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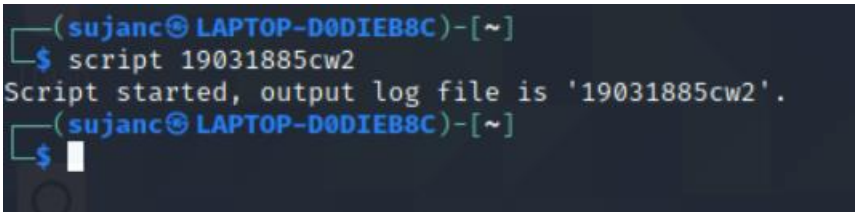
1.0. Introduction

Kali Linux is open-source which is formerly known *as* BackTrack Linux. A Debian-based Linux distribution focuses on advanced Penetration Testing and Security Auditing. Kali Linux includes a large number of resources for various information security activities, including penetration testing, security research, computer forensics, and reverse engineering. Kali Linux is a multi-platform solution, accessible and freely available to information security professionals and hobbyists.

Kali Linux was released on the 13th March 2013 as a complete, top-to-bottom rebuild of BackTrack Linux, adhering completely to Debian development standards.

1.1.1 Creating a Script File

Command: script 19031885cw2



A script file is created which saves all the activity of the terminal.

Figure 1: Creating a script

1.1.2. Setting prompt to display path of the working directory

Command: PS1='$PWD>'

This command shows the path name of the current working directory.

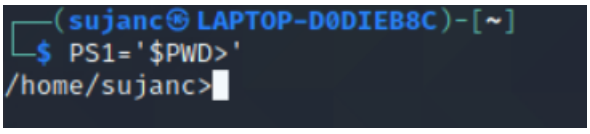


Figure 2: Setting prompt

1.1. Creating New Directories

Task 1

Starting from your home directory, create the directory structure shown in Figure 1, staying in your home directory using relative pathnames.

Command: mkdir -p NBA/{Lakers,Miami,'Chicago Bulls','Brooklyn nets','Dallas Maverick'}

NBA directory is created as parent directory with five subdirectories named as Lakers, Miami, Chicago Bulls, Brooklyn nets, and Dallas Maverick. By using -p in mkdir.

```
/home/sujanc>mkdir -p NBA/{Lakers,Miami,'Chicago Bulls','Brooklyn nets','Dallas Ma
verick'}
/home/sujanc>
```

Figure 3: Make directory command

Show the structure.

Command: tree

This command shows file and folder of user in tree structure.

```
/home/sujanc>tree
.
├── 19031885cw2
├── Desktop
└── NBA
    ├── Brooklyn nets
    ├── Chicago Bulls
    ├── Dallas Maverick
    ├── Lakers
    └── Miami

7 directories, 1 file
/home/sujanc>
```

Figure 4: Tree command

1.2. Removing Existing Files and Directories.

Task 2

Change to the Miami directory typing a relative pathname.

Command: cd NBA/Miami

```
/home/sujanc>cd NBA/Miami
/home/sujanc/NBA/Miami>
```

Figure 5: changing directory command

Show that you are in this directory.

Command: pwd

This command show the current working directory and prints it path.

```
/home/sujanc/NBA/Miami>pwd
/home/sujanc/NBA/Miami
/home/sujanc/NBA/Miami>
```

Figure 6: Changing to Miami directory

Create two files in the Miami directory using any UNIX.

Command: touch file1 file2

This command is used create file.

```
/home/sujanc/NBA/Miami>touch file1 file2
/home/sujanc/NBA/Miami>
```

Figure 7: Touch command

Task 3

Change to the NBA directory.

Command: cd ..

This command changes the directory back to the main directory

```
/home/sujanc/NBA/Miami>cd ..
/home/sujanc/NBA>
```

Figure 8: cd .. command

Remove both files and then the Miami directory using the corresponding command(s) with the Interactive Mode (-i) option for the rm command respectively.

Command: rm -ri Miami

This command removes the directory and files inside it by confirmation message yes or no.

```
rm: descend into directory 'Miami'? y
rm: remove regular empty file 'Miami/file2'? y
rm: remove regular empty file 'Miami/file1'? y
rm: remove directory 'Miami'? y
/home/sujanc/NBA>
```

Figure 9: Interactive mode remove command

Show absence of these files and the directory.

Command: ls

This command list the files and directories of NBA directory.

```
/home/sujanc/NBA>ls
'Brooklyn nets'  'Chicago Bulls'  'Dallas Maverick'   Lakers
/home/sujanc/NBA>
```

Figure 10: ls command

1.3. Usage of the echo command.

Task 4

Print the following strings each in one echo command.

Hello! I am big fan of NBA finals.

Command: echo -e “Hello! I am big fan of NBA finals \n 14<(2+2)”

This command is used to print.

```
/home/sujanc/NBA>echo -e "Hello! I am big fan of NBA finals \n14<(2+2)"
Hello! I am big fan of NBA finals
14<(2+2)
/home/sujanc/NBA>
```

Figure 11: echo command

Echo -e command enable backslash \n which is used to change paragraph.

Now you are still in the NBA directory. Give the pwd command.

Command: pwd

Printing the path name of NBA directory.

```
/home/sujanc/NBA>pwd
/home/sujanc/NBA
/home/sujanc/NBA>
```

Figure 12: pwd command

Change to the Lakers directory typing a relative pathname.

Command: cd Lakers

Changing to Lakers directory from NBA directory using relative path name.

```
/home/sujanc/NBA>cd Lakers
/home/sujanc/NBA/Lakers>
```

Figure 13: Changing to Lakers directory

Show that you are in this directory.

Command: pwd

Printing the path name of Lakers directory.

```
/home/sujanc/NBA/Lakers>pwd
/home/sujanc/NBA/Lakers
/home/sujanc/NBA/Lakers>
```

Figure 14: pwd command

Task 5

Give the group of the following commands:

Command: pwd; cd; pwd

```
/home/sujanc/NBA/Lakers>pwd; cd; pwd
/home/sujanc/NBA/Lakers
/home/sujanc
/home/sujanc>
```

Figure 15: Group of commands

This command at first prints the present working path then changes directory to home and prints its path.

Task 6

Change to the Lakers directory again typing a relative pathname.

Command: cd NBA/Lakers

This command changes from the home directory to Lakers directory.

```
/home/sujanc>cd NBA/Lakers
/home/sujanc/NBA/Lakers>
```

Figure 16: Change to Lakers directory

Give the group of the following commands:

Command: pwd; cd ..; pwd; cd ..; pwd

```
/home/sujanc/NBA/Lakers>pwd; cd ..; pwd; cd ..; pwd
/home/sujanc/NBA/Lakers
/home/sujanc/NBA
/home/sujanc
/home/sujanc>
```

Figure 17: Group of command-1

Command: The command used gives first present working directory path and change to NBA directory and go back to home and print path.

1.4. Usage of the ls command

Give the following commands and then give a short explanation for each ls command:

Task 7

Command: cd; pwd

```
/home/sujanc>cd; pwd
/home/sujanc
/home/sujanc>
```

Figure 18:Change directory

The command used to change to home directory and then show present working directory and prints its path.

