LONDON METROPOLITAN UNIVERSITY

Module Code & Module Title

CS5001NA Network and Operating System

Assessment Weightage & Type

10% Individual Coursework

Year and Semester

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Submitted To: Pratik Karki

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 marks of zero will be awarded.

Table of Contents

Introduction

Unix is an operating system that is truly the basis of all operating systems such as Ubuntu, Solaris, POSIX, etc. It was developed by Ken Thompson, Dennis Ritchie and others in the AT&T Laboratories in the 1970s. It was originally intended for software developers rather than non-programmers. Unix is the most powerful and popular multi-user and multi-tasking operating system in the world. The basic concepts of Unix originated in the Multics project of 1969. The Multics system was designed as a time-sharing system that would allow multiple users to simultaneously access the mainframe computer (Swati, 2019).

The coursework is about the basic UNIX command. All the commands are performed in linux terminal. The tasks in the coursework are all about creating and reading files in directories and switching through different directories, handling access permissions for files and directories.

Aims and Objectives

- Introduce UNIX command and their internal working details.
- Perform some simple file-based operations at the UNIX shell.
- Enhanced personal skills and knowledge about Ubuntu Linux operating system.
- Using various command for creating and reading files and folder in UNIX kernel.

Assignment Tasks

1. Creating New Directories

1.1 Task 1:

Command: mkdir Cricket

Command:

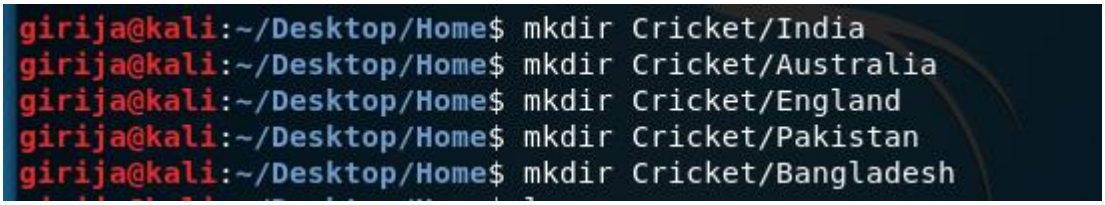
mkdir Cricket/India

mkdir Cricket/Australia

mkdir Cricket/England

mkdir Cricket/Pakistan

mkdir Cricket/Bangladesh



The mkdir command is used to create new directories. A directory which is referred to as a folder in some operating systems, appears to the user as a repository for other folders and data. Here mkdir is used for creating directories like Cricket, India England etc. In this assignment sub directories like India, Australia, England, Pakistan and Bangladesh are created inside the parent directory Cricket using a relative path.

2. Removing Existing Files and Directories

2.1 Task 2:

Command: cd Cricket/India

Command: pwd

Command: touch file1 file2 file3

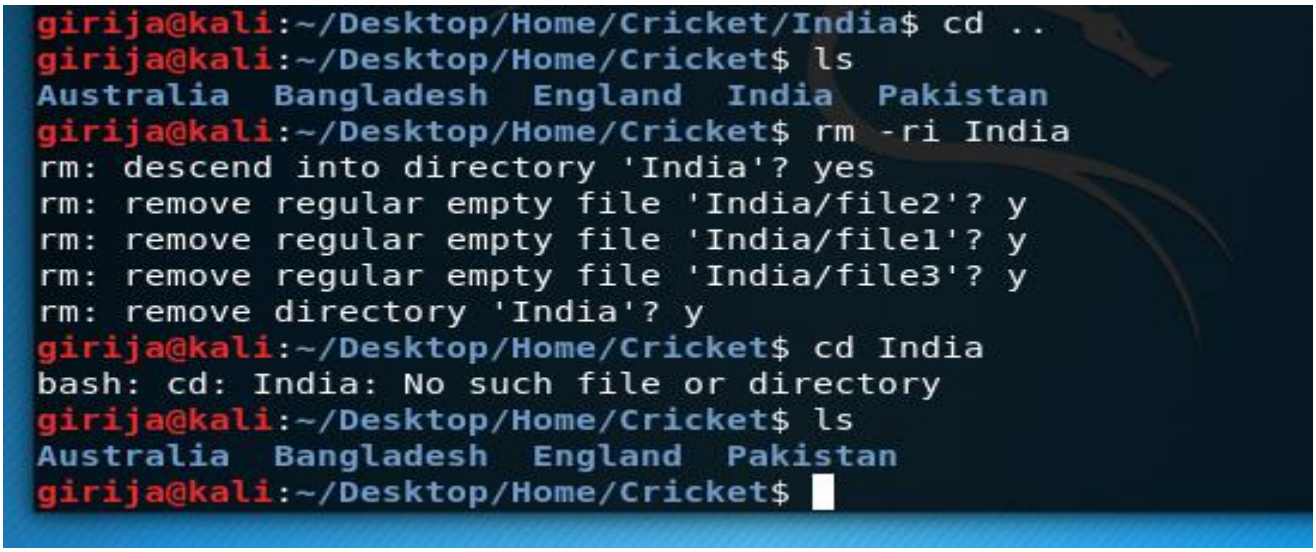
The cd command is used to change current working directory. The pwd command is a command line utility to display the current working directory. It prints the complete device path of the current working directory to the standard output. The touch command is a basic command used in the UNIX / Linux operating system that is used to create, alter and adjust timestamps of a file. In this assignment touch command is used to make a different file inside the India directory.

2.2 Task 3:

Command: cd ..

Command: rm -ri India

Command: ls



The rm command removes (deletes) files. Here rm is executed with the -ri options (rm -ri), it recursively deletes any matching directories, their subdirectories, and all files they contain with the response of user. The ls command is used for listing the contents of a directory or directories given to it via standard input.

3. Usage of the echo command

3.1 Task 4:

Command: echo -e “Hello! I am proud to be part of Nepali. \n14 < (2+2)”

Command: Pwd

Command: cd Bangladesh

The echo command in linux is used to display line of text/string that are passed as an argument.

3.2 Task 5:

Command: pwd; cd; pwd

This command group first presents the path of current working place then changes to home directory and again presents working path.

3.3 Task 6:

Command: cd Desktop/Home/Cricket/Bangladesh

```
girija@kali:~$ cd Desktop/Home/Cricket/Bangladesh
girija@kali:~/Desktop/Home/Cricket/Bangladesh$ pwd; cd ..; pwd; cd ..; pwd
/home/girija/Desktop/Home/Cricket/Bangladesh
/home/girija/Desktop/Home/Cricket
/home/girija/Desktop/Home
girija@kali:~/Desktop/Home$
```

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

This command group first presents the path of the current working directory, then changes it to its parent directory, then presents the working path, then returns it to its parent directory, then presents the current working path again.

4. Usage of the ls command

4.1 Task 7:

Command: cd; pwd

```
girija@kali:~/Desktop/Home$ cd; pwd
/home/girija
```

This command group first changes to the home directory, wherever the user is, and then introduces the current working directory.

