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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

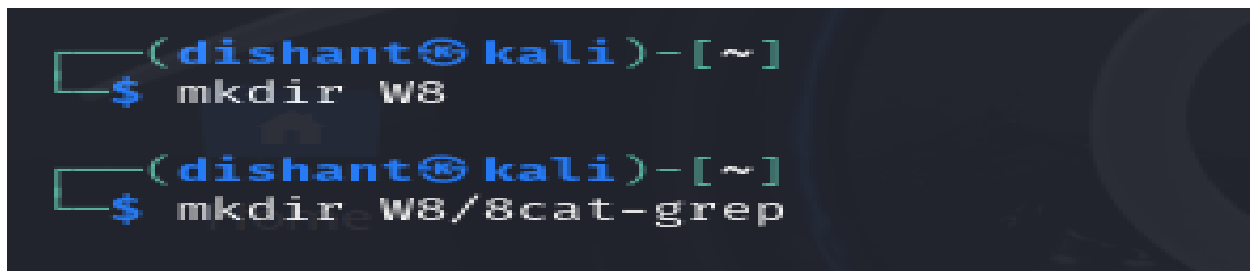
kali Linux is a Debian-based GNU/Linux distribution to be used for penetration testing, digital forensics and ethical hacking. Originally created by offensive security and released in 2013 as the replacement for BackTrack, Kali Linux provides an extensive collection for tools used for penetration testing, 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:


4.1 Creating directory using mkdir



```
(dishant@kali)~$ mkdir W8
(dishant@kali)~$ mkdir W8/8cat-grep
```

Figure 1: creating directory W8

4.2 Changing path to 8cat-grep



```
(dishant@kali)~$ cd W8/8cat-grep
```

Figure 2: changing directory to W8/8cat-grep

4.3 Creating two files using cat utility

```
(dishant@kali)-[~/W8/8cat-grep]
$ cat > testa << end
> kkkll
> kkkkk
> lllmm
> LLLLL
> oo-oo
> MMMMM
> DDDDD
> dddkk
> end

(dishant@kali)-[~/W8/8cat-grep]
$ cat > testb << end
> KKKKK
> LLLL
> MMMMM
> DDDDD
> end
```

Figure 3: creating 2 files using cat utility

4.4 Giving grep commands with options

```
(dishant@kali)-[~/W8/8cat-grep]
$ grep ll testa
kkkll
lllmm
```

Figure 4: typing grep ll testa command

```
(dishant@kali)-[~/W8/8cat-grep]
$ grep -v ll testa
kkkkk
LLLLL
oo-oo
MMMMM
DDDDD
dddkk
```

Figure 5: typing `grep -v ll testa` command

```
(dishant@kali)-[~/W8/8cat-grep]
$ grep -n ll testa
1:kkkllme
3:lllmm
```

Figure 6: typing `grep -n ll testa` command

```
(dishant@kali)-[~/W8/8cat-grep]
$ grep -l ll *
testa
```

Figure 7: typing `grep -l ll *` command

```
(dishant@kali)-[~/W8/8cat-grep]
$ grep -i ll *
testa:kkkll
testa:lllmm
testa:LLLLL
testb:LLLL

(dishant@kali)-[~/W8/8cat-grep]
$ grep -i LL *
testa:kkkll
testa:lllmm
testa:LLLLL
testb:LLLL

(dishant@kali)-[~/W8/8cat-grep]
$ grep -c ll *
testa:2
testb:0
```

Figure 8: typing `grep -i ll, -i LL, -c ll *` command

```
(dishant@kali)-[~/W8/8cat-grep]
$ grep '^k' testa testb
testa:kkkll
testa:kkkkk
```