Command: ls

```
/home/sujanc>ls
19031885cw2  Desktop  NBA
/home/sujanc>
```

Figure 19: ls command

The ls command list all the files and directories present in the current directory.

Command: ls -a

```
/home/sujanc>ls -a
.               .bashrc           .dbus          .loop.sh.swp  .Xauthority
..              .bashrc.original  Desktop        .mozilla      .xsession-errors
19031885cw2     ..bashrc.swp      .gnupg         NBA           .zshrc
.bash_history   .cache            .ICEauthority  .profile
.bash_logout    .config           .local         .vnc
/home/sujanc>
```

Figure 20: ls -a command

This command shows all the hidden and unhidden files of the directory

Command: ls -al

```
/home/sujanc>ls -al
total 472
drwxr-xr-x 11 sujanc sujanc   4096 Mar 25 21:15 .
drwxr-xr-x  3 root   root     4096 Mar 20 22:17 ..
-rw-r--r--  1 sujanc sujanc      0 Mar 25 21:14 19031885cw2
-rw-------  1 sujanc sujanc   5731 Mar 25 21:13 .bash_history
-rw-r--r--  1 sujanc sujanc    220 Mar 20 22:17 .bash_logout
-rw-r--r--  1 sujanc sujanc   4847 Mar 24 19:15 .bashrc
-rw-r--r--  1 sujanc sujanc   3526 Mar 20 22:17 .bashrc.original
-rw-r--r--  1 sujanc sujanc   1024 Mar 24 19:09 ..bashrc.swp
drwxr-xr-x 10 sujanc sujanc   4096 Mar 25 21:13 .cache
drwxr-xr-x 10 sujanc sujanc   4096 Mar 22 12:18 .config
drwx------  3 sujanc sujanc   4096 Mar 20 23:25 .dbus
drwxr-xr-x  2 sujanc sujanc   4096 Mar 20 22:50 Desktop
drwx------  3 sujanc sujanc   4096 Mar 25 21:12 .gnupg
-rw-------  1 sujanc sujanc   6030 Mar 25 21:12 .ICEauthority
drwxr-xr-x  3 sujanc sujanc   4096 Mar 20 23:25 .local
-rw-r--r--  1 sujanc sujanc   1024 Mar 22 12:21 .loop.sh.swp
drwx------  5 sujanc sujanc   4096 Mar 25 21:13 .mozilla
drwxr-xr-x  6 sujanc sujanc   4096 Mar 25 21:18 NBA
-rw-r--r--  1 sujanc sujanc    807 Mar 20 22:17 .profile
drwxr-xr-x  2 sujanc sujanc   4096 Mar 25 21:12 .vnc
-rw-------  1 sujanc sujanc    872 Mar 25 21:12 .Xauthority
-rw-------  1 sujanc sujanc 375990 Mar 25 21:13 .xsession-errors
-rw-r--r--  1 sujanc sujanc   8456 Mar 20 22:17 .zshrc
/home/sujanc>
```

Figure 21 :ls -al command

This command shows all the details like ownership, size, the permission of hidden and unhidden files and folder

Task 8

Command: cd; pwd; cd cw2; pwd

```
/home/sujanc>cd; pwd; cd cw2; pwd
/home/sujanc
bash: cd: cw2: No such file or directory
/home/sujanc
/home/sujanc>
```

Figure 22:Change directory

This command first changes the directory to the home directory and print the path and in this case, there is no such directory of cw2 name it remains in the home directory.

Command: ls -R

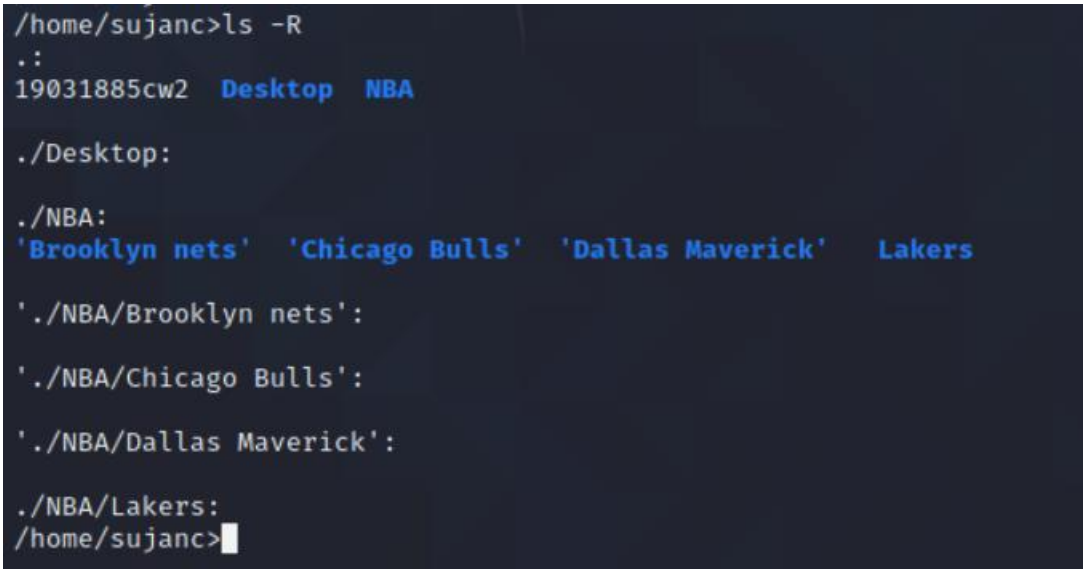


Figure 23:ls -R command

This command gives the lists of directory tree recursively

1.5. Usage of the cat command

Change to the Chicago Bulls directory.

Command: cd NBA/'Chicago Bulls'

This command changes from home directory to Chicago Bulls directory.

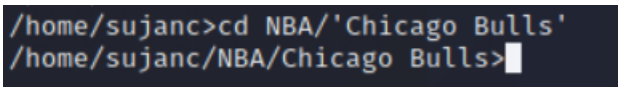


Figure 24: Change directory

Task 9

Create three following files using the cat utility:

File name	testX	testY	testZ
Contents of the files	aaabb Aaaaa AAAAA bbbcc Bbbbb BBBBB ff–ff Ccccc CCCCC cccdd Ddddd DDDDD	aaabb Aaaaa AAAAA bbbcc Bbbbb BBBBB ff–ff Ccccc CCCCC cccdd Ddddd DDDDD	aaabb Aaaaa AAAAA bbbcc Bbbbb BBBBB ff–ff Ccccc CCCCC cccdd Ddddd DDDDD

Table 1: Cat command

Creating testX file.

Command: cat>testX

aaabb Aaaaa

AAAAA

bbbcc Bbbbb

BBBBB

ff–ff Ccccc

CCCCC

cccdd Ddddd

DDDDD

This command creates a new testX file with contents inside it using cat utility.