Command: ls

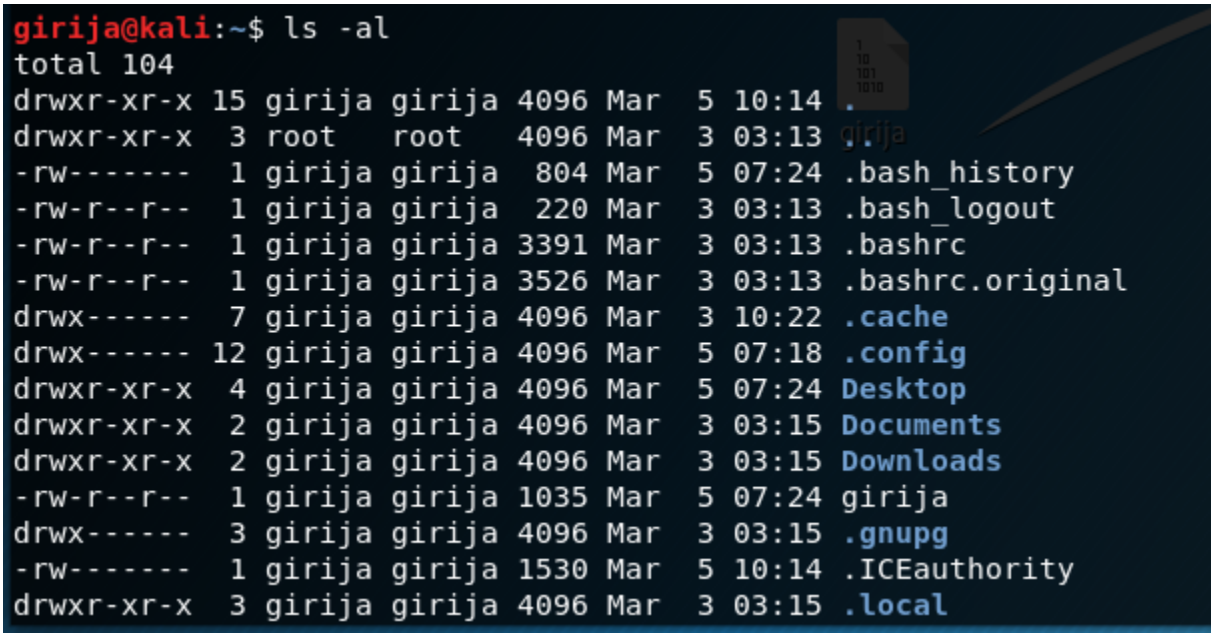
```
girija@kali:~$ ls
Desktop  Documents  Downloads  girija  Music  Pictures  Public  Templates  Videos
```

This command displays all the files and directories present in the current working directory.

Command: ls -a

This command displays all the files and directories present in the current working directory including hidden files and directories.

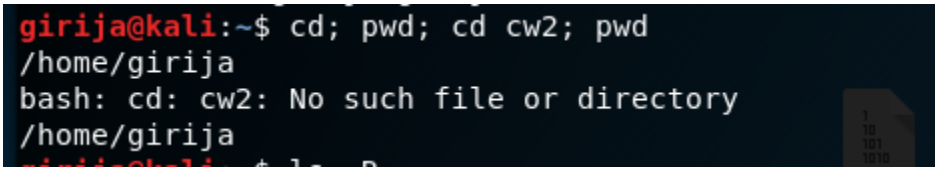
Command: ls -al



This command displays all the files and directories with their access permissions information present in the current working directory including the access permissions of hidden files and directories.

4.2 Task 8:

Command: cd; pwd; cd cw2; pwd



This command group first changes the directory to the home directory, shows the path of the current working directory, and changes the directory to the cw2 directory that is not present, and this command section presents an error with "no such file or directory." At last, this command group also displays the path of the current working directory that is the home directory.

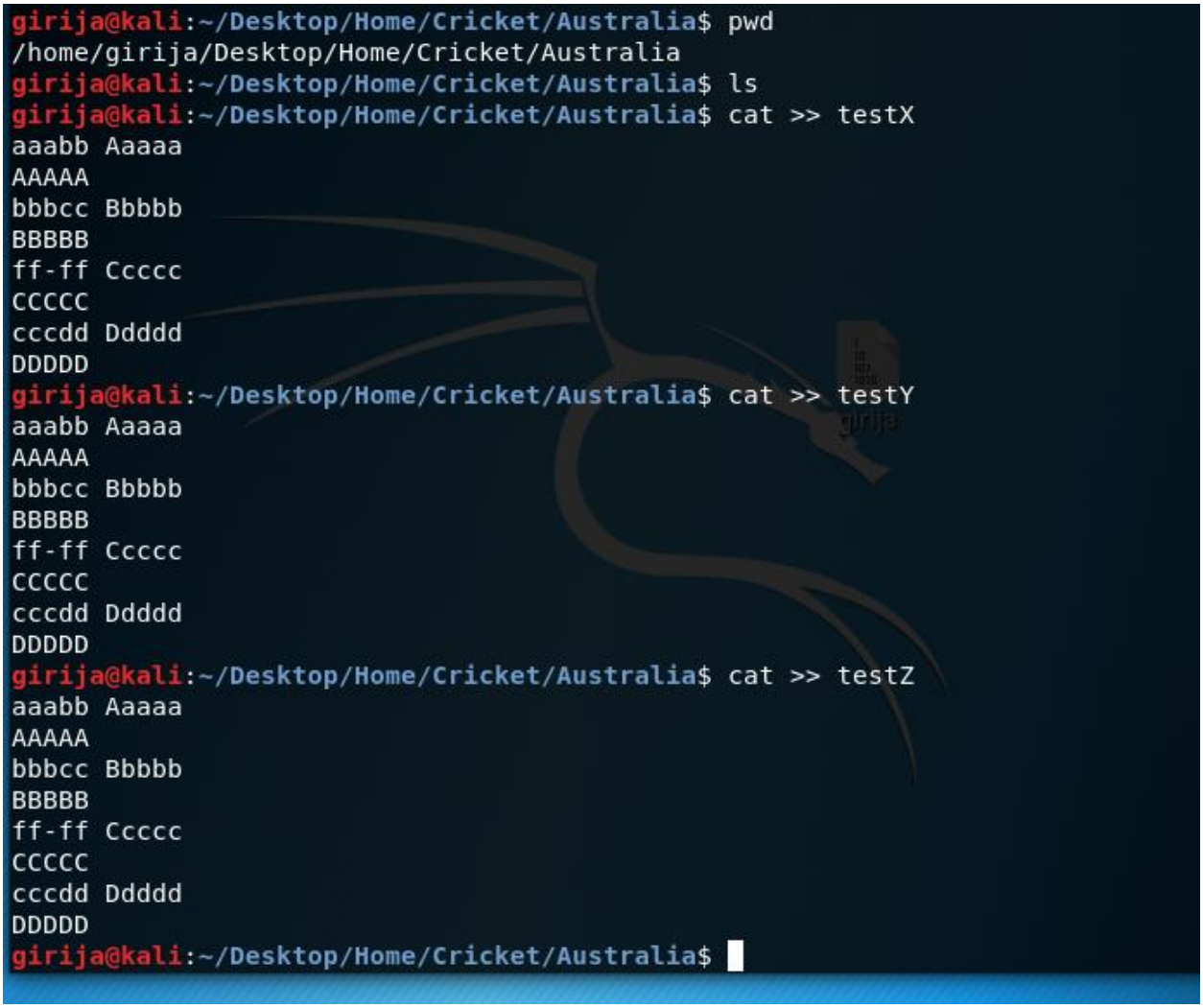
Command: ls -R

This command displays all the files and directories present in the current working directory.

