Useful Linux Commands

Report by: Sayush Khadka

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A. Introduction:

Linux is an open-source, community-maintained Unix-like operating system (OS) for PCs, servers, mainframes, mobile devices, and embedded devices. It is one of the most widely maintained operating systems, with versions for almost every major computer platform, including x86, ARM, and SPARC (Peter Loshin, 2021).

Community-built Linux distributions include Debian, Slackware, and Gentoo. Commercial distributions geared at corporations, such as Red Hat Enterprise Linux and SUSE Linux Enterprise Server, are examples. Many distributions, such as Red Hat's Fedora, SUSE's openSUSE, and Canonicals' Ubuntu, combine community and corporate development efforts. Every version of the Linux operating system manages hardware resources, runs, and maintains applications, and provides some form of the user interface. There is a Linux version for almost any task, thanks to the enormous development community and several distributions, and Linux has entered many fields of computing (Peter Loshin, 2021).

For example, Linux has become a popular operating system for web servers such as Apache, network operations, scientific computing workloads that need huge compute clusters, databases, desktop, and endpoint computing, and running mobile devices with OS versions such as Android (Peter Loshin, 2021).

Why Linux?

UNIX, the mother of operating systems, is said to have laid the foundation for Linux. Unix is a mainframe operating system used in corporations and educational institutions. Linux is becoming increasingly popular among computer users, developers, and server administrators. Although a Unix kernel is expensive, Linux supplies one for free (Brent, 2022).

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B. Creation of script:

Script started on 2022-04-22 00:28:07+05:45 [TERM="xterm-256color" TTY="/dev/tty1" COLUMNS="104" LINES="49"]
sayush@sayush:~$ PS1='$PWD>'

C. Commands:

1. Creating new directories:

1.1 Task 1:

Command: Directory Creation

/home/sayush>mkdir -p IPL/{"Mumbai Indians",KKR,Punjab,"Rajsthan Royals",RCB}

Command: Directory Structure

/home/sayush>ls -R IPL

Response:

IPL:
 KKR 'Mumbai Indians'   Punjab   RCB 'Rajsthan Royals'

IPL/KKR:

'IPL/Mumbai Indians':

IPL/Punjab:

IPL/RCB:

'IPL/Rajsthan Royals':

2. Removing existing files and directories:

2.1 Task 2:

Command: Changing to the KKR directory typing a relative pathname

```
/home/sayush>cd IPL/KKR
```

Command: Showing working directory

```
/home/sayush/IPL/KKR>pwd
```

Response:

```
/home/sayush/IPL/KKR
```

Command: Creating two files in the **KKR** directory

```
/home/sayush/IPL/KKR>touch {file1,file2}
```

Command: Showing the file exists

```
/home/sayush/IPL/KKR>ls
```

Response:

```
file1   file2
```

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2.2 Task 3:

Command: Changing to the **IPL** directory

```
/home/sayush/IPL/KKR>cd ..
```

Command: Remove both files using the corresponding command(s) with the Interactive Mode (-i) option for the rm command respectively

```
/home/sayush/IPL>rm -i KKR/{file1,file2}
```

Response:

```
rm: remove regular empty file 'KKR/file1'? y
rm: remove regular empty file 'KKR/file2'? y
```

Command: To show absence of these files

```
/home/sayush/IPL>ls KKR
```

Response: No file shown as the file has already been removed.

```
/home/sayush/IPL>rm -i KKR/{file1,file2}
rm: remove regular empty file 'KKR/file1'? y
rm: remove regular empty file 'KKR/file2'? y
/home/sayush/IPL>ls KKR
/home/sayush/IPL>echo -e "Hello! I am big fan of IPL.\n14 < (2+2)"
```

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3. Usage of the echo command:

3.1 Task 4:

Command: Printing the strings each in one echo command

```
/home/sayush/IPL>echo -e "Hello! I am big fan of IPL.\n14 < (2+2)"
```

Response:

```
Hello! I am big fan of IPL.
14 < (2+2)
```

Command: Giving the **pwd** command

```
/home/sayush/IPL>pwd
```

Response:

```
/home/sayush/IPL
```

Command: Change to the **KKR** directory typing a relative pathname

```
/home/sayush/IPL>cd KKR
```

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3.2 Task 5:

Command: Giving the group of the following commands

/home/sayush/IPL/KKR>pwd;cd;pwd

Response:

/home/sayush/IPL/KKR
/home/sayush>echo -e "The pwd command displays the path of the current working directory (IPL directoy).\nThe Andnthe Te path of the current working directory."

Explanation:

The pwd command displays the path of the current working directory (IPL directoy).

The cd command changes the current working directory to home directory.

And the pwd command displays the path of the current working directory.

