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**← DevOps001****Linux**

1. Create a file, assign permissions (read, write, execute) to different user categories (owner, group, others), and practice changing permissions using chmod.

**Resources :**

<https://www.youtube.com/watch?v=iwoIPf6kN-k><https://www.pluralsight.com/blog/it-ops/linux-file-permissions>

2. Execute basic Linux commands (e.g., ls, cd, mkdir, rm, touch) to manipulate files and directories, with an emphasis on understanding their usage.

**Resources :**

<https://www.redhat.com/sysadmin/create-delete-files-directories-linux>

3. Using the terminal, practice navigating through directories, listing file contents, and moving files to different locations.

**Resources :**

<https://www.redhat.com/sysadmin/navigating-filesystem-linux-terminal>

4. Create a new user and group, set their permissions, and explore user management commands like useradd, usermod, and userdel.

**Resources :**

<https://www.redhat.com/sysadmin/manage-permissions>

5. Practices more linux commands

**Resources :**

[https://www.javatpoint.com/linux-](https://www.javatpoint.com/linux-tutorial#:~:text=It%20is%20an%20commercial%20OS,%2C%20shells%2C%20VI%20editor%20etc)

[tutorial#:~:text=It%20is%20an%20commercial%20OS,%2C%20shells%2C%20VI%20editor%20etc](https://www.javatpoint.com/linux-tutorial#:~:text=It%20is%20an%20commercial%20OS,%2C%20shells%2C%20VI%20editor%20etc)

## 1. Create a File and assign Permissions:-



```
Ubuntu 22.04.2 LTS
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# touch yashlondhe.txt
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# ls
yashlondhe.txt
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# ls -l yashlondhe.txt
-rwxrwxrwx 1 yash root 0 May 25 01:12 yashlondhe.txt
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# chmodu+rwx yashlondhe.txt
chmodu+rwx: command not found
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# chmod u+rwx yashlondhe.txt
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# chmod o+r yashlondhe.txt
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# chmod g+rwx yashlondhe.txt
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# ls -l yashlondhe.txt
-rwxrwxrwx 1 yash root 0 May 25 01:12 yashlondhe.txt
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01# ls
yashlondhe.txt
yash@LAPTOP-8207C1L1:/mnt/d/csi-devops/ass01#
```

Create a file using touch: **touch yashlondhe.txt**

Check the file's current permissions using ls: **ls-l yashlondhe.txt**

Change permissions using chmod:

**chmod u+rwx yashlondhe.txt**

**chmod g+rw yashlondhe.txt**

**chmod o+r yashlondhe.txt**

Verify the changes: **ls-l myfile.txt**

## 2. Execute Basic Linux Commands:-

```
Ubuntu 22.04.2 LTS
yash@LAPTOP-8207C1L1:/mnt/d/Development# cd ..
yash@LAPTOP-8207C1L1:/mnt/d# cd Development/
yash@LAPTOP-8207C1L1:/mnt/d/Development# ls
  CRT-python
  Docker-course
  'KPIT training'
  'Namaste React'
  PORTAL-FOR-FARMERS-TO-SELL-THEIR-PRODUCE-AT-BETTER-RATE-master
  PORTAL-FOR-FARMERS-TO-SELL-THEIR-PRODUCE-AT-BETTER-RATE-master.zip
  'React projects'
  'React-Native projects'
  Typescript
  WebDevWithYash
  backend-stuff
  cloud_mini_project
  go-stuff
  rust-stuff
  'uml DIAGRAMS'
yash@LAPTOP-8207C1L1:/mnt/d/Development# mkdir yash123
yash@LAPTOP-8207C1L1:/mnt/d/Development# ls
  CRT-python
  Docker-course
  'KPIT training'
  'Namaste React'
  PORTAL-FOR-FARMERS-TO-SELL-THEIR-PRODUCE-AT-BETTER-RATE-master
  PORTAL-FOR-FARMERS-TO-SELL-THEIR-PRODUCE-AT-BETTER-RATE-master.zip
  'React projects'
  'React-Native projects'
  Typescript
  WebDevWithYash
  backend-stuff
  cloud_mini_project
  go-stuff
  rust-stuff
  'uml DIAGRAMS'
  yash123
yash@LAPTOP-8207C1L1:/mnt/d/Development# cd yash123/
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# echo "hello" > myfile.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# cat myfile.txt
hello
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# rm myfile.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# ls
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# rm -r yash123
rm: cannot remove 'yash123': No such file or directory
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123#
```