5. Usage of the cat command

5.1 Task 9:

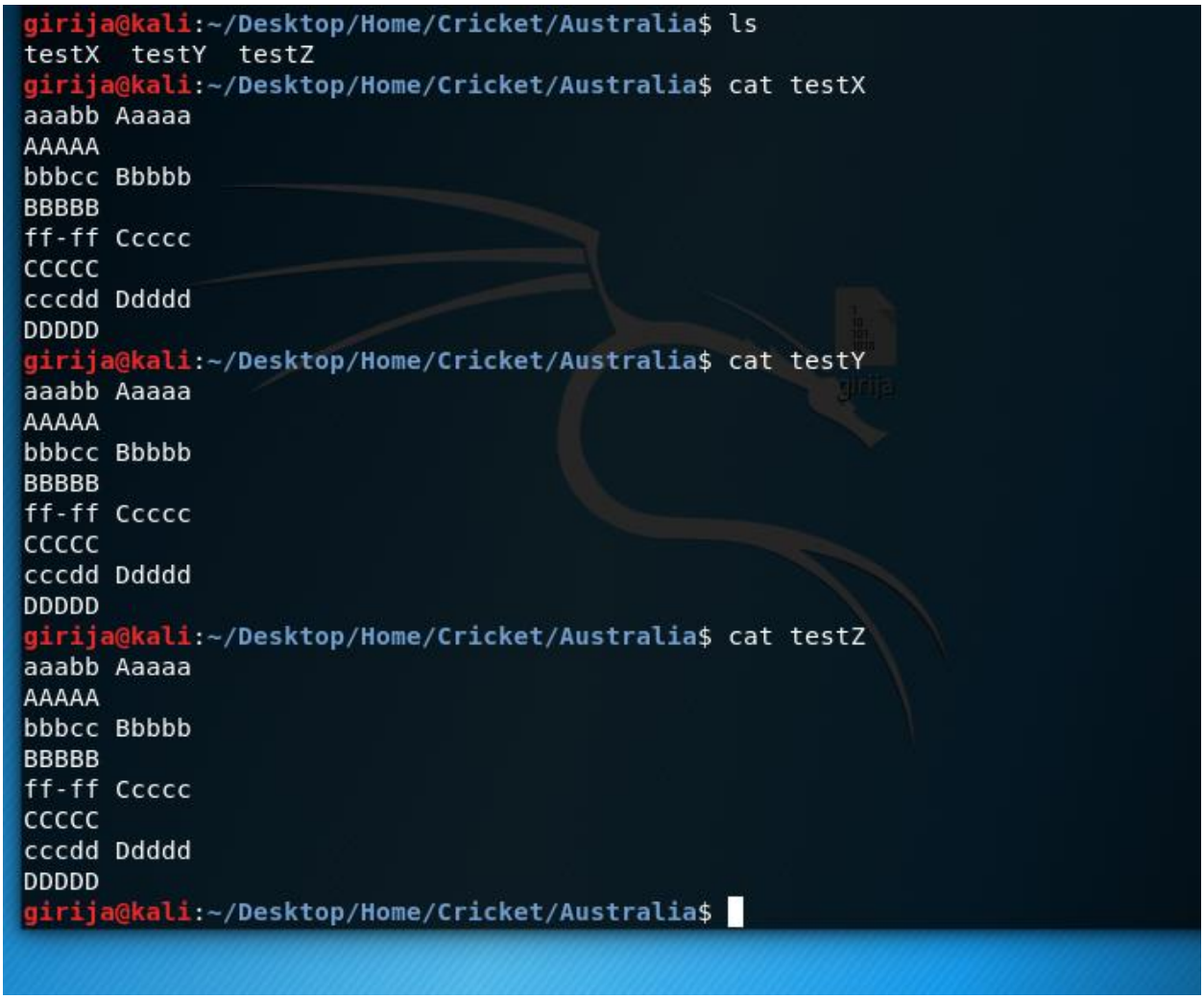
Command: cat >>testX ,cat >>Y and cat >>testZ



The cat command is one of the most frequently used command in Linux/Unix like operating systems. cat command allows us to create single or multiple files, view contain of file, concatenate files and redirect output in terminal or files .Here cat command is used for creating file.

5.2 Task 10:

Command: cat testX, cat testY and cat testZ



The cat command is one of the most frequently used command in Linux/Unix like operating systems. Here cat command is used for viewing contain of file.

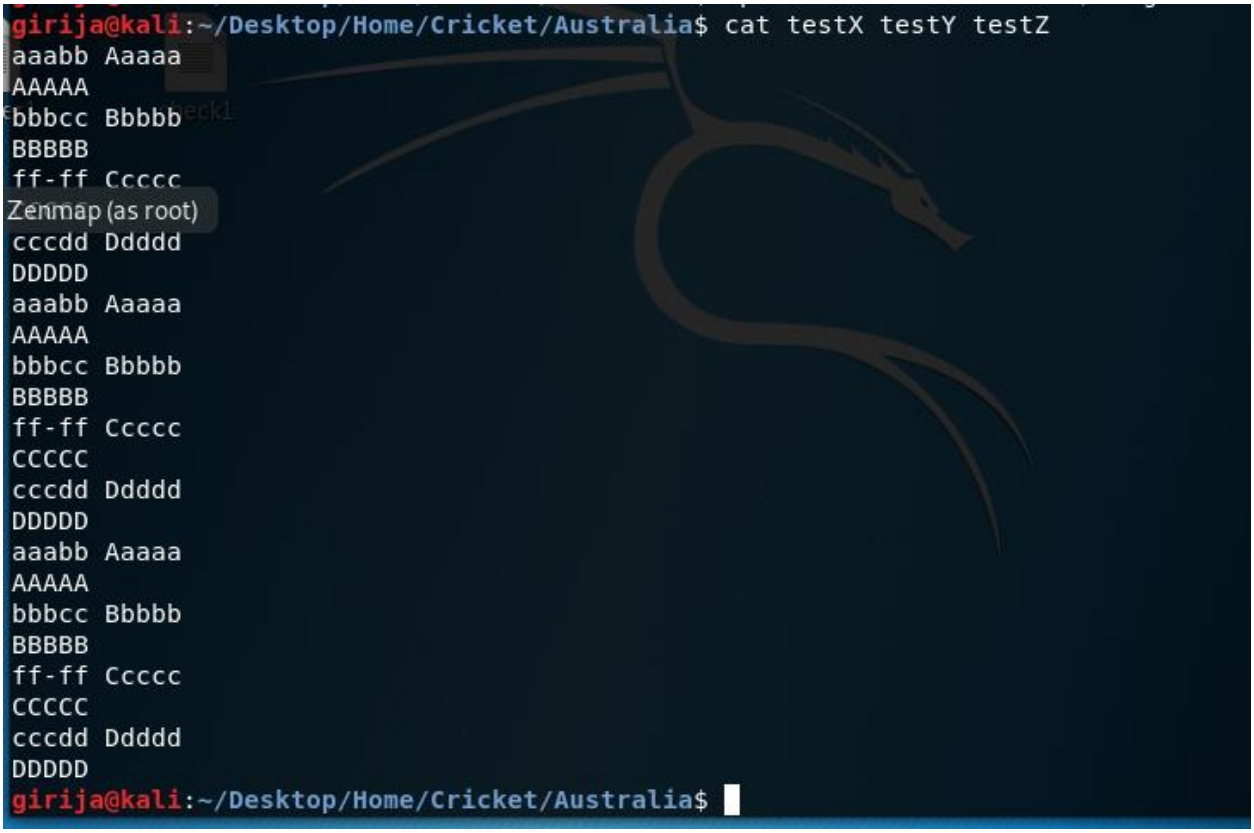
5.3 Task 11:

Command: cp testX testY testZ ../Bangladesh

The cp command is a command-line utility for copying files and directories. Here cp is used for coping files(testX, testY and testZ) in Bangladesh directory.