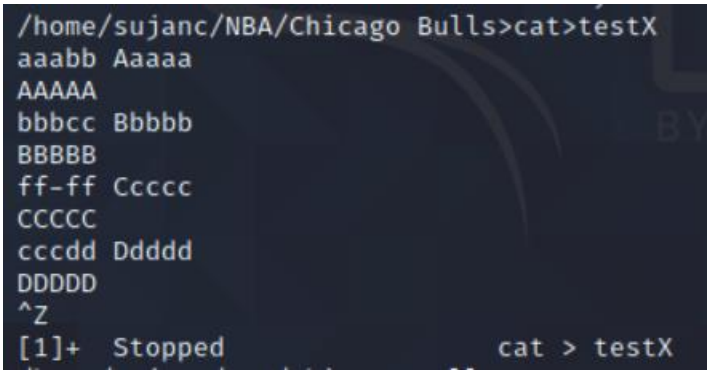


Figure 25: Creating textX file

Creating testY file.

Command: cat>testY

aaabb Aaaaa

AAAAA

bbbcc Bbbbb

BBBBB

ff–ff Ccccc

CCCCC

cccdd Ddddd

DDDDD

This command creates a new testY file with contents inside it using cat utility.

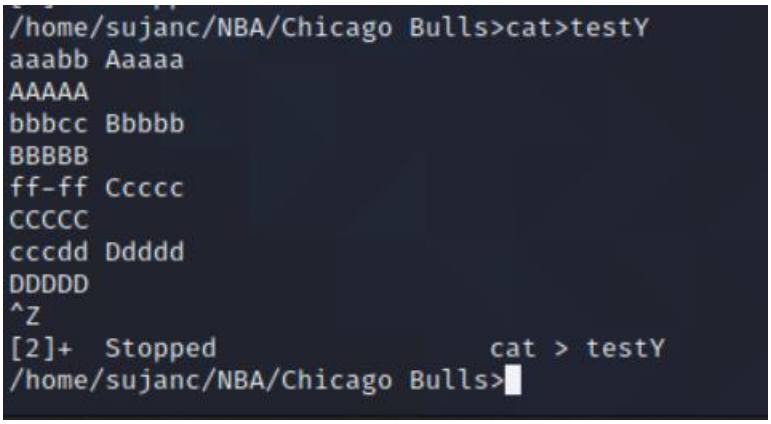


Figure 26: Creating testY file

Creating testZ file.

Command: cat>testZ

aaabb Aaaaa

AAAAA

bbbcc Bbbbb

BBBBB

ff–ff Ccccc

CCCCC

cccdd Ddddd

DDDDD

This command creates a new testZ file with contents inside it using cat utility.

```
/home/sujanc/NBA/Chicago Bulls>cat>testZ
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc
CCCCC
cccdd Ddddd
DDDDD
^Z
[3]+  Stopped                 cat > testZ
/home/sujanc/NBA/Chicago Bulls>
```

Figure 27:Creating testZ file

Task 10

Display each of these files using the cat utility.

Command: cat testX

This command displays the all content inside textX file.

```
/home/sujanc/NBA/Chicago Bulls>cat testX
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc
CCCCC
cccdd Ddddd
DDDDD
/home/sujanc/NBA/Chicago Bulls>
```

Figure 28: Display testX file

Command: cat testY

This command displays the all content inside textY file

```
/home/sujanc/NBA/Chicago Bulls>cat testY
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc
CCCCC
cccdd Ddddd
DDDDD
/home/sujanc/NBA/Chicago Bulls>
```

Figure 29:Display testY file

Command: cat testZ

This command displays the all content inside textZ file.

```
/home/sujanc/NBA/Chicago Bulls>cat testZ
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc
CCCCC
cccdd Ddddd
DDDDD
/home/sujanc/NBA/Chicago Bulls>
```

Figure 30: Display testZ file

Task 11

Copy these files to the Brooklyn nets directory typing a relative pathname.

Command: cp testX testY testZ ../'Brooklyn nets'

This command copies three files; testX,testY, and testZ to Brooklyn nets directory using relative path name.

```
/home/sujanc/NBA/Chicago Bulls>cp testX testY testZ ../'Brooklyn nets'
/home/sujanc/NBA/Chicago Bulls>
```

Figure 31:Files copying command

Task 12

Concatenate the files using the following commands:

Command: cat testX testY testZ

This command concatenates testX, testY, and testZ file and displays the result.

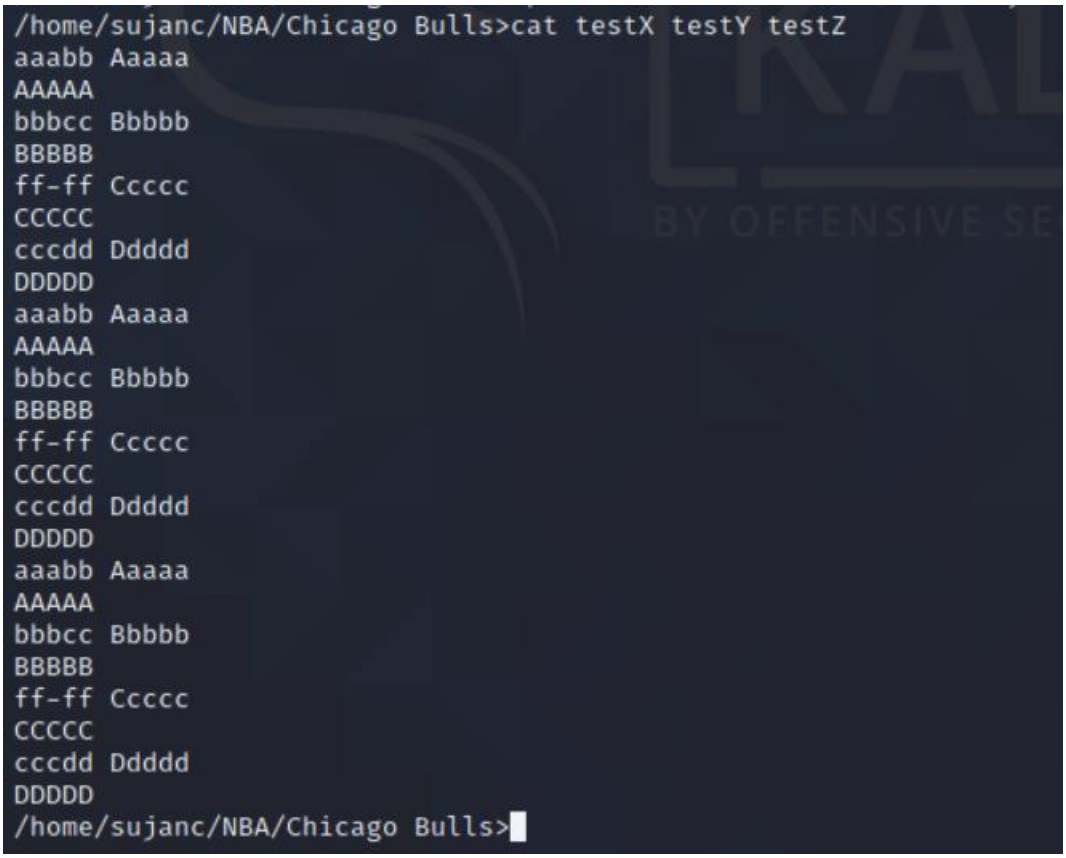


Figure 32: Concatenation

Command: cat testX testY testZ > testResult

This command concatenates the files into a new file named testResult.

Figure 33: Concat into file

Display testResult using cat.