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3.3 Task 6:

Command: Changing to the **KKR** directory again typing a relative pathname

/home/sayush>cd IPL/KKR

Command: Giving the group of the following commands

/home/sayush/IPL/KKR>pwd;cd ..;pwd; cd ..;pwd

Response:

/home/sayush/IPL/KKR
displays the path of the current working directory."the directory a step behind.\n And the pwd commands "
The pwd command displays the path of the current working directory (KKR).
The cd .. command changes from KKR to IPL directory.ath of the current working directory (KKR director)"
Again, the pwd command displays the path of the current working directory (IPL).
The cd .. command changes the directory a step behind.
 And the pwd commands displays the path of the current working directory.
/home/sayush>cd;pwd

Explanation:

The pwd command displays the path of the current working directory (KKR).

The cd .. command changes from KKR to IPL directory.ath of the current working directory (KKR director)"

Again, the pwd command displays the path of the current working directory (IPL).

The cd .. command changes the directory a step behind.

 And the pwd commands displays the path of the current working directory.

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4. Usage of the ls command:

4.1 Task 7:

Command: Giving the following commands and then giving a short explanation for each ls command

/home/sayush>cd;pwd

Response:

/home/sayush

Command:

/home/sayush>ls

Response:

20049034cw2ii	NIR	bin.sh	greaternumbercla.sh	week18b.sh	week9
20049034cw2p1	W9	cars	ifelse.sh	week18b.sh.save	zero.sh
AY	add.sh	cw2p2.sh	ifthenelse.sh	week18c.sh	zerocla.sh
IPL	add1.sh	equalornot.sh	swap.sh	week18d.sh	
JL	add1.sh.save	equalornotcla.sh	touch.sh	week18e.sh	
KC	bash	function.sh	w20	week18f.sh	
Laptop	bikes	greaternumber.sh	week18.sh	week18g.sh	

Command:

/home/sayush>ls -a

Response:

.	.sudo_as_admin_successful	add.sh	function.sh	week18b.sh.save
..	20049034cw2ii	add1.sh	greaternumber.sh	week18c.sh
.2.swp	20049034cw2p1	add1.sh.save	greaternumbercla.sh	
week18d.sh				
.bash_history	AY	bash	ifelse.sh	week18e.sh
.bash_logout	IPL	bikes	ifthenelse.sh	week18f.sh
.bashrc	JL	bin.sh	swap.sh	week18g.sh
.landscape	KC	cars	touch.sh	week9

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```
.local       Laptop           cw2p2.sh      w20            zero.sh
.motd_shown  NIR              equalornot.sh week18.sh      zerocla.sh
.profile     W9               equalornotcla.sh week18b.sh
```

Command:

```
/home/sayush>ls -al
```

Response:

