. Essential utilities such as the `script` command enabled the logging of sessions, while commands like `whoami`, `who`, and `finger` showcased the multiuser aspect of Linux. Commands related to files (for example `ls`, `ls -a`, `ls -a -l`, `ls -lh`) were used to provide file attributes, and `echo` and `cat` (for creating, updating, or combining files). The same session detailed system files such as `/etc/passwd`, providing insight into how Linux is structured. The information shared in the workshop returned to the idea of effective communication, which is paramount for ensuring that accurate documentation and clear directions are provided.

6. Bibliography

Abraham Silberschatz, P. B. (2021). *Operating System Concepts* .

VirtualBox. (n.d.). Retrieved from VirtualBox: <https://www.virtualbox.org/>

Wills, J. W. (2020). *Mastering Kali Linux for Advanced Penetration Testing (3rd edition)*. packet publishing.