Command: cat testResult

This command displays the all contents of the testResult file.

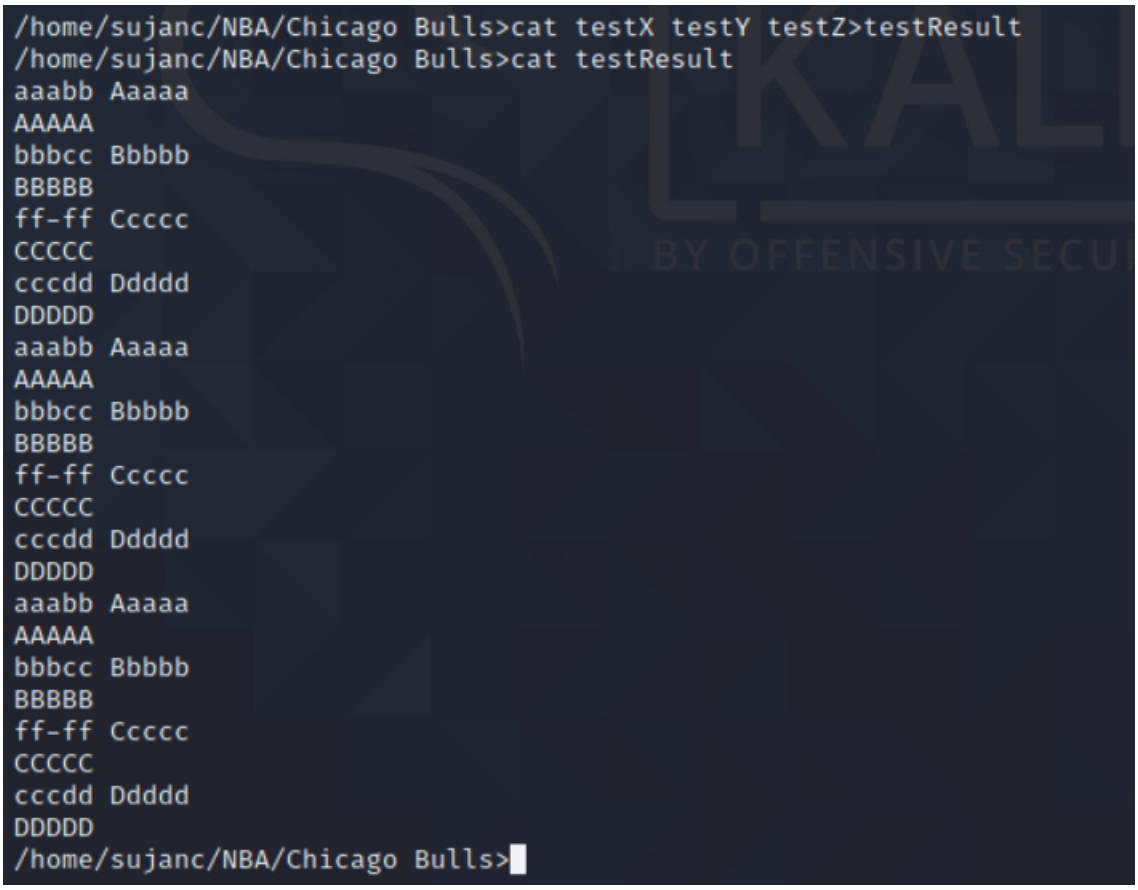


Figure 34: Concat into testResult

Task 13

Give the following command:

Command: cat test[XYZ]

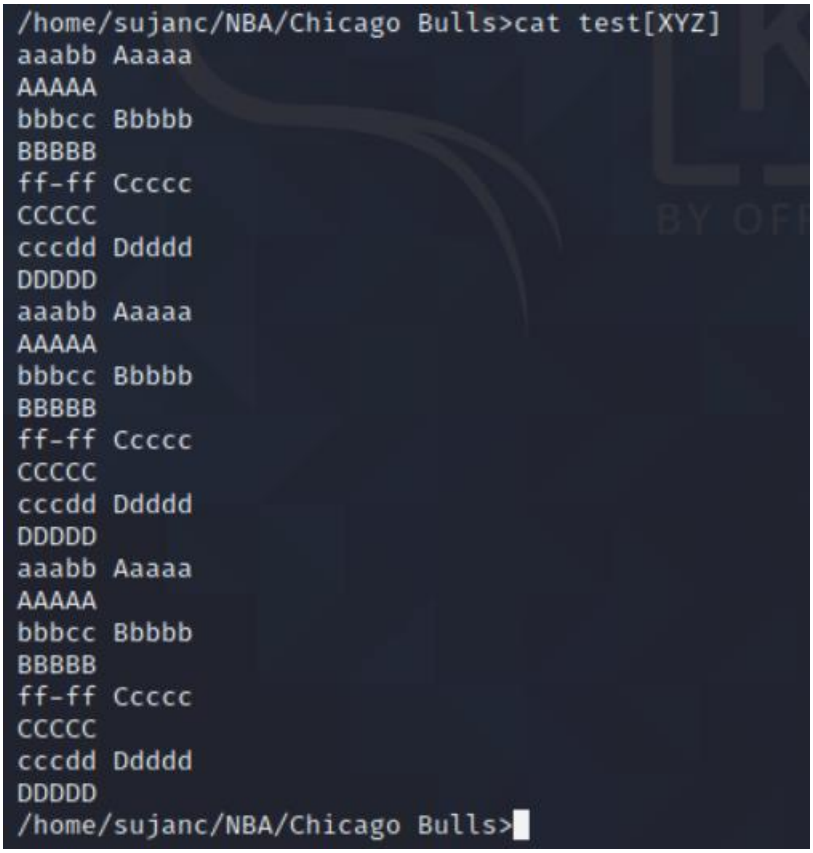


Figure 35: Concat files

Give a short explanation of the result.

Command: The command shows all the contents of testX, textY, and textZ file by concatenating them."

1.6. Usage of the chmod command

Task 14

Display access permissions for files in Chicago Bulls.

Command: ls -l

This command lists the access permissions of all the files in the Chicago Bulls directory.

```
/home/sujanc/NBA/Chicago Bulls>ls -l
total 16
-rw-r--r-- 1 sujanc sujanc 216 Mar 25 21:36 testResult
-rw-r--r-- 1 sujanc sujanc  72 Mar 25 21:30 testX
-rw-r--r-- 1 sujanc sujanc  72 Mar 25 21:31 testY
-rw-r--r-- 1 sujanc sujanc  72 Mar 25 21:32 testZ
/home/sujanc/NBA/Chicago Bulls>
```

Figure 36:ls -l command

Remove all access permissions for the testX file.

Command: chmod g-rwx,o-rwx,u-rwx testX

This command removes all the access permissions for all user or owner.

```
/home/sujanc/NBA/Chicago Bulls>chmod g-rwx,o-rwx,u-rwx testX
/home/sujanc/NBA/Chicago Bulls>
```

Figure 37:Remove access

Display access permissions for the testX file.

Command: ls -l testX

This command shows the access permission of textX file.

```
/home/sujanchy/NBA/Chicago Bulls>ls -l testX
---------- 1 sujanchy sujanchy 72 Mar  5 11:46 testX
/home/sujanchy/NBA/Chicago Bulls>
```

Figure 38:Display access

Try to read this file using any utility.