```
total 48
drwxr-xr-x 1 sayush sayush  4096 Apr 22 00:29 .
drwxr-xr-x 1 root   root    4096 Dec 10 11:53 ..
-rw-r--r-- 1 sayush sayush  1024 Mar  6 13:15 .2.swp
-rw------- 1 sayush sayush 14434 Apr 22 00:12 .bash_history
-rw-r--r-- 1 sayush sayush   220 Dec 10 11:53 .bash_logout
-rw-r--r-- 1 sayush sayush  3808 Apr 20 16:55 .bashrc
drwxr-xr-x 1 sayush sayush  4096 Dec 10 11:53 .landscape
drwxr-xr-x 1 sayush sayush  4096 Mar  3 13:23 .local
-rw-r--r-- 1 sayush sayush     0 Apr 22 00:05 .motd_shown
-rw-r--r-- 1 sayush sayush   807 Dec 10 11:53 .profile
-rw-r--r-- 1 sayush sayush     0 Dec 13 14:05 .sudo_as_admin_successful
-rwxr-xr-x 1 sayush sayush  2815 Apr 22 00:01 20049034cw2ii
-rw-r--r-- 1 sayush sayush  8192 Apr 22 00:56 20049034cw2p1
-rw-r--r-- 1 sayush sayush    21 Apr 21 22:48 AY
drwxr-xr-x 1 sayush sayush  4096 Apr 22 00:29 IPL
-rw-r--r-- 1 sayush sayush    21 Apr 21 22:49 JL
-rw-r--r-- 1 sayush sayush    21 Apr 21 23:05 KC
drwxr-xr-x 1 sayush sayush  4096 Dec 17 11:12 Laptop
-rw-r--r-- 1 sayush sayush    17 Apr 21 22:43 NIR
drwxr-xr-x 1 sayush sayush  4096 Dec 20 14:19 W9
-rw-r--r-- 1 sayush sayush   169 Mar  6 12:24 add.sh
-rw-r--r-- 1 sayush sayush   147 Mar  6 12:36 add1.sh
-rw-r--r-- 1 sayush sayush   166 Mar  6 13:22 add1.sh.save
-rw-r--r-- 1 sayush sayush   163 Mar  6 12:18 bash
drwxr-xr-x 1 sayush sayush  4096 Dec 13 14:26 bikes
-rw-r--r-- 1 sayush sayush    71 Mar  3 13:18 bin.sh
drwxr-xr-x 1 sayush sayush  4096 Dec 13 14:41 cars
-rw-r--r-- 1 sayush sayush     0 Apr 21 13:19 cw2p2.sh
-rw-r--r-- 1 sayush sayush   136 Mar  6 13:02 equalornot.sh
-rw-r--r-- 1 sayush sayush    82 Mar  6 13:15 equalornotcla.sh
-rw-r--r-- 1 sayush sayush   252 Mar 20 12:28 function.sh
-rw-r--r-- 1 sayush sayush   168 Mar  6 13:09 greaternumber.sh
-rw-r--r-- 1 sayush sayush    90 Mar  6 13:20 greaternumbercla.sh
-rw-r--r-- 1 sayush sayush   105 Mar  3 13:28 ifelse.sh
```

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```
-rw-r--r-- 1 sayush sayush   288 Mar  3 13:50 ifthenelse.sh
-rw-r--r-- 1 sayush sayush    13 Mar  6 12:49 swap.sh
-rw-r--r-- 1 sayush sayush    75 Mar  6 12:43 touch.sh
drwxr-xr-x 1 sayush sayush  4096 Mar 27 13:30 w20
-rw-r--r-- 1 sayush sayush    81 Mar 13 12:40 week18.sh
-rw-r--r-- 1 sayush sayush   131 Mar 13 13:00 week18b.sh
-rw-r--r-- 1 sayush sayush    79 Mar 13 12:37 week18b.sh.save
-rw-r--r-- 1 sayush sayush    68 Mar 13 12:48 week18c.sh
-rw-r--r-- 1 sayush sayush    50 Mar 13 12:50 week18d.sh
-rw-r--r-- 1 sayush sayush    52 Mar 13 12:54 week18e.sh
-rw-r--r-- 1 sayush sayush    59 Mar 13 13:21 week18f.sh
```

Explanation:

To list files or directories, the ls command is used.

The ls -a command displays the whole list of files in the current directory, including hidden files.

The ls -al command displays a list of all hidden and non-hidden files and directories, as well as their permissions, size, and modification date.

4.2 Task 8:

Command: Giving the group commands

/home/sayush>cd;pwd;cd IPL;pwd

Response:

/home/sayush>cd;pwd;cd IPL;pwd
/home/sayush
/home/sayush/IPL
irectory."irectory from home directory.\nThe pwd command then displays the path of the current working d"
The cd command changes the directory to the home directory.
Then the pwd command displays the path of the current working directory.
The cd command then changes the current working to IPL directory from home directory.
The pwd command then displays the path of the current working directory.
/home/sayush/IPL>ls -R

Explanation:

The cd command changes the directory to the home directory.

Then the pwd command displays the path of the current working directory.

The cd command then changes the current working to IPL directory from home directory.

The pwd command then displays the path of the current working directory.

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Command:

/home/sayush/IPL>ls -R

Response:

.:
 KKR 'Mumbai Indians'   Punjab   RCB 'Rajsthan Royals'

./KKR:

'./Mumbai Indians':

./Punjab:

./RCB:

'./Rajsthan Royals':

Explanation:

The ls -R command recursively lists all files, starting at the specified path and working its way down the directory tree.

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5. Usage of the cat command:

5.1 Task 9:

Command: Change to the **RCB** directory

/home/sayush/IPL>cd RCB

Command: Creating three following files using the cat utility

/home/sayush/IPL/RCB>cat > testX
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc CCCCC
cccdd Ddddd
DDDDD

Command:

/home/sayush/IPL/RCB>cat > testY
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc CCCCC
cccdd Ddddd
DDDDD
^C

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Command:

```
/home/sayush/IPL/RCB>cat > testZ
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc CCCCC
cccdd Ddddd
DDDDD
^C
```

5.2 Task 10:

Command: Displaying each of these files using the cat utility

```
/home/sayush/IPL/RCB>cat testX
```

Response:

```
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc CCCCC
cccdd Ddddd
DDDDD
```

Command:

```
/home/sayush/IPL/RCB>cat testY
```

Response:

```
aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc CCCCC
cccdd Ddddd
DDDDD
```

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Command:

/home/sayush/IPL/RCB>cat testZ

Response:

aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc CCCCC
cccdd Ddddd
DDDDD

5.3 Task 11:

Command: Coping these files to the **"Rajsthan Royals"** directory typing a relative pathname

