A Linux command is a program or utility that runs on the CLI – a console that interacts with the system via texts and processes. It's similar to the Command Prompt application in Windows.

- **ls-Lists directory contents of files and directories**

student@LAB302PC34:~$ ls
Desktop Documents Downloads Music Pictures Public TASM Templates Videos

- **cd-To navigate through the Linux files and directories. If you want to switch to a completely new directory, for you have to enter cd followed by the directory name. To exit current directory we use cd ..**

student@LAB302PC34:~$ cd Desktop
student@LAB302PC34:~/Desktop$ cd ..

- **cat- Concatenate, or cat, is one of the most frequently used Linux commands. It lists, combines, and writes file content to the standard output. cat > filename.txt creates a new file**

student@LAB302PC34:~$ cat > Exp1
Learnt about exp 1.
Studying basic commands

student@LAB302PC34:~$ cat > Myself
Hi Hello
My name is Niyati
I am in SE Comps

- **cat filename1.txt filename2.txt shows content of filename1.txt and filename2.txt together**

student@LAB302PC34:~$ cat Exp1 Myself
Learnt about exp 1 .
Studying basic commands
Hi Hello
My name is Niyati
I am in SE Comps

- **cat filename1.txt filename2.txt > filename3.txt merges filename1.txt and filename2.txt and stores the output in filename3.txt**

student@LAB302PC34:~$ cat > abc
student@LAB302PC34:~$ cat Exp1 Myself > abc
student@LAB302PC34:~$ cat abc
Learnt about exp 1 .
Studying basic commands
Hi Hello
My name is Niyati
I am in SE Comps

- **cat filename1.txt >> filename2.txt command append the contents of first file to the end of a second file**

student@LAB302PC34:~$ cat Exp1 Myself >> abc
student@LAB302PC34:~$ cat abc
Learnt about exp 1 .
Studying basic commands
Hi Hello
My name is Niyati

I am in SE Comps
Learnt about exp 1 .
Studying basic commands
Hi Hello
My name is Niyati
I am in SE Comps

- **ls alphabet* shows a list of documents starting with the given alphabet .If can also display files that start within a range of alphabets by mentioning them in []**

student@LAB302PC34:~$ cat > Niyati1
Niyati1 file
student@LAB302PC34:~$ cat > Niyat2
abc1
student@LAB302PC34:~$ cat > niyaabc
abc2
student@LAB302PC34:~$ ls N*
Niyat2 Niyati1
student@LAB302PC34:~$ ls [n-p]*
niyaabc
student@LAB302PC34:~$ ls [N-P]*
Niyat2
Niyati1
Pictures:
Public:

- **mkdir- The mkdir command is used to create a new directory under any directory.**

student@LAB302PC34:~$ mkdir F1
student@LAB302PC34:~$ mkdir F2
student@LAB302PC34:~$ mkdir F3
student@LAB302PC34:~$ cd F1
student@LAB302PC34:~/F1$ cat > txt1
Text for F1 txt1
student@LAB302PC34:~/F1$ cat > txt2
Text for F1 txt2
student@LAB302PC34:~/F1$ cd ..

- **The "ls -l" option displays the contents of the current directory in a long listing format, one per line. The line begin with the file or directory permission, owner and group name, file size, created/modified date and time, file/folder name as some of the attributes**.

student@LAB302PC34:~$ ls -l
total 68
-rw-rw-r-- 1 student student 222 Jan 19 15:33 abc
drwxr-xr-x 3 student student 4096 Jan 19 15:19 Desktop
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Documents
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Downloads
-rw-rw-r-- 1 student student   0 Jan 19 15:35 Exp1
drwxrwxr-x 2 student student 4096 Jan 19 15:43 F1
drwxrwxr-x 2 student student 4096 Jan 19 15:41 F2
drwxrwxr-x 2 student student 4096 Jan 19 15:42 F3
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Music

-rw-rw-r-- 1 student student   45 Jan 19 15:30 Myself
-rw-rw-r-- 1 student student   5 Jan 19 15:37 niyaabc
-rw-rw-r-- 1 student student   5 Jan 19 15:37 Niyat2
-rw-rw-r-- 1 student student   13 Jan 19 15:36 Niyati1
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Pictures
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Public
drwxr-xr-x 8 student student 4096 Dec 21 12:23 TASM
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Templates
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Videos

- **The "ls -al" option displays the contents of the current directory in a long listing format including the hidden files**

