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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 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

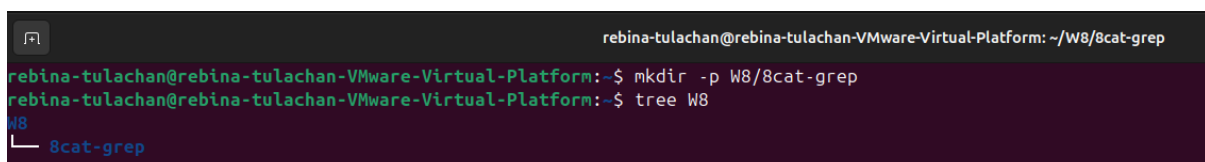
The purpose of this report is to provide an understanding of UNIX utilities in the Linux Operating System. UNIX utilities are designed to provide users with powerful and efficient tools for managing files, directories, processes, and system resources (Miller, et al., 1990). Linux is an open-source operating system that many people use. It's known for being stable, secure, and customizable (Rusling, 1999). In this log we have used some command like CAT. CAT command in Ubuntu is used to concatenate and display the contents of files (Negus, 2008). Grep command in Ubuntu is used to search for specific words or patterns in files (Russo, 1991). Alias command in Ubuntu is used to create shortcuts for longer commands (Deshev, 2008).

## 2. Objectives

The primary goal of this log-8 is to learn about commands like grep, cat, alias, nwho, redo, ls, lsal, and others. It also explains how to delete an alias in the home directory, demonstrating that our system keeps the lsal and ls -al commands stored.

## 3. Required tools and concepts

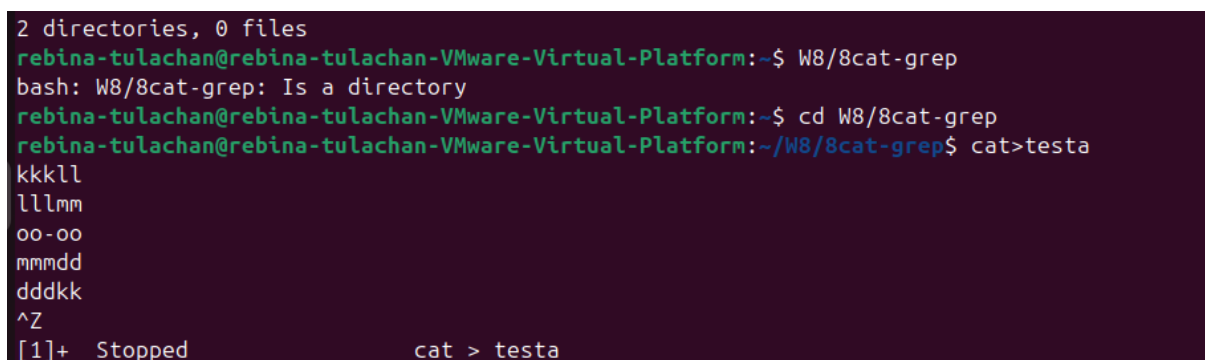
1. Creating a directory structure.

A terminal window with a dark background. The prompt is 'rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~/W8/8cat-grep'. The user enters 'mkdir -p W8/8cat-grep'. The prompt changes to 'rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~\$'. The user enters 'tree W8'. The output shows a tree structure with 'W8' as the root and '8cat-grep' as a subdirectory.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~/W8/8cat-grep
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$ mkdir -p W8/8cat-grep
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$ tree W8
W8
├── 8cat-grep
```

Figure 1 Creating the directory structure and switching to the 8cat-grep directory

2. Creating two files named testa and testb.

A terminal window with a dark background. The prompt is 'rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~\$'. The user enters 'W8/8cat-grep'. The prompt changes to 'bash: W8/8cat-grep: Is a directory'. The user enters 'cd W8/8cat-grep'. The prompt changes to 'rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~/W8/8cat-grep\$'. The user enters 'cat>testa'. The prompt changes to 'kkl1'. The user enters 'lllmm'. The prompt changes to 'oo-oo'. The user enters 'mmdm'. The prompt changes to 'dddmm'. The user enters '^Z'. The prompt changes to '[1]+ Stopped'. The user enters 'cat > testa'.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$ W8/8cat-grep
bash: W8/8cat-grep: Is a directory
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$ cd W8/8cat-grep
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ cat>testa
kkl1
lllmm
oo-oo
mmdm
dddmm
^Z
[1]+  Stopped                  cat > testa
```