Command: cat testX

This command read the testX file but a permission denied messages because permission is not given to any user.

```
/home/sujanc/NBA/Chicago Bulls>cat testX
cat: testX: Permission denied
/home/sujanc/NBA/Chicago Bulls>
```

Figure 39: Read testX file

Try to write into this file using any utility.

Command: cat>testX

This command writes in the testX file but a permission denied because permissioin is not given to any user.

```
/home/sujanc/NBA/Chicago Bulls>cat>testX
bash: testX: Permission denied
/home/sujanc/NBA/Chicago Bulls>
```

Figure 40:Writing testX file

Add read and write access permissions for yourself for the testX file.

Command: chmod u=rw testX

This command gives read and write permission to the testX file.

```
/home/sujanc/NBA/Chicago Bulls>chmod u=rw testX
/home/sujanc/NBA/Chicago Bulls>
```

Figure 41:Add read write permission

Display access permissions for the testX file.

Command: ls -l testX

This command displays the permission of testX file.

```
/home/sujanc/NBA/Chicago Bulls>ls -l testX
-rw------- 1 sujanc sujanc 72 Mar 25 21:30 testX
/home/sujanc/NBA/Chicago Bulls>
```

Figure 42:Display testX file permission

Try to read this file using any utility.

Command: cat testX

This command displays the all content of testX file using cat utility.

```
/home/sujanc/NBA/Chicago Bulls>cat testX
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc
CCCCC
cccdd Ddddd
DDDDD
/home/sujanc/NBA/Chicago Bulls>
```

Figure 43:Read testX

Try to write into this file using any utility.

Command: cat>testX

This command used to write in testX file.

```
/home/sujanc/NBA/Chicago Bulls>cat>testX
ddddd Eeeee
^Z
[4]+  Stopped                 cat > testX
/home/sujanc/NBA/Chicago Bulls>
```

Figure 44: Writing testX file

Task 15

Change to the NBA directory.

Command: cd ..

This command changes the directory from Chicago Bulls to NBA directory.

```
/home/sujanc/NBA/Chicago Bulls>cd ..
/home/sujanc/NBA>
```

Figure 45:Change directory

Display access permissions for Chicago Bulls.

Command: ls -ld 'Chicago Bulls'

This command displays the permissions of Chicago Bulls directory.

```
/home/sujanc/NBA>ls -ld 'Chicago Bulls'
drwxr-xr-x 2 sujanc sujanc 4096 Mar 25 21:36 'Chicago Bulls'
/home/sujanc/NBA>
```

Figure 46: Display permissions of Chicago Bulls

Remove all access permissions for the Chicago Bulls directory.

Command: chmod g-rwx,o-rwx,u-rwx 'Chicago Bulls'

This command removes all the access permissions from Chicago Bulls directory for all user.

```
/home/sujanc/NBA>chmod g-rwx,o-rwx,u-rwx 'Chicago Bulls'
/home/sujanc/NBA>
```

Figure 47:Remove access permissions

Display access permissions for Chicago Bulls.

Command: ls -ld 'Chicago Bulls'

This command displays the permission of the Chicago Bulls directory.

```
/home/sujanc/NBA>ls -ld 'Chicago Bulls'
d--------- 2 sujanc sujanc 4096 Mar 25 21:36 'Chicago Bulls'
/home/sujanc/NBA>
```

Figure 48:Display permission

Try to read a file from Chicago Bulls using any utility.

Command: cat 'Chicago Bulls'/testX

This command is used to read a testX but permission is denied.

```
/home/sujanc/NBA>cat 'Chicago Bulls'/testX
cat: 'Chicago Bulls/testX': Permission denied
/home/sujanc/NBA>
```

Figure 49: Read testX file

Try to put a file into Chicago Bulls using any utility.

Command: touch 'Chicago Bulls'/file3

This command used to create a file in Chicago directory using touch utility but the permission is denied.

```
/home/sujanc/NBA>touch 'Chicago Bulls'/file
touch: cannot touch 'Chicago Bulls/file': Permission denied
/home/sujanc/NBA>
```

Figure 50: Create file3

Try to search in Chicago Bulls using any command (e.g., the ls command).

Command: ls 'Chicago Bulls'

This command used to lists the files in Chicago Bulls directory but cannot access it.

```
/home/sujanc/NBA>ls 'Chicago bulls'
ls: cannot open directory 'Chicago bulls': Permission denied
/home/sujanc/NBA>
```

Figure 51: list Chicago Bulls

Add read, write, and execute access permissions for yourself for the Chicago Bulls directory.

Command: chmod u=rwx 'Chicago bulls'

This command adds read, write, and execute permissions for the user.

```
/home/sujanc/NBA>chmod u=rwx 'Chicago Bulls'
/home/sujanc/NBA>
```

Figure 52: Adding permissions

Display access permissions for Chicago Bulls.

Command: ls -ld 'Chicago Bulls'

This command displays the access permissions of Chicago Bulls directory.

```
/home/sujanc/NBA>ls -ld 'Chicago Bulls'
drwx------ 2 sujanc sujanc 4096 Mar 25 21:36 'Chicago Bulls'
/home/sujanc/NBA>
```

Figure 53: Display Permission

Try to read a file from Chicago Bulls using any utility.

Command: cat 'Chicago Bulls'/testY

This command reads the testY file from Chicago bulls directory.

```
/home/sujanc/NBA>cat 'Chicago Bulls'/testY
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc
CCCCC
cccdd Ddddd
DDDDD
/home/sujanc/NBA>
```

Figure 54: Read testY

Try to put a file into Chicago Bulls using any utility.

Command: touch 'Chicago Bulls'/file3

This file creates file3 file in Chicago Bulls directory.

```
/home/sujanc/NBA>touch 'Chicago Bulls'/file
/home/sujanc/NBA>
```

Figure 55: Touch file3

Try to search in Chicago Bulls using any command (e.g., the ls command).

Command: ls 'Chicago Bulls'

This command lists the files of Chicago Bulls directory.

```
/home/sujanc/NBA>ls 'Chicago Bulls'
file  testResult  testX  testY  testZ
/home/sujanc/NBA>
```

Figure 56: ls command

1.7. Usage of the grep command

Change to the Brooklyn nets directory.

Command: cd 'Brooklyn nets'

This command is used to changes the directory from NBA directory to Brooklyn nets.

```
/home/sujanc/NBA>cd 'Brooklyn nets'
/home/sujanc/NBA/Brooklyn nets>
```

Figure 57: Change directory

Task 16

Give the following commands and give the explanation of each of the commands.

Command: grep bb testX

```
/home/sujanc/NBA/Brooklyn nets>grep bb testX
aaabb Aaaaa
bbbcc Bbbbb
/home/sujanc/NBA/Brooklyn nets>
```

Figure 58: Grep command

The command grep bb testX is used to search character of string ‘bb of testX file and highlight the character matched’

Command: grep -v bb testX

```
/home/sujanc/NBA/Brooklyn nets>grep -v bb testX
AAAAA
BBBBB
ff-ff Ccccc
CCCCC
cccdd Ddddd
DDDDD
/home/sujanc/NBA/Brooklyn nets>
```

Figure 59: Grep -v command

The command grep -v bb testX is used to print all the line except character of string ‘bb’ matched.