student@LAB302PC34:~$ ls -al
total 176
drwxr-x--- 23 student student 4096 Jan 19 15:42 .
drwxr-xr-x 5 root   root   4096 Dec 17 10:22 ..
-rw-rw-r-- 1 student student   222 Jan 19 15:33 abc
-rw------- 1 student student   114 Jan 19 15:20 .bash_history
-rw-r--r-- 1 student student   220 Dec 17 10:21 .bash_logout
-rw-r--r-- 1 student student 3771 Dec 17 10:21 .bashrc
drwx------ 10 student student 4096 Dec 21 12:28 .cache
drwxrwxr-x 4 student student 4096 Dec 21 12:21 .cinnamon
drwxr-xr-x 17 student student 4096 Jan 19 15:19 .config
drwxr-xr-x 3 student student 4096 Jan 19 15:19 Desktop
-rw-r--r-- 1 student student   27 Dec 21 12:21 .dmrc
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Documents
drwx------ 2 student student 4096 Dec 21 12:26 .dosbox
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Downloads
-rw-rw-r-- 1 student student   0 Jan 19 15:35 Exp1
drwxrwxr-x 2 student student 4096 Jan 19 15:43 F1
drwxrwxr-x 2 student student 4096 Jan 19 15:41 F2
drwxrwxr-x 2 student student 4096 Jan 19 15:42 F3
-rw-r--r-- 1 student student   22 Dec 17 10:21 .gtkrc-2.0
-rw-r--r-- 1 student student   516 Dec 17 10:21 .gtkrc-xfce
drwxrwxr-x 3 student student 4096 Dec 21 12:21 .linuxmint
drwxrwxr-x 3 student student 4096 Dec 21 12:21 .local
drwx------ 4 student student 4096 Dec 21 12:28 .mozilla
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Music
-rw-rw-r-- 1 student student   45 Jan 19 15:30 Myself
drwx------ 3 student student 4096 Dec 21 12:27 .mysql
-rw-rw-r-- 1 student student   5 Jan 19 15:37 niyaabc
-rw-rw-r-- 1 student student   5 Jan 19 15:37 Niyat2
-rw-rw-r-- 1 student student   13 Jan 19 15:36 Niyati1
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Pictures
-rw-r--r-- 1 student student   807 Dec 17 10:21 .profile
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Public
drwxr-xr-x 8 student student 4096 Dec 21 12:23 TASM
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Templates
drwxr-xr-x 2 student student 4096 Dec 21 12:21 .themes
drwxr-xr-x 2 student student 4096 Dec 21 12:21 Videos
-rw------- 1 student student   55 Jan 19 15:12 .Xauthority
-rw------- 1 student student 9326 Jan 19 15:25 .xsession-errors

- **cp-The cp command is used to copy a file into another file without modifying the source file**

student@LAB302PC34:~$ cd F1
student@LAB302PC34:~/F1$ cp txt1 txt3
student@LAB302PC34:~/F1$ ls
txt1 txt2 txt3

- **the cp -i command will overwrite the destination file(the second one)**

student@LAB302PC34:~/F1$ cp -i txt1 txt2
cp: overwrite 'txt2'? Y
student@LAB302PC34:~/F1$ cat txt2
Text for F1 txt1
student@LAB302PC34:~/F1$ cd ..
student@LAB302PC34:~$ cp -r F1 F3
student@LAB302PC34:~$ cd F1

- **mv- The mv command is used to move a file or a directory form one location to another location. It can also be used to rename a file or folder. If the destination file doesn't exist, it will be created else it will be overwritten and the source file will be deleted.**

student@LAB302PC34:~/F1$ mv txt1 F3
student@LAB302PC34:~/F1$ cd ..
student@LAB302PC34:~$ cd F3
student@LAB302PC34:~/F3$ ls
F1

- **rm- command is used to remove a file**

  student@LAB302PC34:~/F3$ cd ..
student@LAB302PC34:~$ cd F1
student@LAB302PC34:~/F1$ rm txt2

- **rm -i -the '-i' option makes the command ask the user for confirmation before moving a file that would overwrite an existing file, you have to press y for confirm moving, any other key leaves the file as it is.**

student@LAB302PC34:~/F1$ rm -i txt3
rm: remove regular file 'txt3'? y
student@LAB302PC34:~/F1$ cat > txt1
1
student@LAB302PC34:~/F1$ cat >txt2
2

- **rm -r - To delete a directory and its contents recursively:**

student@LAB302PC34:~/F1$ cd ..
student@LAB302PC34:~$ rm -r F1

- **rmdir- The rmdir command in Linux is used to delete an empty directory. Unlike the rm-r command, it can only delete directories that have no files or subdirectories inside.**

student@LAB302PC34:~$ rmdir F3
student@LAB302PC34:~$ cat > file1
lin1
L2
L3
L4
L5

SOME TEXT
L7
L8
L9
L10
student@LAB302PC34:~$ cat > file2
Ludo Bagman – Head of the Department of Magical Games
Bathilda Bagshot – Author of A History of Magic
Katie Bell – Gryffindor Quidditch Chaser
Cuthbert Binns – ghost, History of Magic professor.
Phineas Nigellus Black – Great-great-grandfather of Sirius Black and former Hogwarts headmaster.
Sirius Black – Harry's godfather who was a close friend of Harry's father James.
Amelia Bones – Head of the Department of Magical Law Enforcement, and the aunt of Susan Bones.
Susan Bones – Hufflepuff student in Harry's year. Member of Dumbledore's Army.
Terry Boot – Ravenclaw student in Harry's year. Member of Dumbledore's Army.
Lavender Brown – Gryffindor student in Harry's year and member of Dumbledore's Army.
Millicent Bulstrode – Slytherin student in Harry's year. Member of Dolores Umbridge's Inquisitorial Squad.
Charity Burbage – Professor of Muggle Studies at Hogwarts. Killed by Lord Voldemort.