5.4 Task 12:

Command: cat testX testY testZ

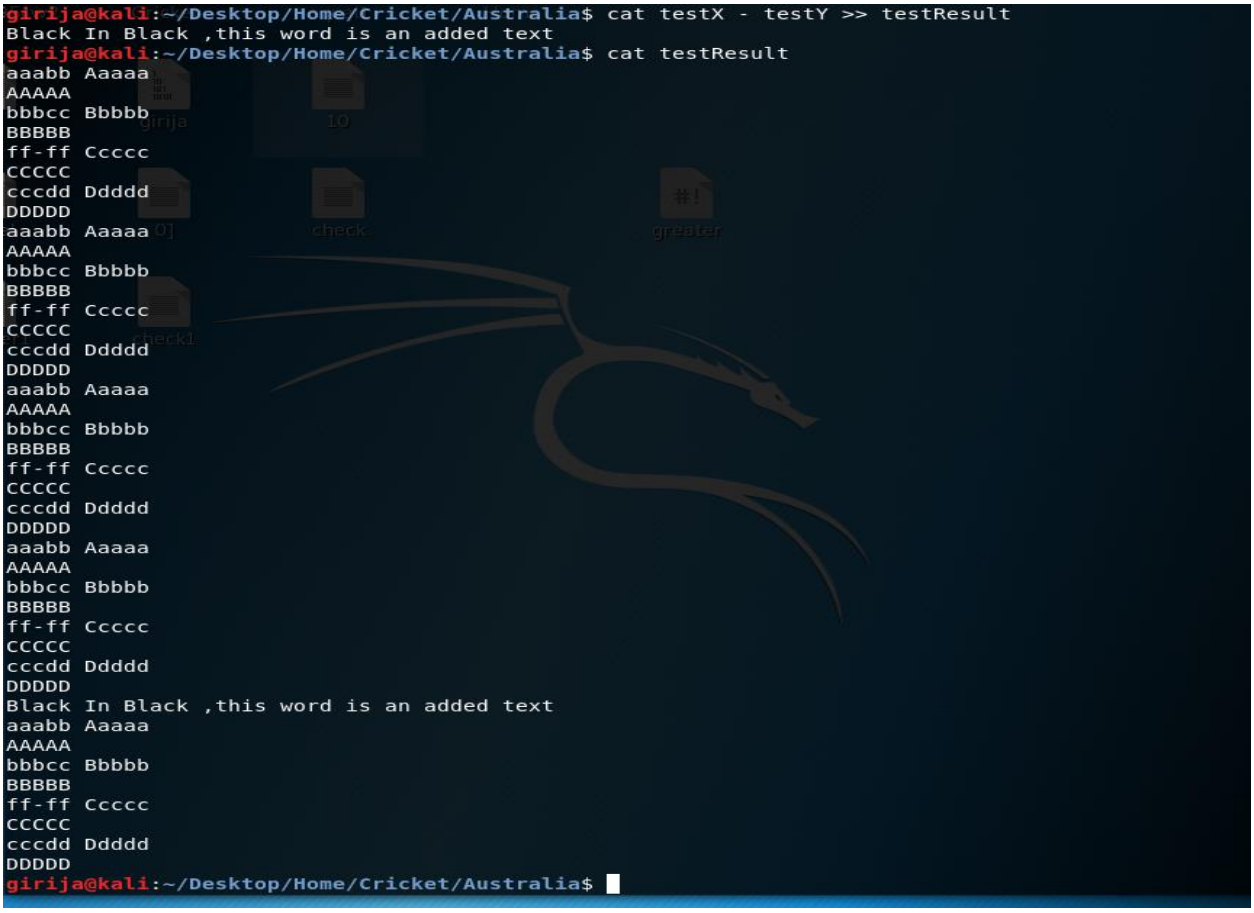


The contents of testX testY testZ files will be concatenated by reading the files in the sequence specified in their arguments and shows the output in the same sequence.

Command: cat testX testY testZ >testResult

This command concatenates the contents of three files testX testY testZ and write them to another new file testResult.

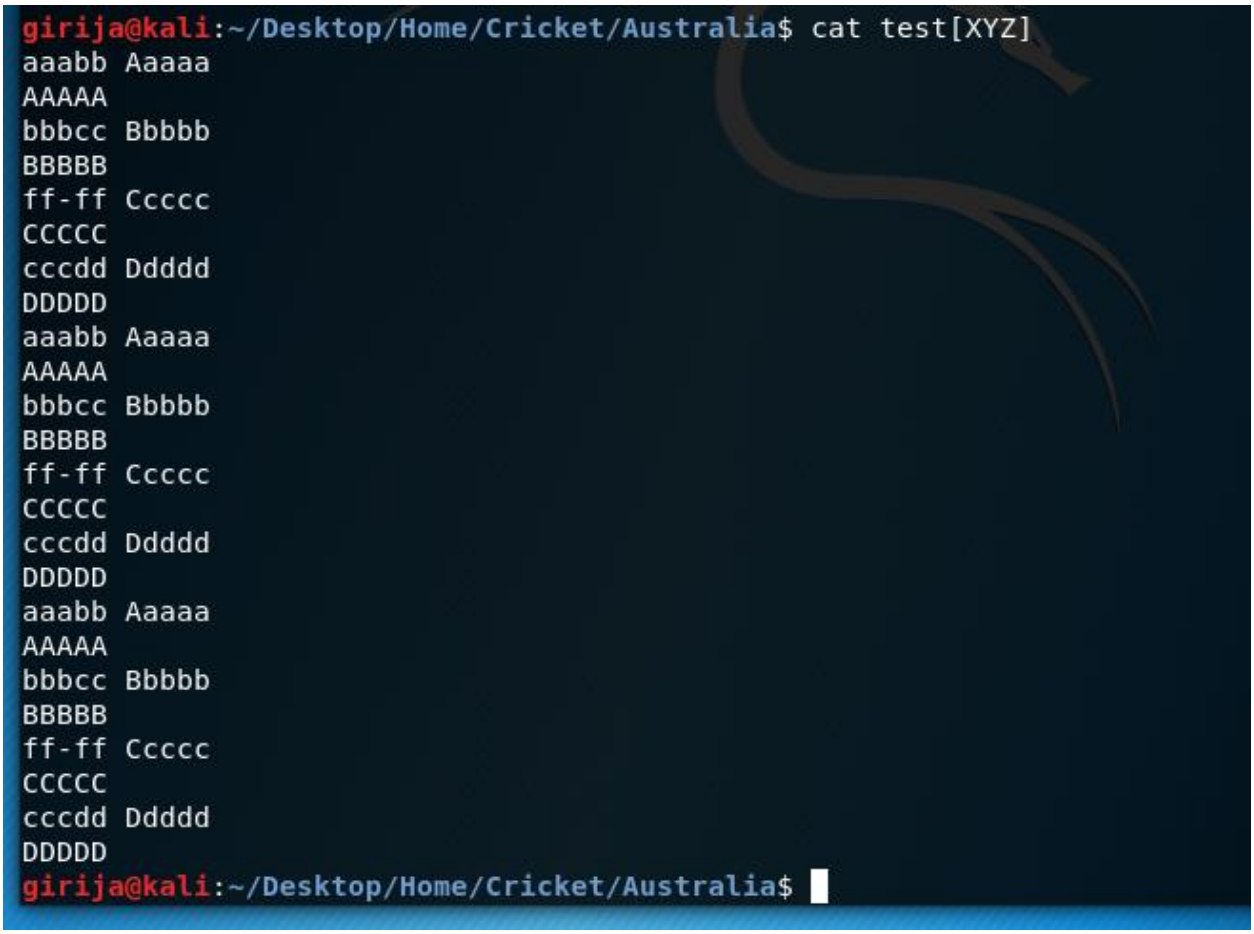
Command: cat testX - testY >>testResult



The above command is used to append the content of testX and testY. into a testResult file. Thereby, testResult will display all the contents it has stored before and after adding an extra some line of sentences.

5.5 Task 13:

Command: cat test[XYZ]



This command merges all the texts present inside the files testX, testY and testZ and displays the final output collectively.