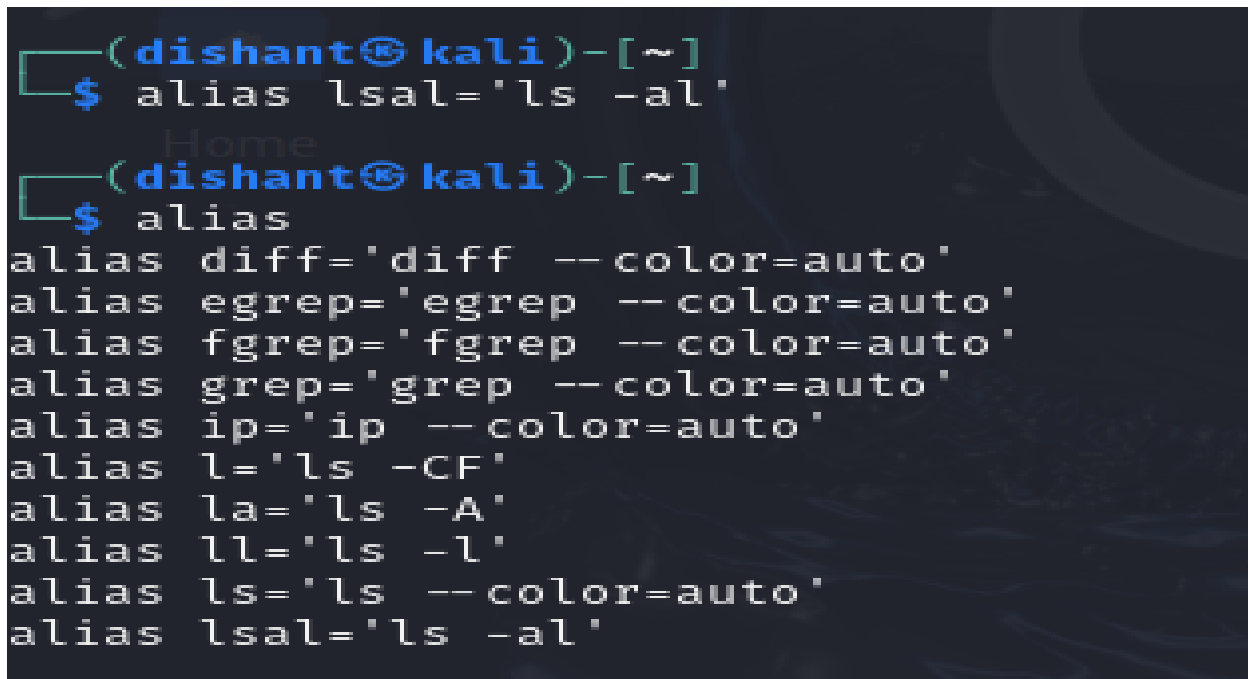
Figure 9: typing `grep '^k' testa testb` command

```
(dishant@kali)-[~/W8/8cat-grep]
$ grep -n '^' testa
1:kkkll
2:kkkkk
3:lllmm
4:LLLLL
5:oo-oo
6:MMMMM
7:DDDDD
8:dddkk
```

Figure 10: typing `grep -n '^' testa`

- **grep ll testa** searches for the string 'll' in the file testa and display all matching lines.
- **grep -v ll testa** searches for lines in the file testa that do not contain the string 'll'.
- **grep -n ll testa** searches for the string 'll' in the file testa and displays matching lines along with their line numbers.
- **grep -l ll *** searches for the string 'll' in all files in the current directory and lists only the names of files that contain the string.
- **grep -i ll *** searches for the string 'll' in all files in the current directory, ignoring case.
- **grep -I LL *** searches for the string 'LL' in all files in the current directory, ignoring case.
- **grep -c ll *** counts the number of occurrences of the string 'll' in each file in the current directory.
- **grep '^k' testa testb** searches for the lines that start with the letter 'k' in both testa and testb.
- **grep -n '^' testa** displays all lines from the file testa along with their line numbers.

4.5 Defining the lsal alias for ls -al command



```
(dishant@kali)-[~]
$ alias lsal='ls -al'
Home
(dishant@kali)-[~]
$ alias
alias diff='diff --color=auto'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias ip='ip --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -l'
alias ls='ls --color=auto'
alias lsal='ls -al'
```

Figure 11: defining alias command

4.6 Removing the alias command

```
(dishant@kali)-[~]  
$ unalias lsal  
  
(dishant@kali)-[~]  
$ alias  
alias diff='diff --color=auto'  
alias egrep='egrep --color=auto'  
alias fgrep='fgrep --color=auto'  
alias grep='grep --color=auto'  
alias ip='ip --color=auto'  
alias l='ls -CF'  
alias la='ls -A'  
alias ll='ls -l'  
alias ls='ls --color=auto'
```

Figure 12: removing the alias command

4.7 Defining the alias command again

```
$ alias lsal='ls -al'  
  
(dishant@kali)-[~]  
$ alias  
alias diff='diff --color=auto'  
alias egrep='egrep --color=auto'  
alias fgrep='fgrep --color=auto'  
alias grep='grep --color=auto'  
alias ip='ip --color=auto'  
alias l='ls -CF'  
alias la='ls -A'  
alias ll='ls -l'  
alias ls='ls --color=auto'  
alias lsal='ls -al'
```