/home/sayush/IPL/RCB>cp testX testY testZ ../Rajsthan\ Royals

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5.4 Task 12:

Command: Concatenating the files using the following commands

/home/sayush/IPL/RCB>cat testX testY testZ

Response:

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

Command:

/home/sayush/IPL/RCB>cat testX testY testZ > testResult

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Command: Displaying testResult using cat

```
/home/sayush/IPL/RCB>cat testResult
```

Response:

```
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
```

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5.5 Task 13:

Command: Give the following command

/home/sayush/IPL/RCB>cat test[XYZ]

Response:

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

Explanation:

The command separates the files using the large bracket. The test is a common term, and the large bracket takes the unique term, where the test concatenates the first word, the second word, and the third word to print the content. The cat command divides the large bracket containing each text and mixes it with the main text outside the bracket.

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6. Usage of the chmod command:

6.1 Task 14:

Command: Display access permissions for files in **RCB directory**

```
/home/sayush/IPL/RCB>ls -l
```

Response:

```
total 0
-rw-r--r-- 1 sayush sayush 216 Apr 22 01:24 testResult
-rw-r--r-- 1 sayush sayush  72 Apr 22 01:15 testX
-rw-r--r-- 1 sayush sayush  72 Apr 22 01:17 testY
-rw-r--r-- 1 sayush sayush  72 Apr 22 01:18 testZ
```

Command: Remove all access permissions for the testX file.

```
/home/sayush/IPL/RCB>chmod 000 testX
```

Command: Display access permissions for the testX file.

```
/home/sayush/IPL/RCB>ls -l testX
```

Response:

```
---------- 1 sayush sayush 72 Apr 22 01:15 testX
```

Command: Try to read this file using any utility

```
/home/sayush/IPL/RCB>cat testX
```

Response:

```
cat: testX: Permission denied
```

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Command: Try to write into this file using any utility.

/home/sayush/IPL/RCB>cat > testX

Response:

bash: testX: Permission denied

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

/home/sayush/IPL/RCB>chmod 600 testX

Command: Display access permissions for the testX file

/home/sayush/IPL/RCB>ls -l

Response:

total 0
-rw-r--r-- 1 sayush sayush 216 Apr 22 01:24 testResult
-rw------- 1 sayush sayush 72 Apr 22 01:15 testX
-rw-r--r-- 1 sayush sayush 72 Apr 22 01:17 testY
-rw-r--r-- 1 sayush sayush 72 Apr 22 01:18 testZ

Command: Try to read this file using any utility.

/home/sayush/IPL/RCB>cat testX

Response:

aaabb Aaaaa
AAAAA
bbbcc Bbbbb
BBBBB
ff-ff Ccccc CCCCC
cccdd Ddddd
DDDDD

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Command: Try to write into this file using any utility

/home/sayush/IPL/RCB>cat > testX

Response:

Permission given to write (Success).
^C

6.2 Task 15:

Command: Change to the **IPL** directory

/home/sayush/IPL/RCB>cd ..

Command: Display access permissions for **RCB**

/home/sayush/IPL>ls -d -l RCB

Response:

drwxr-xr-x 1 sayush sayush 4096 Apr 22 01:24 RCB

Command: Remove all access permissions for the **RCB** directory.

/home/sayush/IPL>chmod 000 RCB

Command: Display access permissions for **RCB**

/home/sayush/IPL>ls -d -l RCB

Response:

d--------- 1 sayush sayush 4096 Apr 22 01:24 RCB

Command: Try to read a file from **RCB** using any utility

/home/sayush/IPL>cat RCB/testX

Response:

cat: RCB/testX: Permission denied

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Command: Try to put a file into **RCB** using any utility

/home/sayush/IPL>touch RCB/fileRCB

Response:

touch: cannot touch 'RCB/fileRCB': Permission denied

Command: Try to search in **RCB** using any command (e.g., the ls command)

/home/sayush/IPL>ls RCB

Response:

ls: cannot open directory 'RCB': Permission denied

Command: Add read, write, and execute access permissions for yourself for the RCB directory.

/home/sayush/IPL>chmod 700 RCB

Command: Display access permissions for RCB directory

/home/sayush/IPL>ls -d -l RCB

Response:

drwx------ 1 sayush sayush 4096 Apr 22 01:24 RCB

Command: Try to read a file from **RCB** using any utility

/home/sayush/IPL>cat RCB/testX

Response:

Permission given to write (Success).

Command: Try to put a file into **RCB** using any utility.

/home/sayush/IPL>touch RCB/fileRCB

Command: Try to search in **RCB** using any command (e.g., the ls command).