Command: grep -n bb testX

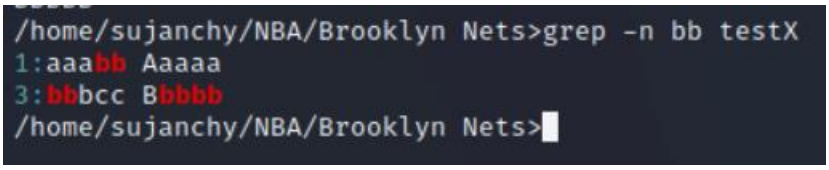


Figure 60:Grep -n command

The command search character of string ‘bb’ of testX file and highlight the character matched and also print line number.

Command: grep -l bb *

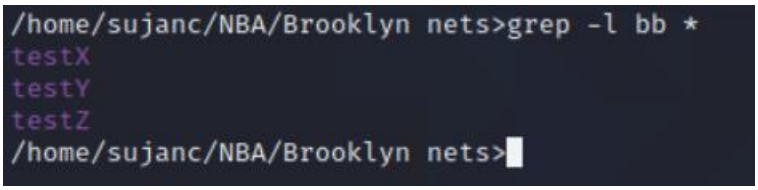


Figure 61:Grep -l command

The command is used to print all name of files if string ‘bb’ is found in those files.

Command: grep -i bb *

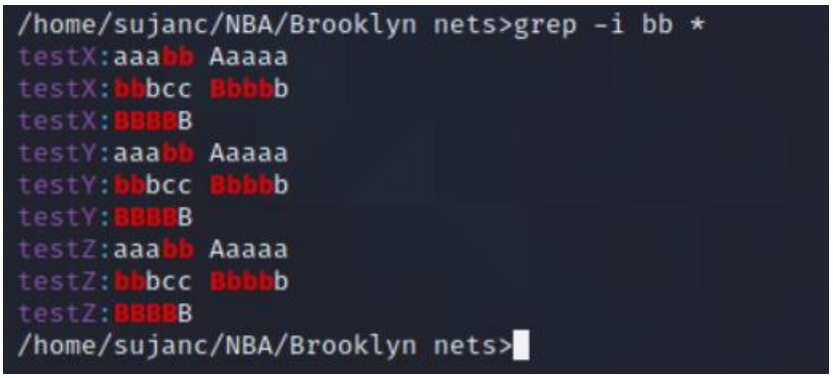


Figure 62:Grep -i command

The command grep -i bb * is used to search character of string ‘bb of all files of Brooklyn nets and highlight the character matched’

Command: grep -i BB *

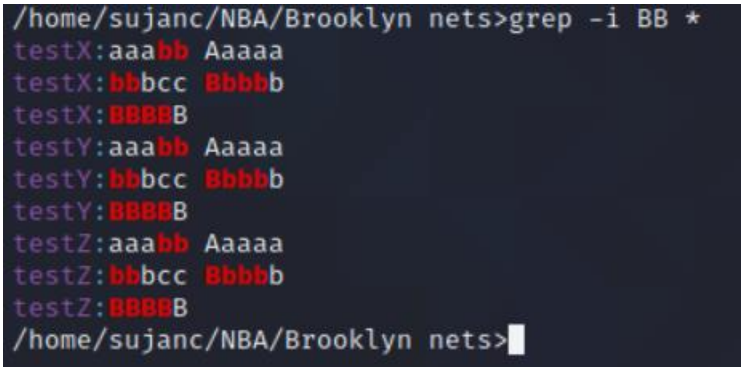


Figure 63:Grep -i command

The command grep -i BB * is used to search character of string ‘bb of all files of Brooklyn nets and highlight the character matched’

Command: grep -c bb *

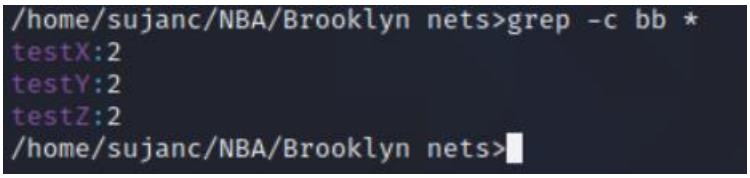


Figure 64:Grep -c command

This command show the count of lines of string ‘bb’ of all files of Brooklyn nets directory.

Command: grep '^A' *

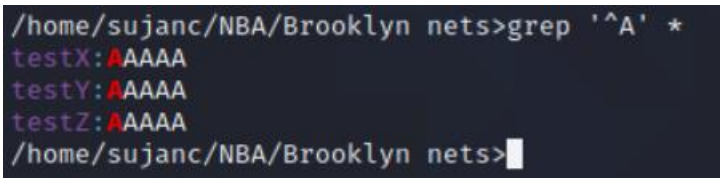


Figure 65:Grep ^ command

This command with ^ symbol prints all the lines of string ‘A’ of all files of Brooklyn nets directory.

Command: grep -n '^' testX

```
/home/sujanc/NBA/Brooklyn nets>grep -n '^' testX
1:aaabb Aaaaa
2:AAAAA
3:bbbcc Bbbbb
4:BBBBB
5:ff-ff Ccccc
6:CCCCC
7:cccdd Ddddd
8:DDDDD
/home/sujanc/NBA/Brooklyn nets>
```

Figure 66:Grep -n ^ command

This command prints the line number of testX.

1.8. Aliasing

Task 17

Define two aliases for the ls command: lsal for the ls -al command and lsa for ls -a command.

Command: alias lsal='ls -al'

Command: alias lsa='ls -a'

The above command creates new aliases for ls -al and ls -a command to use as shortcut keyword for executing the command.

```
/home/sujanc/NBA/Brooklyn nets>lsal
total 20
drwxr-xr-x 2 sujanc sujanc 4096 Mar 25 21:34 .
drwxr-xr-x 6 sujanc sujanc 4096 Mar 25 21:18 ..
-rw-r--r-- 1 sujanc sujanc   72 Mar 25 21:34 testX
-rw-r--r-- 1 sujanc sujanc   72 Mar 25 21:34 testY
-rw-r--r-- 1 sujanc sujanc   72 Mar 25 21:34 testZ
/home/sujanc/NBA/Brooklyn nets>
```

```
/home/sujanc/NBA/Brooklyn nets>alias lsal='ls -al'
/home/sujanc/NBA/Brooklyn nets>alias lsa='ls -a'
/home/sujanc/NBA/Brooklyn nets>
```

Figure 67:Aliasing

Show that your system stores them (giving the correspondent command)

Command: alias

This command shows all the aliased command in the system.

```
/home/sujanc/NBA/Brooklyn nets>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 lsa='ls -a'
alias lsal='ls -al'
```

Figure 68:Aliases

Use them in your home directory.