Figure 13: redefining the alias command

4.8 Defining the nwho alias

```
(dishant@kali)-[~]  
$ alias nwho='getent passwd | wc -l'  
  
(dishant@kali)-[~]  
$ nwho  
58
```

Figure 14: Defining the nwho alias

4.9 Giving nwho command

```
(dishant@kali)-[~]  
$ alias nwho='getent passwd | wc -l'  
  
(dishant@kali)-[~]  
$ nwho  
58
```

Figure 15: giving nwho command

4.10 Listing last commands using history

```
(dishant@kali)-[~]  
$ history  
1  who  
2  whoami  
3  finger dishant  
4  whoami  
5  who  
6  figer dishnt  
7  finger dishant  
8  date  
9  la  
10 ls  
11 ls -a  
12 ls -al  
13 echo my name is dishant > test1  
14 cat test1  
15 cat > test2  
16 cat test2  
17 cat test1 test2 > combinedTest  
18 ls  
19 cat combinedTest  
20 exit  
21 whoami
```

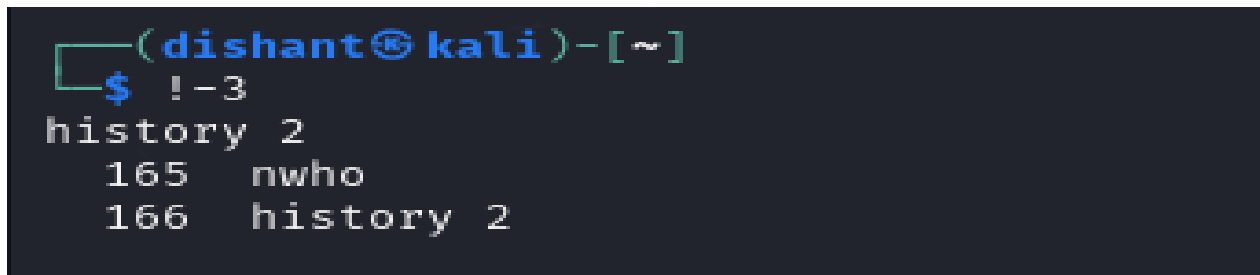
Figure 16: giving history command

4.11 Re- executing the last but one command using redo command

```
(dishant@kali)-[~]  
$ fc -r 161  
nwho  
58
```

Figure 17: re-executing the second last command

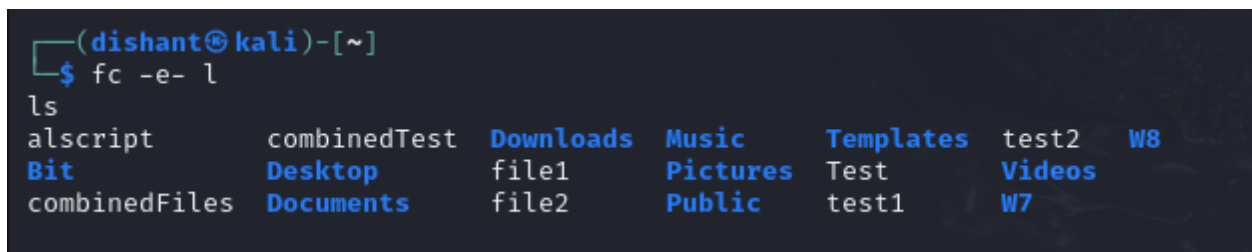
4.12 Re-executing the command given three commands ago



```
(dishant@kali)-[~]  
$ !-3  
history 2  
  165  nwho  
  166  history 2
```

Figure 18: re-executing the command given three commands ago

4.13 Re-executing the last command which name begins with 'l'



```
(dishant@kali)-[~]  
$ fc -e- l  
ls  
alscript      combinedTest Downloads Music Templates test2 W8  
Bit           Desktop      file1      Pictures Test Videos  
combinedFiles Documents     file2      Public  test1 W7
```

Figure 19: re-executing the last command which name begins with 'l'

5. Summary

In this UNIX practical lab, we have created a directory, used the cat utility to create files, and practiced searching in them using various grep commands. We also defined, verified, and removed aliases like lsal and nwho, and worked with command history to re-execute previous commands. The lab provided practical experience with file manipulation, search operations, and system command management in UNIX.

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.