Figure 2 Creating file named "testa"

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ cat>testb
KKKKK
LLLLL
MMMMM
DDDDD
^Z
[2]+  Stopped                  cat > testb
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$
```

Figure 3 Creating another file named "testb"

### 3. Executing commands like grep ll test and grep -v ll test.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ grep ll testa
kkkll
llmm
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ grep -v ll testa
oo-oo
mmdd
dddkk
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ grep -n ll testa
1:kkkll
2:llmm
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ grep -l ll *
testa
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ grep -i ll *
testa:kkkll
testa:llmm
testb:LLLLL
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ grep -i LL *
testa:kkkll
testa:llmm
testb:LLLLL
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ grep -c ll *
testa:2
testb:0
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$
```

Figure 4 Executing some commands

### 4. Defining an alias called lsal for the ls -al command.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ alias lsal="ls -al"
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ alias
alias alert='notify-send --urgency=low -i "${?} $?" && echo terminal || echo error)' "${history|tail -n1|sed -e 's/^s/[0-9]\|s*//;s/[:&]\|s*alert$//'\|}'"
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -lF'
alias ls='ls --color=auto'
alias lsal='ls -al'
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$
```

Figure 5 Defining the lsal alias for the ls -al command

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ alias lsal="ls -al"
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$
```

### 5. Removing the alias.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$ unalias lsal
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/W8/8cat-grep$
```

Figure 6 Removing the alias

6. Displaying the system does not store it.

```

rebtina-tulachan@rebtina-tulachan-VNware-Virtual-Platform: ~/NScat-grep$ alias
alias alert='notify-send --urgency=low -i "${[ $? = 0 ]} && echo terminal || echo error)" "${history|tail -n1|sed -e '\''s/^\s*[0-9]\+ \s*//;s/[\&|]\s*\$alert$//'\`}'"
'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -aLF'
alias ls='ls --color=auto'
rebtina-tulachan@rebtina-tulachan-VNware-Virtual-Platform: ~/NScat-grep$

```

Figure 7 Displaying that the system does not store it

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/WB/8cat-grep$ alias lsal="ls -al"
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~/WB/8cat-grep$
```

Figure 8 Showing that the system does not store it

7. Defining this alias again preserving it for the next session.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$ alias lsal="ls -al"
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$
```

Figure 9 Defining this alias again to preserve it for the next session

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$ lsal
total 84
drwxr-x--- 17 rebina-tulachan rebina-tulachan 4096 Dec 26 11:55 .
drwxr-xr-x  3 root              root          4096 Dec 21 12:56 ..
-rw-----  1 rebina-tulachan rebina-tulachan  886 Dec 26 11:59 .bash_history
-rw-r--r--  1 rebina-tulachan rebina-tulachan  220 Mar 31 2024 .bash_logout
-rw-r--r--  1 rebina-tulachan rebina-tulachan 3771 Mar 31 2024 .bashrc
drwx-----  9 rebina-tulachan rebina-tulachan 4096 Dec 21 13:01 .cache
drwx----- 12 rebina-tulachan rebina-tulachan 4096 Dec 26 11:54 .config
drwxr-xr-x  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 Desktop
drwxr-xr-x  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 Documents
drwxr-xr-x  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 Downloads
drwx-----  4 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 .local
drwxr-xr-x  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 Music
drwxr-xr-x  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 Pictures
-rw-r--r--  1 rebina-tulachan rebina-tulachan  807 Mar 31 2024 .profile
drwxr-xr-x  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 Public
drwx-----  4 rebina-tulachan rebina-tulachan 4096 Dec 21 18:00 snap
drwx-----  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:57 .ssh
-rw-r--r--  1 rebina-tulachan rebina-tulachan    0 Dec 21 17:27 .sudo_as_admin_successful
drwxr-xr-x  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 Templates
drwxr-xr-x  2 rebina-tulachan rebina-tulachan 4096 Dec 21 12:58 Videos
drwxrwxr-x  4 rebina-tulachan rebina-tulachan 4096 Dec 21 17:25 W7
drwxrwxr-x  3 rebina-tulachan rebina-tulachan 4096 Dec 26 11:55 W8
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$
```