Command: cd

This command change directory from Brooklyn nets to home directory.

```
/home/sujanc/NBA/Brooklyn nets>cd
/home/sujanc>
```

Figure 69: Change to home directory

Command: lsal

This command show all the hidden and unhidden files of the directory with all permissions.

```
/home/sujanc>lsal
total 496
drwxr-xr-x 11 sujanc sujanc   4096 Mar 25 21:15 .
drwxr-xr-x  3 root   root     4096 Mar 20 22:17 ..
-rw-r--r--  1 sujanc sujanc  20480 Mar 25 22:04 19031885cw2
-rw-------  1 sujanc sujanc   5731 Mar 25 21:13 .bash_history
-rw-r--r--  1 sujanc sujanc    220 Mar 20 22:17 .bash_logout
-rw-r--r--  1 sujanc sujanc   4847 Mar 24 19:15 .bashrc
-rw-r--r--  1 sujanc sujanc   3526 Mar 20 22:17 .bashrc.original
-rw-r--r--  1 sujanc sujanc   1024 Mar 24 19:09 ..bashrc.swp
drwxr-xr-x 10 sujanc sujanc   4096 Mar 25 21:13 .cache
drwxr-xr-x 10 sujanc sujanc   4096 Mar 22 12:18 .config
drwx------  3 sujanc sujanc   4096 Mar 20 23:25 .dbus
drwxr-xr-x  2 sujanc sujanc   4096 Mar 20 22:50 Desktop
drwx------  3 sujanc sujanc   4096 Mar 25 21:12 .gnupg
-rw-------  1 sujanc sujanc   6030 Mar 25 21:12 .ICEauthority
drwxr-xr-x  3 sujanc sujanc   4096 Mar 20 23:25 .local
-rw-r--r--  1 sujanc sujanc   1024 Mar 22 12:21 .loop.sh.swp
drwx------  5 sujanc sujanc   4096 Mar 25 21:13 .mozilla
drwxr-xr-x  6 sujanc sujanc   4096 Mar 25 21:18 NBA
-rw-r--r--  1 sujanc sujanc    807 Mar 20 22:17 .profile
drwxr-xr-x  2 sujanc sujanc   4096 Mar 25 21:12 .vnc
-rw-------  1 sujanc sujanc    872 Mar 25 21:12 .Xauthority
-rw-------  1 sujanc sujanc 375990 Mar 25 21:13 .xsession-errors
-rw-r--r--  1 sujanc sujanc   8456 Mar 20 22:17 .zshrc
/home/sujanc>
```

Figure 70:lsal alias

Command: lsa

This command lists all the hidden and unhidden files and folders in home directory.

```
/home/sujanc>lsa
.               .bashrc           .dbus          .loop.sh.swp  .Xauthority
..              .bashrc.original  Desktop        .mozilla      .xsession-errors
19031885cw2     ..bashrc.swp      .gnupg         NBA           .zshrc
.bash_history   .cache            .ICEauthority  .profile
.bash_logout    .config           .local         .vnc
/home/sujanc>
```

Figure 71:lsa alias

Task 18

Remove these aliases.

Command: unalias lsal

Command: unalias lsa

The command removes the aliases from the system.

```
/home/sujanc>unalias lsal
/home/sujanc>unalias lsa
/home/sujanc>
```

Figure 72:unalias

Show that your system does not store these aliases.

Command: alias

This command shows all the aliases in the system

```
/home/sujanc>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 73: alias command

Task 19

Define the aliases again preserving them for the next session. Stop the session exiting from the UNIX operating system (log out) and log in again.

command

Command: nano .bashrc

The command nano .bashrc opens in nano editor to save the aliases permanently by adding new command in the file ls -a and ls -al command is aliased in this file.

Figure 74: .bashrc file

Command: source ~/ .bashrc

This command is used to activate command aliased in bashrc.

Show that the system keeps these aliases and they work.

Command: alias

This command shows the aliased command in the system.

```
/home/sujanc/NBA/Brooklyn nets>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 lsa='ls -a'
alias lsal='ls -al'
```

Figure 75:alias command

Command: lsal