/home/sayush/IPL>ls RCB

Response:

fileRCB testResult testX testY testZ

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7. Usage of the grep command:

7.1 Task 16:

Command: Change to the **"Rajsthan Royal"** directory.

/home/sayush/IPL>cd Rajsthan\ Royals

Command: grep bb testX

/home/sayush/IPL/Rajsthan Royals>grep bb testX

Response:

aaabb Aaaaa
bbbcc Bbbbb

Explanation:

The grep command looks for a certain pattern of characters in a file and displays all lines that match that pattern.

In this command (grep bb testX) the command looks for pattern with bb in testX file and displays all lines matching the pattern bb.

Command: grep -v bb testX

/home/sayush/IPL/Rajsthan Royals>grep -v bb testX

Response:

AAAAA
BBBBB
ff-ff Ccccc CCCCC
cccdd Ddddd
DDDDD

Explanation:

grep -v command displays all the lines that do not match the search pattern.

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Command: grep -n bb testX

/home/sayush/IPL/Rajsthan Royals>grep -n bb testX

Response:

1:aaabb Aaaaa
3:bbbcc Bbbbb

Explanation:

The line number of the results in the file is displayed using grep -n command.

Command: grep -l bb *

/home/sayush/IPL/Rajsthan Royals>grep -l bb *

Response:

testX
testY
testZ

Explanation:

The grep -l command displays the file name of the pattern or text that was searched.

Command: grep -i bb *

/home/sayush/IPL/Rajsthan Royals>grep -i bb *

Response:

testX:aaabb Aaaaa
testX:bbbcc Bbbbb
testX:BBBBB
testY:aaabb Aaaaa
testY:bbbcc Bbbbb
testY:BBBBB
testZ:aaabb Aaaaa
testZ:bbbcc Bbbbb
testZ:BBBBB

Explanation:

While matching the pattern, grep -i will regard upper and lower case as comparable.

Command: grep -i BB *

/home/sayush/IPL/Rajsthan Royals>grep -i BB *

Response:

testX:aaabb Aaaaa
testX:bbbcc Bbbbb
testX:BBBBB
testY:aaabb Aaaaa
testY:bbbcc Bbbbb
testY:BBBBB
testZ:aaabb Aaaaa
testZ:bbbcc Bbbbb
testZ:BBBBB

Explanation:

While matching the pattern, grep -i will regard upper and lower case as comparable.

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Command: grep -c bb *

/home/sayush/IPL/Rajsthan Royals>grep -c bb *

Response:

testX:2
testY:2
testZ:2

Explanation:

grep -c just shows the number of lines that match the pattern.

Command: grep '^A' *

/home/sayush/IPL/Rajsthan Royals>grep '^A' *

Response:

testX:AAAAA
testY:AAAAA
testZ:AAAAA

Explanation:

grep '^A' * command only displays the pattern with uppercase 'A'.

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Command: grep -n '^' testX

/home/sayush/IPL/Rajsthan Royals>grep -n '^' testX

Response:

1:aaabb Aaaaa
2:AAAAA
3:bbbcc Bbbbb
4:BBBBB
5:ff-ff Ccccc CCCCC
6:cccdd Ddddd
7:DDDDD

Explanation:

The line number of the results in the file with any expression in the start of a line is displayed.

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8. Aliasing:

8.1 Task 17:

Command: Define aliases for the **ls** command: **lsl** for the **ls -l** command

```
/home/sayush/IPL/Rajsthan Royals>alias lsl="ls -l"
```

Command: Define aliases for the **ls** command: **lsR** for **ls -R** command

```
/home/sayush/IPL/Rajsthan Royals>alias lsR="ls -R"
```

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

```
/home/sayush/IPL/Rajsthan Royals>alias
```

Response:

```
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'
alias lsR='ls -R'
alias lsl='ls -l'
```

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Command: Use them in your home directory

```
/home/sayush/IPL/Rajsthan Royals>cd
/home/sayush>lsl
```