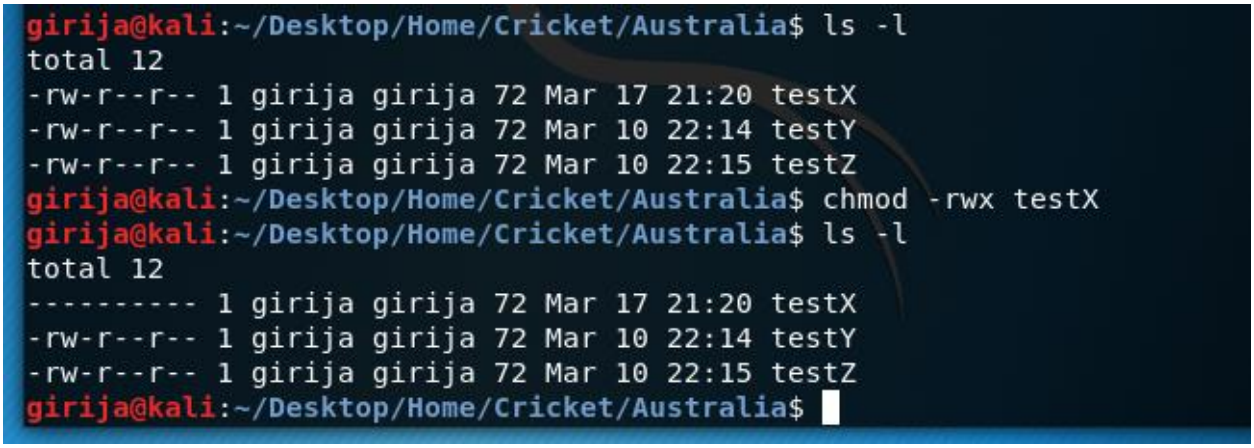
6. Usage of the chmod command

6.1 Task 14:

Command: ls -l

(Displaying access permissions for files in Australia)

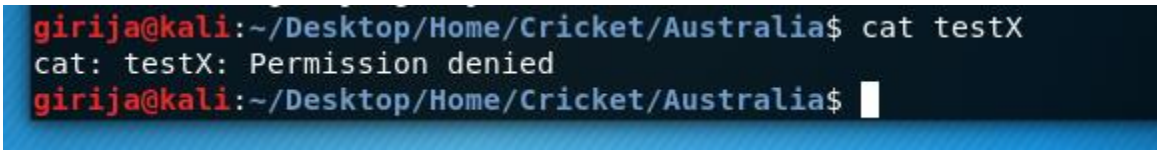
Command: chmod -rwx textX (Remove all access permissions for the testX file)



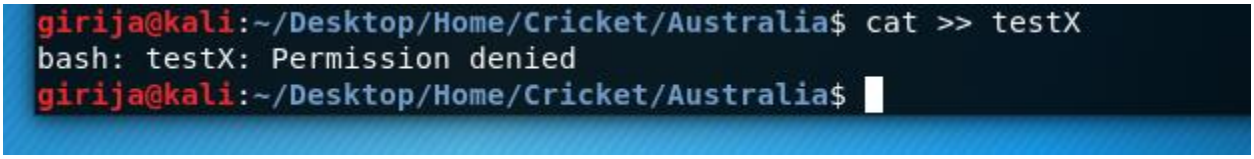
Command: ls -l

(Display access permissions for the testX file)

Command: cat testX



Command: cat >> testX



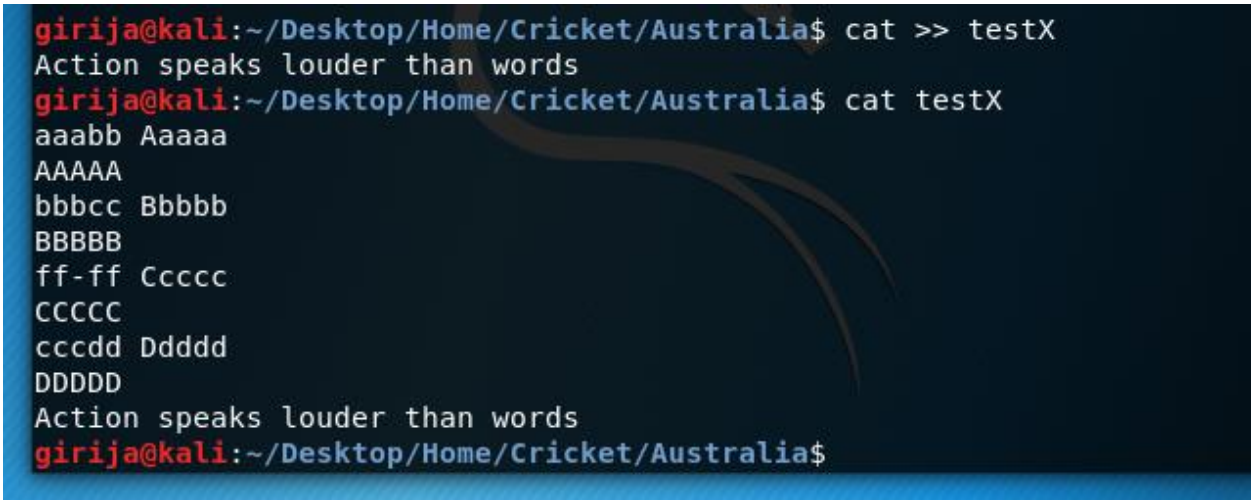
Command: chmod u+rw testX

(Adding read and write access permissions for yourself for the testX file.)

Command: ls -l testX

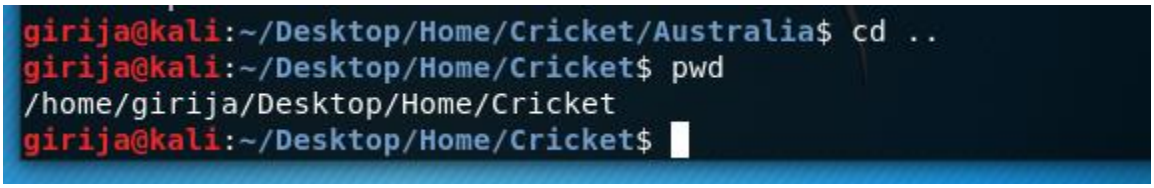
Command: cat testX

Command: cat >> testX

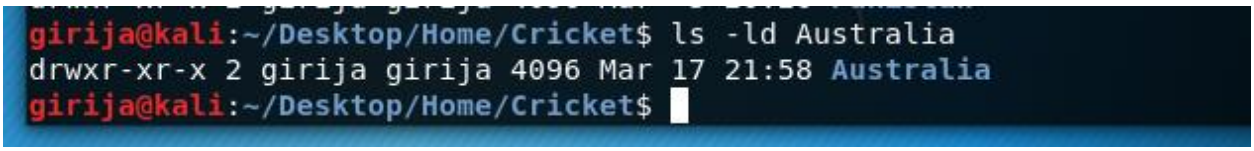


6.2 Task 15:

Command: cd .. (Changing to the Cricket directory)



Command: ls -ld Australia (Displaying access permissions for Australia)



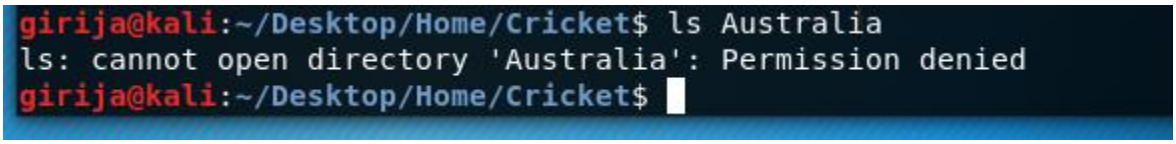
Command: chmod -rwx Australia (Removing access permissions for Australia)

Command: ls -ld Australia (Displaying access permissions for Australia)