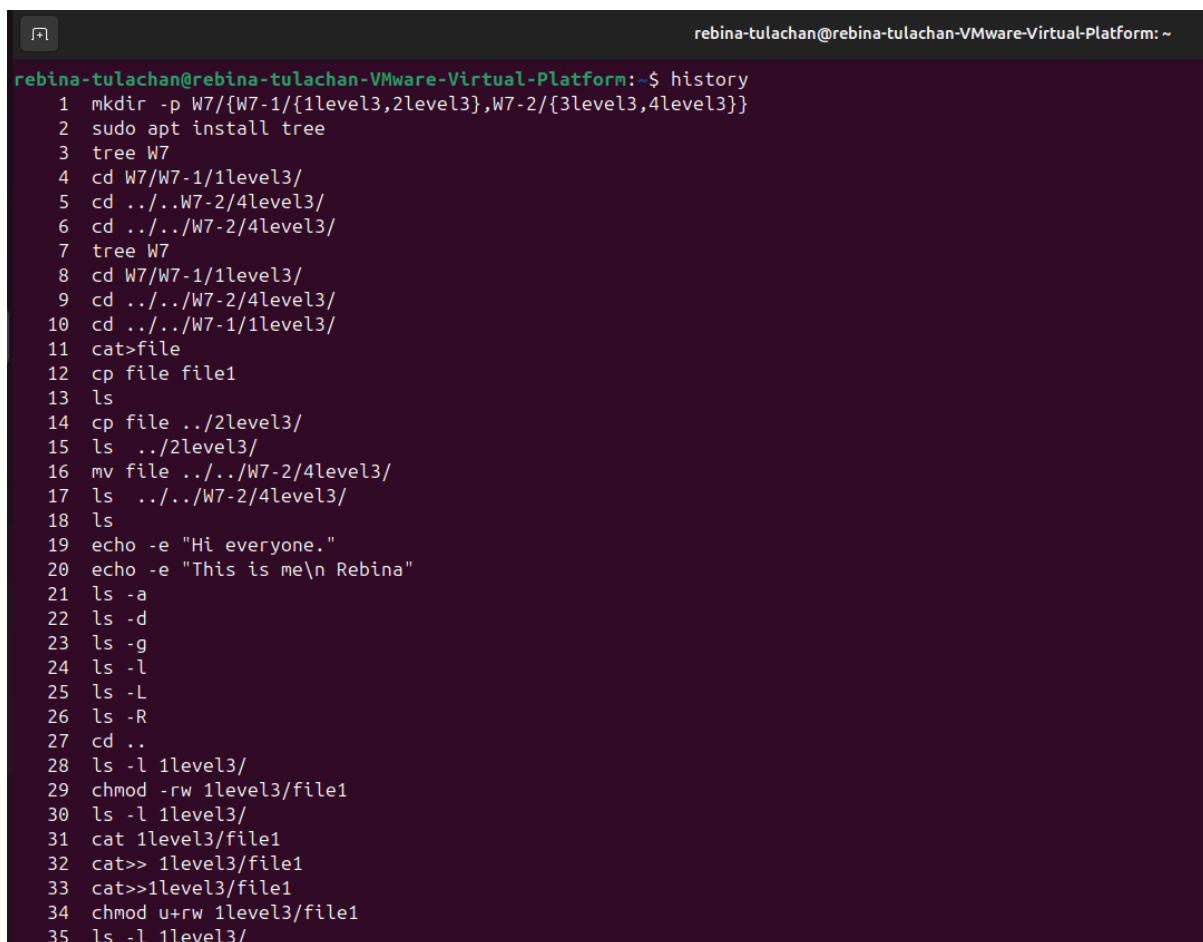
Figure 10 Re-establishing this alias to keep it for the next session