Response:

```
total 44
-rwxr-xr-x 1 sayush sayush  2815 Apr 22 00:01 20049034cw2ii
-rw-r--r-- 1 sayush sayush 40960 Apr 22 01:57 20049034cw2p1
-rw-r--r-- 1 sayush sayush    21 Apr 21 22:48 AY
drwxr-xr-x 1 sayush sayush  4096 Apr 22 00:29 IPL
-rw-r--r-- 1 sayush sayush    21 Apr 21 22:49 JL
-rw-r--r-- 1 sayush sayush    21 Apr 21 23:05 KC
drwxr-xr-x 1 sayush sayush  4096 Dec 17 11:12 Laptop
-rw-r--r-- 1 sayush sayush    17 Apr 21 22:43 NIR
drwxr-xr-x 1 sayush sayush  4096 Dec 20 14:19 W9
-rw-r--r-- 1 sayush sayush   169 Mar  6 12:24 add.sh
-rw-r--r-- 1 sayush sayush   147 Mar  6 12:36 add1.sh
-rw-r--r-- 1 sayush sayush   166 Mar  6 13:22 add1.sh.save
-rw-r--r-- 1 sayush sayush   163 Mar  6 12:18 bash
drwxr-xr-x 1 sayush sayush  4096 Dec 13 14:26 bikes
-rw-r--r-- 1 sayush sayush    71 Mar  3 13:18 bin.sh
drwxr-xr-x 1 sayush sayush  4096 Dec 13 14:41 cars
-rw-r--r-- 1 sayush sayush     0 Apr 21 13:19 cw2p2.sh
-rw-r--r-- 1 sayush sayush   136 Mar  6 13:02 equalornot.sh
-rw-r--r-- 1 sayush sayush    82 Mar  6 13:15 equalornotcla.sh
-rw-r--r-- 1 sayush sayush   252 Mar 20 12:28 function.sh
-rw-r--r-- 1 sayush sayush   168 Mar  6 13:09 greaternumber.sh
-rw-r--r-- 1 sayush sayush    90 Mar  6 13:20 greaternumbercla.sh
-rw-r--r-- 1 sayush sayush   105 Mar  3 13:28 ifelse.sh
-rw-r--r-- 1 sayush sayush   288 Mar  3 13:50 ifthenelse.sh
-rw-r--r-- 1 sayush sayush    13 Mar  6 12:49 swap.sh
-rw-r--r-- 1 sayush sayush    75 Mar  6 12:43 touch.sh
drwxr-xr-x 1 sayush sayush  4096 Mar 27 13:30 w20
-rw-r--r-- 1 sayush sayush    81 Mar 13 12:40 week18.sh
-rw-r--r-- 1 sayush sayush   131 Mar 13 13:00 week18b.sh
-rw-r--r-- 1 sayush sayush    79 Mar 13 12:37 week18b.sh.save
-rw-r--r-- 1 sayush sayush    68 Mar 13 12:48 week18c.sh
-rw-r--r-- 1 sayush sayush    50 Mar 13 12:50 week18d.sh
-rw-r--r-- 1 sayush sayush    52 Mar 13 12:54 week18e.sh
-rw-r--r-- 1 sayush sayush    59 Mar 13 13:21 week18f.sh
-rw-r--r-- 1 sayush sayush    77 Mar 13 13:20 week18g.sh
drwxr-xr-x 1 sayush sayush  4096 Dec 24 11:11 week9
-rw-r--r-- 1 sayush sayush   159 Mar  6 13:11 zero.sh
-rw-r--r-- 1 sayush sayush   122 Mar  6 13:22 zerocla.sh
```

Sayush Khadka

Command:

/home/sayush>lsR

Response:

.:
20049034cw2ii NIR   bin.sh   greaternumbercla.sh week18b.sh   week9
20049034cw2p1 W9   cars   ifelse.sh   week18b.sh.save zero.sh
AY   add.sh   cw2p2.sh   ifthenelse.sh   week18c.sh   zerocla.sh
IPL   add1.sh   equalornot.sh   swap.sh   week18d.sh
JL   add1.sh.save equalornotcla.sh touch.sh   week18e.sh
KC   bash   function.sh   w20   week18f.sh
Laptop   bikes   greaternumber.sh week18.sh   week18g.sh

./IPL:
 KKR 'Mumbai Indians' Punjab RCB 'Rajsthan Royals'

./IPL/KKR:

'./IPL/Mumbai Indians':

./IPL/Punjab:

./IPL/RCB:
fileRCB testResult testX testY testZ

'./IPL/Rajsthan Royals':
testX testY testZ

./Laptop:
Dell HP

./Laptop/Dell:
File2

./Laptop/HP:

./W9:
File W9-1 W9-2

./W9/W9-1:
1Level3 2level3

./W9/W9-1/1Level3:
File

Sayush Khadka

```
./W9/W9-1/2level3:
NewFile

./W9/W9-2:
3level3  4level3

./W9/W9-2/3level3:

./W9/W9-2/4level3:

./bikes:
ducati  honda  yamaha

./bikes/ducati:
panigale

./bikes/honda:
cbr

./bikes/yamaha:
R1

./cars:
bugatti  lamborghini

./cars/bugatti:
chiron  divo

./cars/lamborghini:
aventador  urus

./w20:
file1  file2  file3  week20.sh  week20b.sh

./week9:
names.txt
```

8.2 Task 18:

Command: Remove these aliases

```
/home/sayush>unalias lsl
/home/sayush>unalias lsR
```