Command: cat Australia/testX

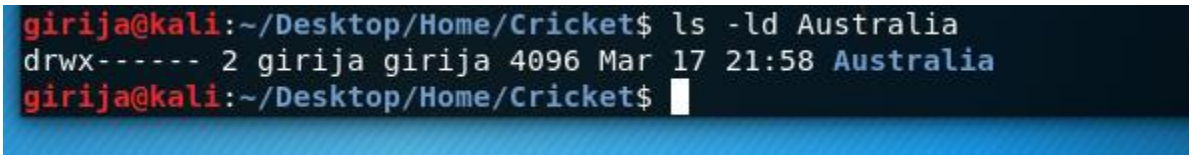
Command: touch Australia/file

Command: ls Australia

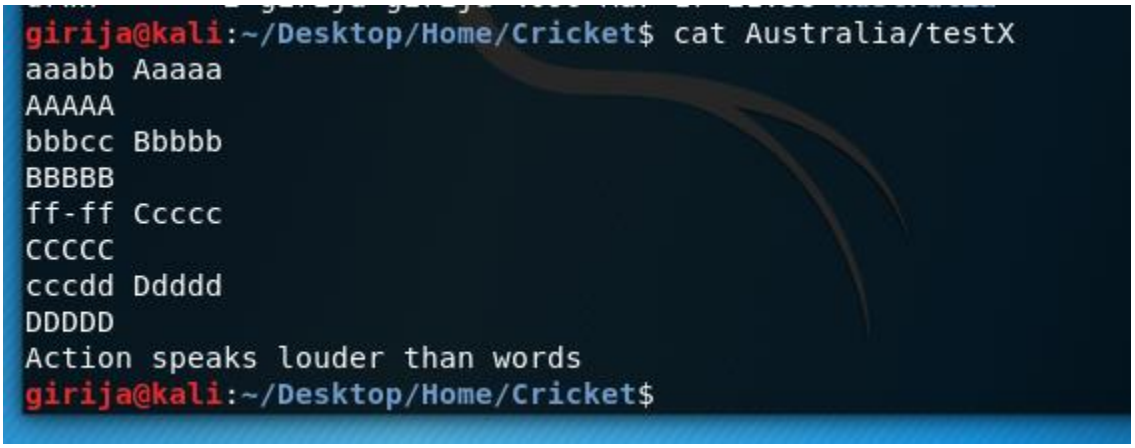


Command: chmod u+rwx Australia (Adding read, write, and execute access permissions for yourself for the Australia directory.)

Command: ls -ld Australia

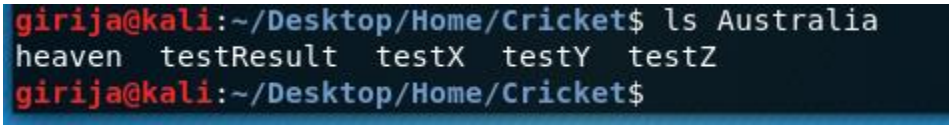


Command: cat Australia/testX



Command: touch Australia

Command: ls Australia

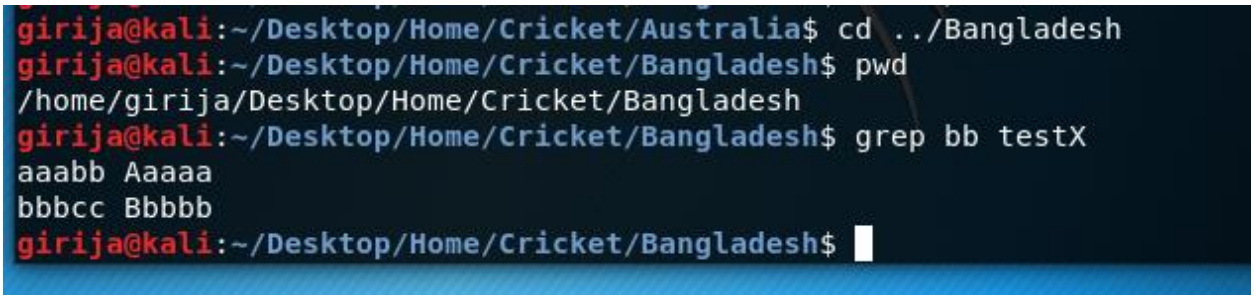


7. Usage of the grep command

7.1 Task 16:

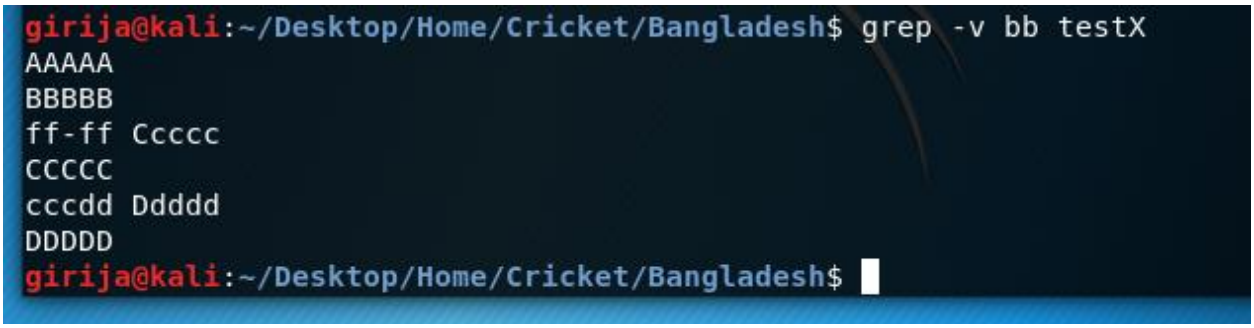
Command: grep bb testX

This command searches all the words with bb characters in testX and displays them.



Command: grep -v bb testX

This command searches all the words without bb characters in testX and displays them.



Command: grep -n bb testX

This command searches all the words with bb characters in testX and displays them along with the line numbers where they are present.

Command: grep -l bb*

This command displays the file names of the current directory where the bb characters are present.

Command: grep -i bb*

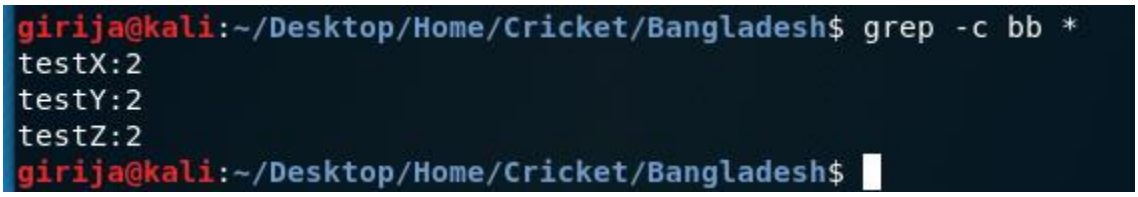
This command displays the whole line having bb characters either in uppercase or lowercase along with the file names where the words are present.

Command: grep -i BB *

This command displays the whole line having BB characters either in uppercase or lowercase along with the file names where the words are present.

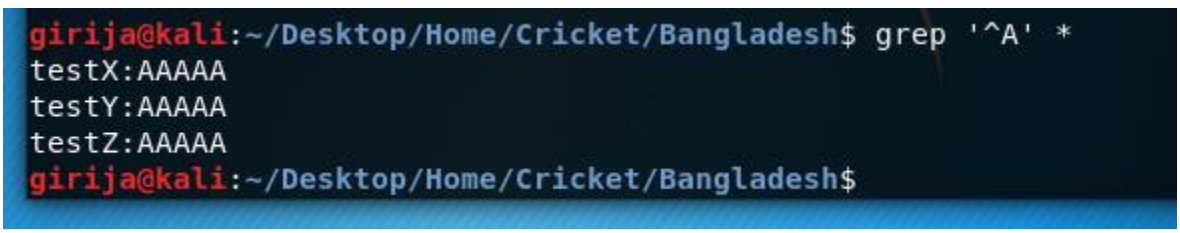
Command: grep -c bb *

This command displays the count of total lines of words having bb characters in each files.



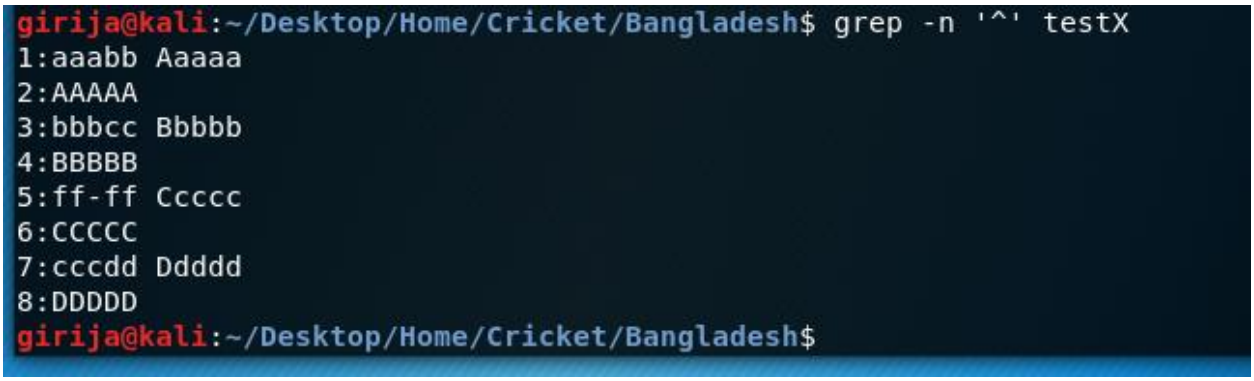
Command: grep '^A' *

This command displays all the words having A characters along with the file names where the words are present.