```
/home/sujanc>lsal
total 580
drwxr-xr-x 11 sujanc sujanc   4096 Mar 25 22:15 .
drwxr-xr-x  3 root   root     4096 Mar 20 22:17 ..
-rw-r--r--  1 sujanc sujanc  98632 Mar 25 22:16 19031885cw2
-rw-------  1 sujanc sujanc   7291 Mar 25 22:14 .bash_history
-rw-r--r--  1 sujanc sujanc    220 Mar 20 22:17 .bash_logout
-rw-r--r--  1 sujanc sujanc   4746 Mar 25 22:15 .bashrc
-rw-r--r--  1 sujanc sujanc   3526 Mar 20 22:17 .bashrc.original
-rw-r--r--  1 sujanc sujanc   1024 Mar 25 22:15 ..bashrc.swp
drwxr-xr-x 10 sujanc sujanc   4096 Mar 25 21:13 .cache
drwxr-xr-x 10 sujanc sujanc   4096 Mar 22 12:18 .config
drwx------  3 sujanc sujanc   4096 Mar 20 23:25 .dbus
drwxr-xr-x  2 sujanc sujanc   4096 Mar 20 22:50 Desktop
drwx------  3 sujanc sujanc   4096 Mar 25 21:12 .gnupg
-rw-------  1 sujanc sujanc   6030 Mar 25 21:12 .ICEauthority
drwxr-xr-x  3 sujanc sujanc   4096 Mar 20 23:25 .local
-rw-r--r--  1 sujanc sujanc   1024 Mar 22 12:21 .loop.sh.swp
drwx------  5 sujanc sujanc   4096 Mar 25 21:13 .mozilla
drwxr-xr-x  6 sujanc sujanc   4096 Mar 25 21:18 NBA
-rw-r--r--  1 sujanc sujanc    807 Mar 20 22:17 .profile
drwxr-xr-x  2 sujanc sujanc   4096 Mar 25 21:12 .vnc
-rw-------  1 sujanc sujanc    872 Mar 25 21:12 .Xauthority
-rw-------  1 sujanc sujanc 378062 Mar 25 22:16 .xsession-errors
-rw-r--r--  1 sujanc sujanc   8456 Mar 20 22:17 .zshrc
/home/sujanc>
```

Figure 76:lsal alias

This command aliases for ls -al command and is used in home directory. It lists all the hidden and normal files and directories with permission, owner, modification details.

Command: lsa

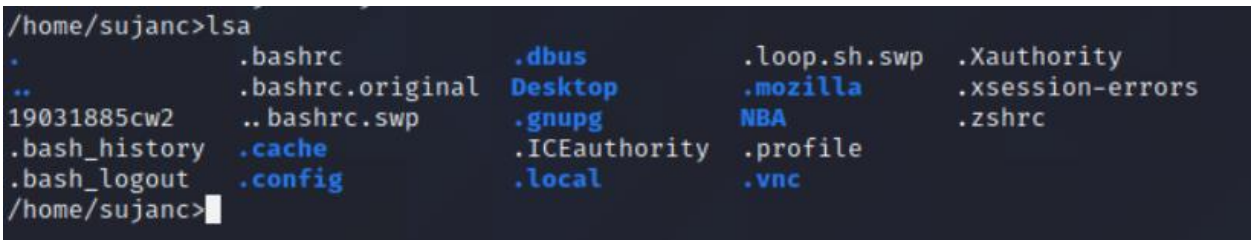


Figure 77:lsa alias

This command aliases for ls -a command and shows all the hidden and normal files and directories.

Task 20

Define the noAllf alias for a group of commands counting and displaying the number of all files in any working directory (including ones with invisible file names) and put the alias in your environmental file.

Command: alias noAllf='ls -a | wc -l'

Task 21

Define the noAsubsir alias for a group of commands counting recursively and displaying the number of all sub-directories encountered for any working directory (including ones with invisible file names) and put the alias in your environmental file.

Command: alias noAsubsir='ls -aR | wc -l'

Task 22

Define the noAcs alias for a group of commands counting and displaying the number of all files in your account's space with the names starting with g, t, and w and put the alias in your environmental file.

Command: alias noAcs='ls -a | grep ^[gtw] | wc -l'

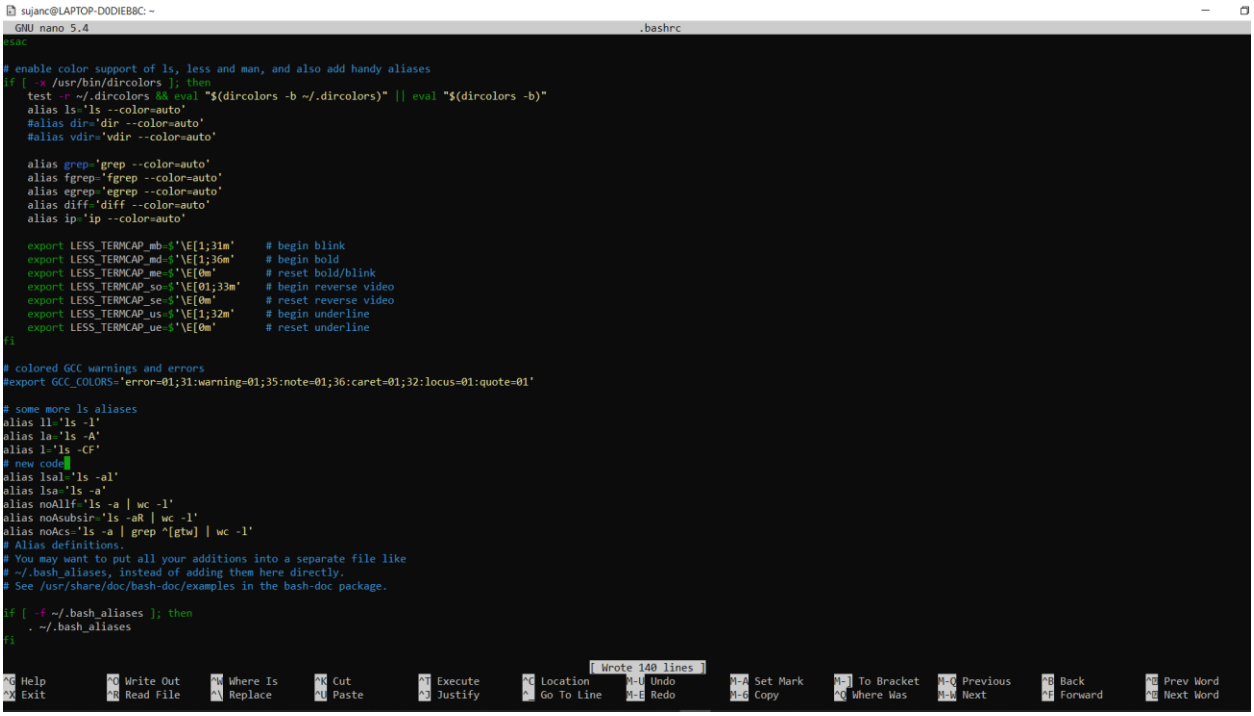


Figure 78: .bashrc file

Display all the aliases.

Command: alias

This command shows all the aliases on the system.

```
/home/sujanc>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 lsa='ls -a'
alias lsal='ls -al'
alias noAcs='ls -a | grep ^[gtw] | wc -l'
alias noAllf='ls -a | wc -l'
alias noAsubsir='ls -aR | wc -l'
/home/sujanc>
```

Figure 79: aliases

1.9. Usage of your own commands

Task 23

Command: noAllf

This command shows the number of files of the current directory.

```
/home/sujanc>noAllf
23
/home/sujanc>
```

Figure 80:noAllf alias

Task 24

Command: noAsubsir

This command recursively counts and displays the number of all files hidden or unhidden in any working directory.

```
/home/sujanc>noAsubsir
901
/home/sujanc>
```

Figure 81:noAsubsir alias

Task 25

Command: noAcs

This command counts and show the number of all files in account's space name starting with g, t, and w.

```
/home/sujanc>noAcs
1
/home/sujanc>
```

Figure 82:noAcs alias

Task 26

List your last commands executed giving the any history command.

Command: history | tail

This command shows the ten commands used which was used previously.

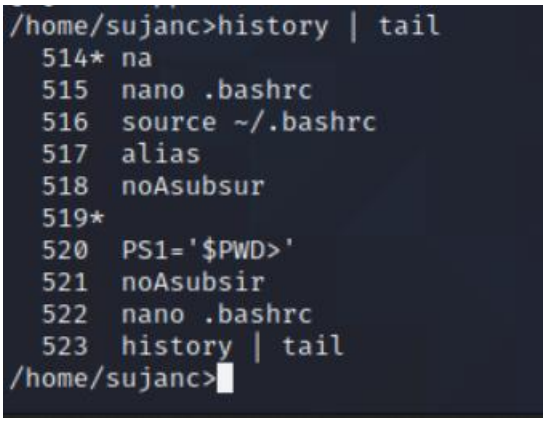


Figure 83:history tail command

Task 27

Re execute the command given eight commands ago.

Command: !-8

This command re-opens the command executed eight commands ago.

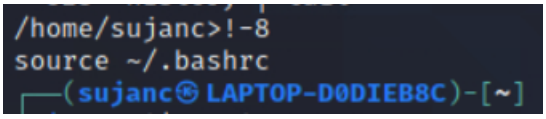


Figure 84: last 8 command

Task 28

Re execute the last command which name begins with ‘m’.

Command: !m

This command re-opens the last command starts with ‘m’.

Figure 85: Re-execute command

1.10. Conclusion

Here I have come to the end of the project. It was a very wonderful and learning experience for me while working on this project. This allows me to get a deep knowledge of Kali Linux while researching for this project and also increase my researching skills. The joy of work and the thrill involved while tackling the various problems and challenges feels very satisfying. While installing the Kali Linux GUI many problems arise, I solve the problem with help of YouTube videos and our beloved sir Pratik Karki. I do not use a virtual box or dual setup because it consumes too much storage and laggy experience.

The coursework introduces to UNIX shell command. This coursework lets us execute the command in the Linux terminal. Commands executed in this coursework such as creating directories, use of grep command, using touch to create files, concatenating file using cat utility, giving and removing the permission of folder or files, use of an alias for aliasing the command temporarily, and using nano .bashrc for permanent aliasing. While executing commands many errors occur like a spelling mistake, extra space or no space, etc. so script file size increase and in this coursework, it has a rule to not cross 50 kb if it cross marks will be deducted. So deleted all the error command from the script file manually made its size less than 50kb.