Command: Show that your system does not store these aliases.

```
/home/sayush>alias
```

Response:

```
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'
```

Sayush Khadka

8.3 Task 19:

Command: 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.

```
/home/sayush>nano .bashrc


Use "fg" to return to nano.

[1]+  Stopped                 nano .bashrc
/home/sayush>nano .bashrc


Use "fg" to return to nano.

[2]+  Stopped                 nano .bashrc
/home/sayush>exit
exit
There are stopped jobs.
/home/sayush>exit
exit
```

Command: Show that the system keeps these aliases

```
Script done on 2022-04-22 02:16:13+05:45 [COMMAND_EXIT_CODE="1"]
Script started on 2022-04-22 02:17:33+05:45 [TERM="xterm-256color" TTY="/dev/tty1"
COLUMNS="104" LINES="49"]
sayush@sayush:~$ PS1='$PWD>'
/home/sayush>alias
```

Response:

```
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'
alias lsR='ls -R'
alias lsl='ls -l'
```

Sayush Khadka

Command: Show that the system keeps these aliases

```
/home/sayush>lsl
```

Response:

```
total 132
-rwxr-xr-x 1 sayush sayush  2815 Apr 22 00:01 20049034cw2ii
-rw-r--r-- 1 sayush sayush 84663 Apr 22 02:16 20049034cw2p1
-rw-r--r-- 1 sayush sayush    21 Apr 21 22:48 AY
drwxr-xr-x 1 sayush sayush  4096 Apr 22 00:29 IPL
-rw-r--r-- 1 sayush sayush    21 Apr 21 22:49 JL
-rw-r--r-- 1 sayush sayush    21 Apr 21 23:05 KC
drwxr-xr-x 1 sayush sayush  4096 Dec 17 11:12 Laptop
-rw-r--r-- 1 sayush sayush    17 Apr 21 22:43 NIR
drwxr-xr-x 1 sayush sayush  4096 Dec 20 14:19 W9
-rw-r--r-- 1 sayush sayush   169 Mar  6 12:24 add.sh
-rw-r--r-- 1 sayush sayush   147 Mar  6 12:36 add1.sh
-rw-r--r-- 1 sayush sayush   166 Mar  6 13:22 add1.sh.save
-rw-r--r-- 1 sayush sayush   163 Mar  6 12:18 bash
drwxr-xr-x 1 sayush sayush  4096 Dec 13 14:26 bikes
-rw-r--r-- 1 sayush sayush    71 Mar  3 13:18 bin.sh
drwxr-xr-x 1 sayush sayush  4096 Dec 13 14:41 cars
-rw-r--r-- 1 sayush sayush     0 Apr 21 13:19 cw2p2.sh
-rw-r--r-- 1 sayush sayush   136 Mar  6 13:02 equalornot.sh
-rw-r--r-- 1 sayush sayush    82 Mar  6 13:15 equalornotcla.sh
-rw-r--r-- 1 sayush sayush   252 Mar 20 12:28 function.sh
-rw-r--r-- 1 sayush sayush   168 Mar  6 13:09 greaternumber.sh
-rw-r--r-- 1 sayush sayush    90 Mar  6 13:20 greaternumbercla.sh
-rw-r--r-- 1 sayush sayush   105 Mar  3 13:28 ifelse.sh
-rw-r--r-- 1 sayush sayush   288 Mar  3 13:50 ifthenelse.sh
-rw-r--r-- 1 sayush sayush    13 Mar  6 12:49 swap.sh
-rw-r--r-- 1 sayush sayush    75 Mar  6 12:43 touch.sh
drwxr-xr-x 1 sayush sayush  4096 Mar 27 13:30 w20
-rw-r--r-- 1 sayush sayush    81 Mar 13 12:40 week18.sh
-rw-r--r-- 1 sayush sayush   131 Mar 13 13:00 week18b.sh
-rw-r--r-- 1 sayush sayush    79 Mar 13 12:37 week18b.sh.save
-rw-r--r-- 1 sayush sayush    68 Mar 13 12:48 week18c.sh
-rw-r--r-- 1 sayush sayush    50 Mar 13 12:50 week18d.sh
-rw-r--r-- 1 sayush sayush    52 Mar 13 12:54 week18e.sh
-rw-r--r-- 1 sayush sayush    59 Mar 13 13:21 week18f.sh
-rw-r--r-- 1 sayush sayush    77 Mar 13 13:20 week18g.sh
drwxr-xr-x 1 sayush sayush  4096 Dec 24 11:11 week9
-rw-r--r-- 1 sayush sayush   159 Mar  6 13:11 zero.sh
-rw-r--r-- 1 sayush sayush   122 Mar  6 13:22 zerocla.sh
```