8. Creating the nwho alias to show how many system files are on a UNIX computer.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$ alias nwho='getent passwd | wc -l'
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$ nwho
49
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform:~$
```

Figure 11 Setting up the nwho command

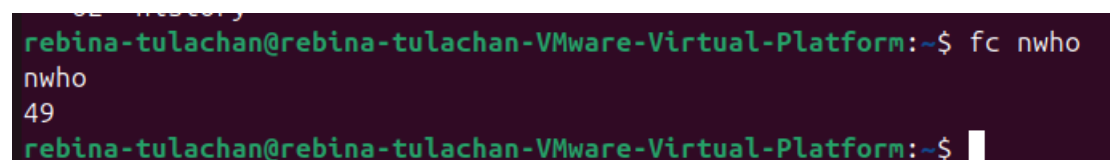
## 9. Executing history command

A terminal window with a dark background and green text. The prompt is 'rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~'. The command 'history' has been executed, displaying a list of 35 commands numbered 1 to 35. The commands include directory creation, file installation, directory navigation, file copying, and file permissions setting.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~$ history
1  mkdir -p W7/{W7-1/{1level3,2level3},W7-2/{3level3,4level3}}
2  sudo apt install tree
3  tree W7
4  cd W7/W7-1/1level3/
5  cd ../../W7-2/4level3/
6  cd ../../W7-2/4level3/
7  tree W7
8  cd W7/W7-1/1level3/
9  cd ../../W7-2/4level3/
10 cd ../../W7-1/1level3/
11 cat>file
12 cp file file1
13 ls
14 cp file ../2level3/
15 ls ../2level3/
16 mv file ../../W7-2/4level3/
17 ls ../../W7-2/4level3/
18 ls
19 echo -e "Hi everyone."
20 echo -e "This is me\n Rebina"
21 ls -a
22 ls -d
23 ls -g
24 ls -l
25 ls -L
26 ls -R
27 cd ..
28 ls -l 1level3/
29 chmod -rw 1level3/file1
30 ls -l 1level3/
31 cat 1level3/file1
32 cat>> 1level3/file1
33 cat>>1level3/file1
34 chmod u+rw 1level3/file1
35 ls -l 1level3/
```

Figure 12 Using history command

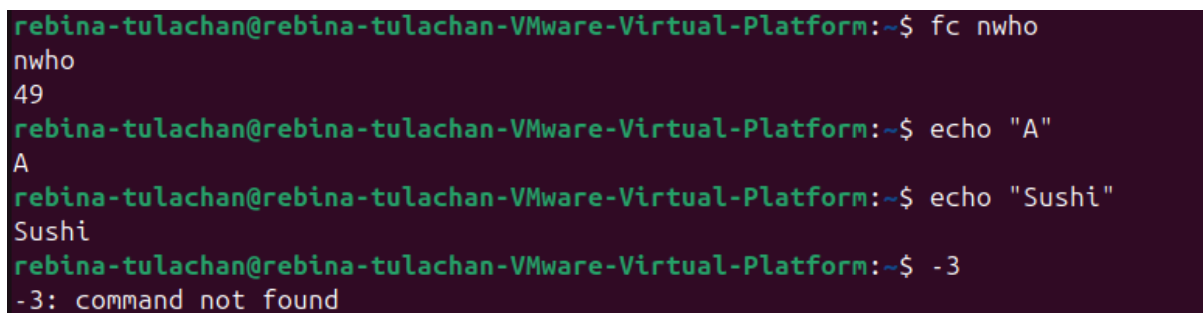
## 10. Re-executing last used command

A terminal window showing the command 'fc nwho' being executed. The output of the 'nwho' command is displayed, followed by the prompt.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~$ fc nwho
nwho
49
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~$
```

Figure 13 Re-executing last used command

## 11. Using negative integer and re-executing

A terminal window showing the use of 'fc' with negative integers. First, 'fc nwho' is used to re-execute the last command. Then, 'fc -3' is used to re-execute the command three positions before the current one, which is 'echo "Sushi"'. The output shows 'Sushi' and then an error message for the third command.

```
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~$ fc nwho
nwho
49
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~$ echo "A"
A
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~$ echo "Sushi"
Sushi
rebina-tulachan@rebina-tulachan-VMware-Virtual-Platform: ~$ -3
-3: command not found
```

Figure 14 Re-executing command using negative integer

## **4. Conclusion**

In summary, after finishing this log, I've learned many commands of the Linux operating system and some shortcut commands to execute them more quickly. This log has helped me gain knowledge about commands like `grep`, `cat`, `alias`, `nwho`, `redo`, `ls`, `lsal`, and others. It also explains how to remove an alias in the home directory, showing that our system stores the `lsal` and `ls -al` commands.



## **5. Bibliography**

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