Command: grep -n '^' testX

This command displays all the words having any characters in testX file with the line numbers where each word are present.

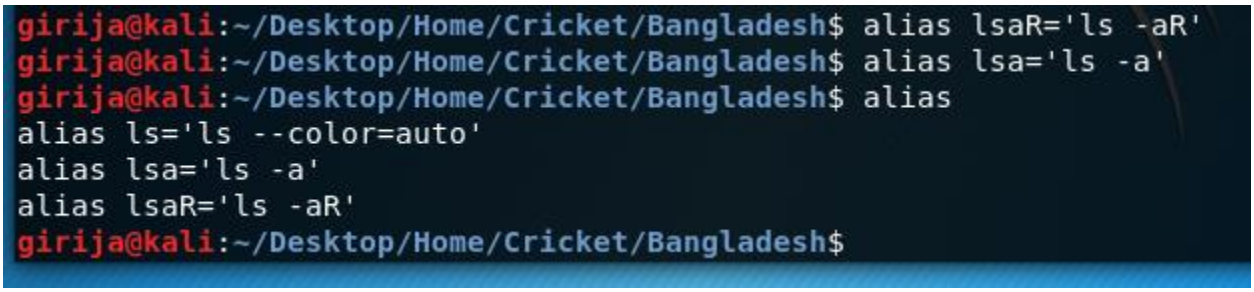


8. Aliasing

8.1 Task 17:

Command: alias lsaR=’ls -aR’ and alias lsa=’ls -a’

Command: alias



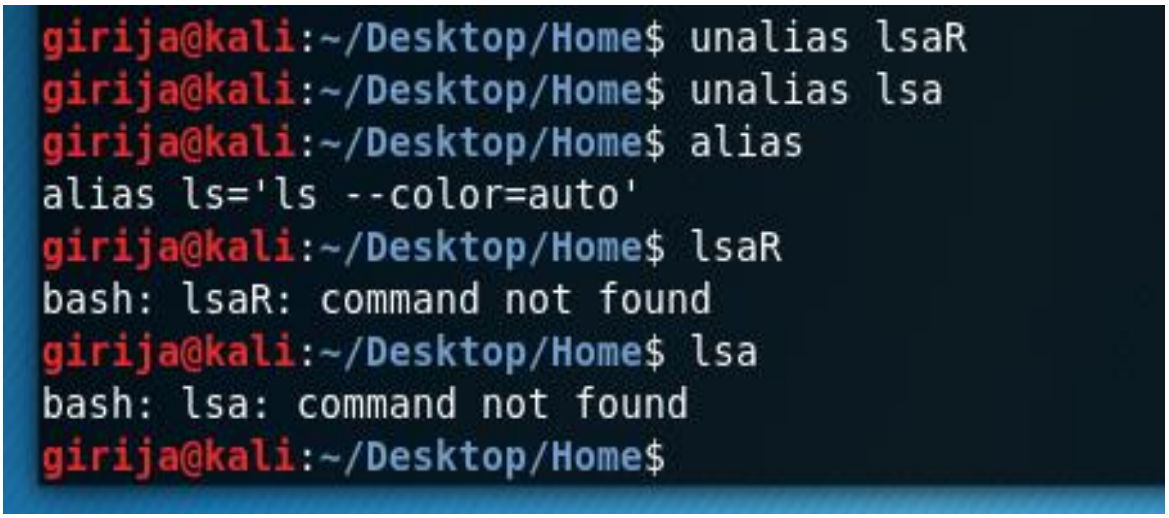
A shell alias is a shortcut to reference a command. It can be used to avoid typing long commands or as a means to correct incorrect input.

Command: lsaR and lsa

8.2 Task 18.

Command: unalias lsaR

Command: lsa

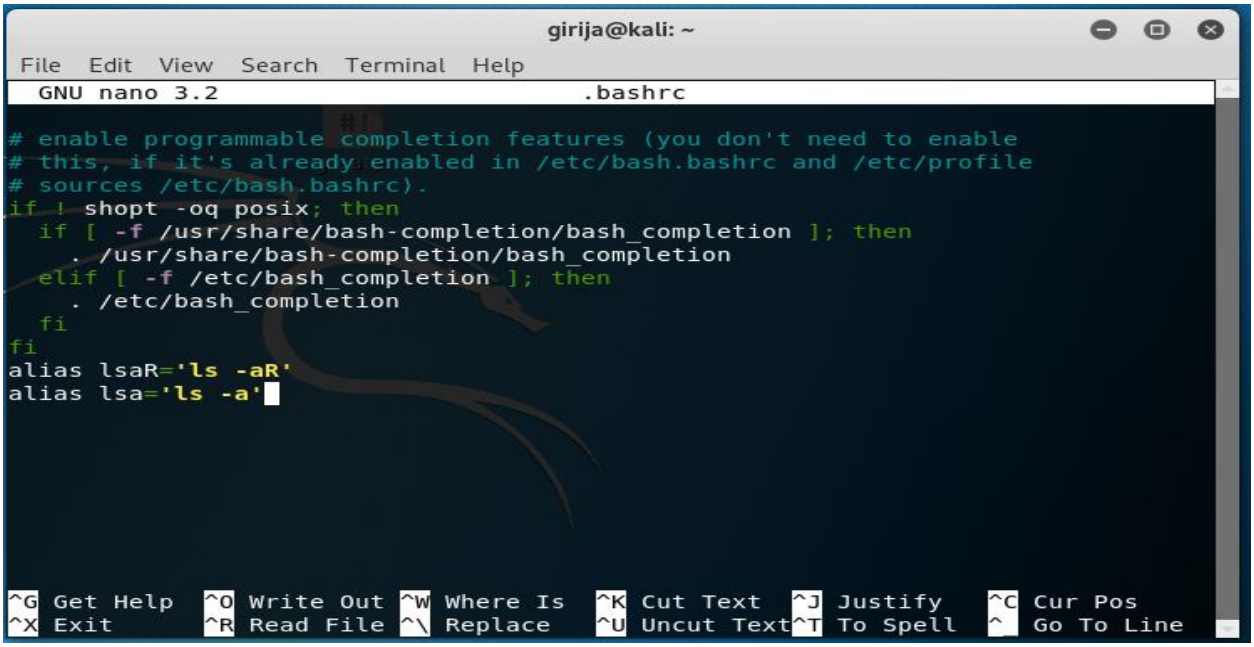


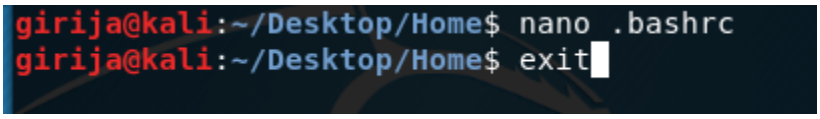
The unalias command is used to remove entries from the current user's list of aliases. Here unalias removes aliases created during the current login session.

8.3 Task 19.

Command: nano .bashrc

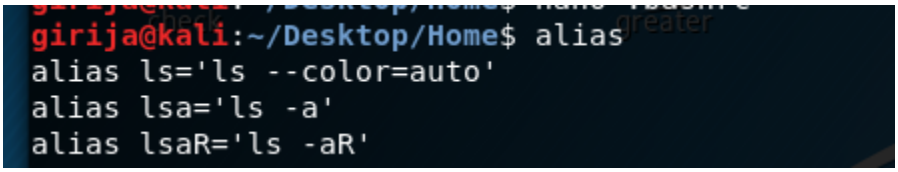
Command: exit





Command: alias

This command shows the reference command exiting in the system.