- **head- The head command in Linux is used to display the first few lines of a file. By default, it displays the first 10 lines of a file, but this can be changed using options.**

student@LAB302PC34:~$ head file1
lin1
L2
L3
L4
L5
SOME TEXT
L7
L8
L9
L10

- **head -n displays the first n lines of the file. For example, head -n 20 filename.txt will display the first 20 lines of the file.**

student@LAB302PC34:~$ head -5 file1
lin1
L2
L3
L4
L5

- **tail- the tail command is similar to the head command. The difference between both commands is that it displays the last ten lines of the file content. It is useful for reading the error message.**

student@LAB302PC34:~$ tail file2
Cuthbert Binns – ghost, History of Magic professor.
Phineas Nigellus Black – Great-great-grandfather of Sirius Black and former Hogwarts headmaster. His painting hangs in the office and assists the current headmaster.
Sirius Black – Harry's godfather who was a close friend of Harry's father James. Escapee from Azkaban prison and member of the Order of the Phoenix. Killed in the Battle of the Department of Mysteries by his cousin Bellatrix Lestrange.

Amelia Bones – Head of the Department of Magical Law Enforcement, and the aunt of Susan Bones. Killed by Lord Voldemort.
Susan Bones – Hufflepuff student in Harry's year. Member of Dumbledore's Army.
Terry Boot – Ravenclaw student in Harry's year. Member of Dumbledore's Army.
Lavender Brown – Gryffindor student in Harry's year and member of Dumbledore's Army.
Millicent Bulstrode – Slytherin student in Harry's year. Member of Dolores Umbridge's Inquisitorial Squad.
Charity Burbage – Professor of Muggle Studies at Hogwarts. Killed by Lord Voldemort.

- **Sort- The sort command is a Linux command used to sort the contents of a file or the output of a command. It can sort lines of text alphabetically or numerically, and can be used to remove duplicates from a list.**

student@LAB302PC34:~$ sort file2
Amelia Bones – Head of the Department of Magical Law Enforcement, and the aunt of Susan Bones. Killed by Lord Voldemort.
Bathilda Bagshot – Author of A History of Magic, and the great aunt of Gellert Grindelwald.
Charity Burbage – Professor of Muggle Studies at Hogwarts. Killed by Lord Voldemort.
Cuthbert Binns – ghost, History of Magic professor.
Katie Bell – Gryffindor Quidditch Chaser one year above Harry Potter. Member of Dumbledore's Army.
Lavender Brown – Gryffindor student in Harry's year and member of Dumbledore's Army.
Ludo Bagman – Head of the Department of Magical Games and Sports within the Ministry of Magic.
Millicent Bulstrode – Slytherin student in Harry's year. Member of Dolores Umbridge's Inquisitorial Squad.
Phineas Nigellus Black – Great-great-grandfather of Sirius Black and former Hogwarts headmaster. His painting hangs in the office and assists the current headmaster.
Sirius Black – Harry's godfather who was a close friend of Harry's father James. Escapee from Azkaban prison and member of the Order of the Phoenix. Killed in the Battle of the Department of Mysteries by his cousin Bellatrix Lestrange.
Susan Bones – Hufflepuff student in Harry's year. Member of Dumbledore's Army.
Terry Boot – Ravenclaw student in Harry's year. Member of Dumbledore's Army.

- **Wc- The wc command in Linux is used to count the number of lines, words, and characters in a file. Here are some commonly used options with the wc command:**
  -l: displays the number of lines in the file
  -w: displays the number of words in the file
  -c: displays the number of characters in the file

student@LAB302PC34:~$ wc file1
10 11 41 file1
student@LAB302PC34:~$ wc -l file1
10 file1
student@LAB302PC34:~$ wc -c file1
41 file1
student@LAB302PC34:~$ wc -w file1
11 file1
student@LAB302PC34:~$ cat file1 | wc
    10   11   41

- chown -The chown command is used to change the ownership of a file or directory. The syntax of the command is as follows:
chown [new_owner] [file]
The chown command can also be used to change the ownership of multiple files or directories at once using wildcard characters. For example, chown user1 * will change the ownership of all files in the current directory to user1.

- The chgrp command is used to change the group ownership of a file or directory. The syntax of the command is as follows:
chgrp [new_group] [file]
Here, new_group is the new group owner of the file or directory, and file is the name of the file or directory. The chgrp command can also be used to change the group ownership of multiple files or directories at once using wildcard characters.

- The umask command in Linux is used to set the default permissions for newly created files and directories. By default, newly created files and directories are given read, write, and execute permissions for the owner, and read and execute permissions for other users.
The umask command allows you to modify these default permissions by specifying a mask that determines which permissions should be removed. The mask is specified as an octal value, where each digit represents the permissions for a different class of user: owner, group, and others.

- The chmod command is used to change the permissions of a file or directory. The syntax of the command is as follows:
chmod [mode] [file]
Here, mode is the new permissions for the file or directory, and file is the name of the file or directory. The chmod command can also be used to change the permissions of multiple files or directories at once using wildcard characters.