Sayush Khadka

Command: Show that the system keeps these aliases

/home/sayush>lsR

Response:

.:
20049034cw2ii NIR   bin.sh   greaternumbercla.sh week18b.sh   week9
20049034cw2p1 W9   cars   ifelse.sh   week18b.sh.save zero.sh
AY   add.sh   cw2p2.sh   ifthenelse.sh   week18c.sh   zerocla.sh
IPL   add1.sh   equalornot.sh   swap.sh   week18d.sh
JL   add1.sh.save equalornotcla.sh touch.sh   week18e.sh
KC   bash   function.sh   w20   week18f.sh
Laptop   bikes   greaternumber.sh week18.sh   week18g.sh

./IPL:
 KKR 'Mumbai Indians' Punjab RCB 'Rajsthan Royals'

./IPL/KKR:

'./IPL/Mumbai Indians':

./IPL/Punjab:

./IPL/RCB:
fileRCB testResult testX testY testZ

'./IPL/Rajsthan Royals':
testX testY testZ

./Laptop:
Dell HP

./Laptop/Dell:
File2

./Laptop/HP:

./W9:
File W9-1 W9-2

./W9/W9-1:
1Level3 2level3

./W9/W9-1/1Level3:
File

Sayush Khadka

```
./W9/W9-1/2level3:
NewFile

./W9/W9-2:
3level3  4level3

./W9/W9-2/3level3:

./W9/W9-2/4level3:

./bikes:
ducati  honda  yamaha

./bikes/ducati:
panigale

./bikes/honda:
cbr

./bikes/yamaha:
R1

./cars:
bugatti  lamborghini

./cars/bugatti:
chiron  divo

./cars/lamborghini:
aventador  urus

./w20:
file1  file2  file3  week20.sh  week20b.sh

./week9:
names.txt
```

Sayush Khadka

8.4 Task 20:

Command: Define the **noAllf** alias

/home/sayush>alias noAllf='ls -a | wc -l'

8.5 Task 21:

Command: Define the **noAsubsir** alias

/home/sayush>alias noAsubsir='ls -aR | wc -l'

8.6 Task 22:

Command: Define the **noAcs** alias

/home/sayush>alias noAcs='ls -aR | grep '^[gtw]' | wc -l'

Command: Display all aliases

/home/sayush>alias

Response:

```
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'
alias lsR='ls -R'
alias lsl='ls -l'
alias noAcs='ls -aR | grep ^[gtw] | wc -l'
alias noAllf='ls -a | wc -l'
alias noAsubsir='ls -aR | wc -l'
```

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9. Usage of your own commands:

9.1 Task 23:

Command: noAllf

/home/sayush>noAllf

Response:

50

9.2 Task 24:

Command: noAsubsir

/home/sayush>noAsubsir

Response:

213

9.3 Task 25:

Command: noAcs

/home/sayush>noAcs

Response:

22

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10.   Command History:

10.1   Task 26:

Command: List your last commands executed giving the any history command.

/home/sayush>history 9

Response:

1047 alias noAsubsir='ls -aR | wc -l'
 1048 alias noAcs='ls -aR | grep '^[gtw]' '
 1049 unalias noAcs
 1050 alias noAcs='ls -aR | grep '^[gtw]' | wc -l'
 1051 alias
 1052 noAllf
 1053 noAsubsir
 1054 noAcs
 1055 history 9

10.2   Task 27:

Command: Re execute the command given six commands ago.

/home/sayush>!-6

Response:

alias noAcs='ls -aR | grep '^[gtw]' | wc -l'

10.3   Task 28:

Command: Re execute the last command which name begins with 'i'

/home/sayush>fc -e- i

Response:

bash: fc: no command found

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Script done:

/home/sayush>exit
exit

Script done on 2022-04-22 02:26:33+05:45 [COMMAND_EXIT_CODE="1"]

D. Conclusion:

Linux is one of the families of open-source UNIX-like operating systems which allows anyone to inspect, modify, and escalate. The coursework was based on writing Linux commands. Doing the given task was moreover a terminal or command-line based rather than a graphical user interface whether to make a directory or a file. It was a different experience and informative learning environment to a new operating system.

Writing commands on Ubuntu which is based on the Linux system and is one of the projects or distributions was also made familiar to us with the help and guidelines given with the task. The task spread knowledge over us on some basic file-based operations at the UNIX shell or writing commands on Ubuntu in my case. Different file-based operations like creating a script file, exiting the script file, and continuing the script again were performed which was a knowledgeable task to do. And viewing different permissions of the file and modifying the permissions of the files was informative too. Overall, the coursework was successful with the help of the guidelines and the guidance of the teachers.

Sayush Khadka

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