8.4 Task 20:

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

The noAllf is for a group of commands counting and displaying the number of all files in any working directory (including ones with invisible file names).

8.5 Task 21:

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

The noAsubsir is 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).

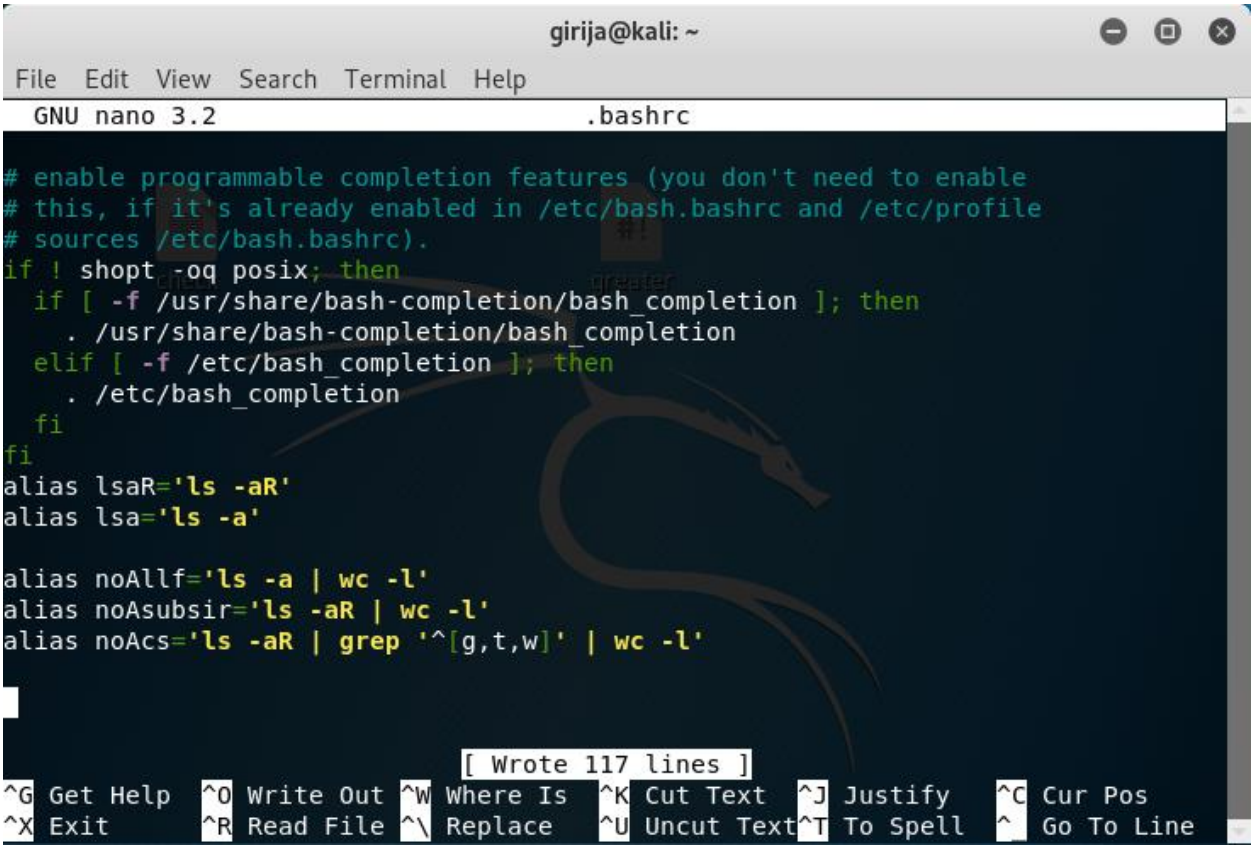
8.6 Task 22:

Command: alias noAcs='ls -aR | grep '^[g,t,w]' | wc -l'

The noAcs is 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.

Note: The given below figure is for task 20, task 21 and task 22.

```
girija@kali:~/Desktop/Home$ nano .bashrc
girija@kali:~/Desktop/Home$ exit
```



9. Usage of your own commands

9.1 Task 23:

Command: noAllf

Here, the noAlf command above is used to give the shortcut for ’ls -a | wc -l’.

9.2 Task 24:

Command: noAsubsir

The noAsubir command above is used to give the shortcut for ’ls -aR | wc -l’.

9.3 Task 25:

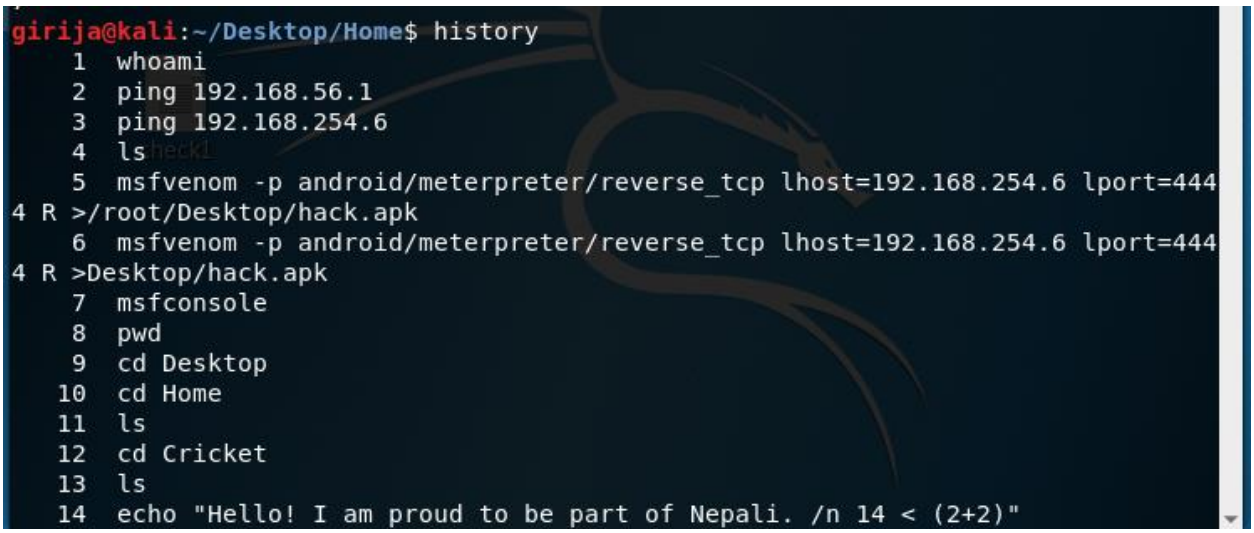
Command: noAcs

The noAcs command above is used to give the shortcut for ’ls -aR | grep ^[gtw] | wc -l’

10. Command History

10.1 Task 26:

Command: history



The history command is used to show all the previous command details history that we have done.

10.2 Task 27:

Command: ! -8

t shows the eight-number command function from the last.

10.3 Task 28:

Command: !m

It gives the command name that start with m.

Conclusion

This is the coursework of Network and Operating system module which is about the basic UNIX command. All the commands are performed in linux terminal. The tasks in the coursework is all about switching through different directories, handling the access permissions of files and directories as well as creating and reading files in the directories using different UNIX commands. This coursework helps me to gain basic knowledge on Unix Operating system and commands. Basic concept of linux operating system and commands that I learned while doing this coursework will definitely help me I my upcoming studies. This coursework helped to build concept on scripting the commands performed in the terminal and storing them as backup for the use in future. And while creating script file I have done some errors, So I have edited the script file for removing the errors and unwanted result.

This coursework enhanced my personal skills and knowledge about Ubuntu / Linux operating system and learned various Unix commands. I got chance to do research work on commands as well as understanding the operating system which helps me to explore new things.

References

Swati, 2019. *What Is Unix: A Brief Introduction To Unix.* [Online] Available at: https://www.softwaretestinghelp.com/unix-introduction/ [Accessed 19 March 2020].