List directory contents using ls: **ls**

Change directory using cd: **cd Development/**

Create a directory using mkdir : **mkdir yash123**

Create and write to the file using echo : **echo "hello" > myfile.txt**

Verify the content of the file: **cat myfile.txt**

Remove a file using rm: **rm myfile.txt**

Remove a directory using rm-r: **rm-r yash123**

Create an empty file using touch: **touch myfile.txt**

### 3. Navigate Through Directories :-

List contents with detailed information using ls-l: **ls-l**

Move to the parent directory using cd ..: **cd ..**

Move a file to a different location using mv: **mv xyz/new.txt abc/**

```
Ubuntu 22.04.2 LTS
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# cd ..
yash@LAPTOP-8207C1L1:/mnt/d/Development# cd go-stuff/
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff# ls
booking-app  go-fiber-crm  go-movies-crud  go-server  microservices_go
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff# mkdir xyz
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff# touch new.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff# ls
booking-app  go-movies-crud  microservices_go  xyz
go-fiber-crm  go-server      new.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff# mv new.txt xyz/
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff# ls
booking-app  go-fiber-crm  go-movies-crud  go-server  microservices_go  xyz
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff# cd xyz
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff/xyz# ls
new.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff/xyz#
```

```
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff# ls -l
total 0
drwxrwxrwx 1 yash root 4096 Aug  2  2023 booking-app
drwxrwxrwx 1 yash root 4096 May  7 22:55 go-fiber-crm
drwxrwxrwx 1 yash root 4096 Aug 10  2023 go-movies-crud
drwxrwxrwx 1 yash root 4096 Aug 10  2023 go-server
drwxrwxrwx 1 yash root 4096 Sep  5  2023 microservices_go
drwxrwxrwx 1 yash root 4096 May 25 02:15 xyz
yash@LAPTOP-8207C1L1:/mnt/d/Development/go-stuff#
```

## 4. Create a New User and Group: :-

```
Ubuntu 22.04.2 LTS
yash@LAPTOP-8207C1L1:~# groupadd newgroup
yash@LAPTOP-8207C1L1:~# useradd -m -g newgroup newuser
yash@LAPTOP-8207C1L1:~# passwd newuser
New password:
Retype new password:
passwd: password updated successfully
yash@LAPTOP-8207C1L1:~# usermod -aG anothergroup newuser
usermod: group 'anothergroup' does not exist
yash@LAPTOP-8207C1L1:~# groupadd anothergroup
yash@LAPTOP-8207C1L1:~# usermod -aG anothergroup newuser
yash@LAPTOP-8207C1L1:~# passwd newuser
New password:
Retype new password:
passwd: password updated successfully
yash@LAPTOP-8207C1L1:~# userdel -r newuser
userdel: newuser mail spool (/var/mail/newuser) not found
yash@LAPTOP-8207C1L1:~# userdel -r newuser
userdel: user 'newuser' does not exist
yash@LAPTOP-8207C1L1:~# cat etc/group
cat: etc/group: No such file or directory
yash@LAPTOP-8207C1L1:~# ls
go  www
yash@LAPTOP-8207C1L1:~# cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:
fax:x:21:
yash@LAPTOP-8207C1L1:~#
cdrom:x:24:
floppy:x:25:
tape:x:26:
sudo:x:27:
audio:x:29:
dip:x:30:
www-data:x:33:
backup:x:34:
operator:x:37:
list:x:38:
irc:x:39:
src:x:40:
```

Create a new group using groupadd: **sudo groupadd newgroup**

Create a new user and add to the group using useradd: **sudo useradd-m-g newgroup newuser**

Set a password for the new user: **sudo passwd newuser**

Modify user details using usermod: **sudo usermod-aG anothergroup newuser**

Delete a user using userdel: **sudo userdel-r newuser**

## 5. Practice More Linux Commands :-

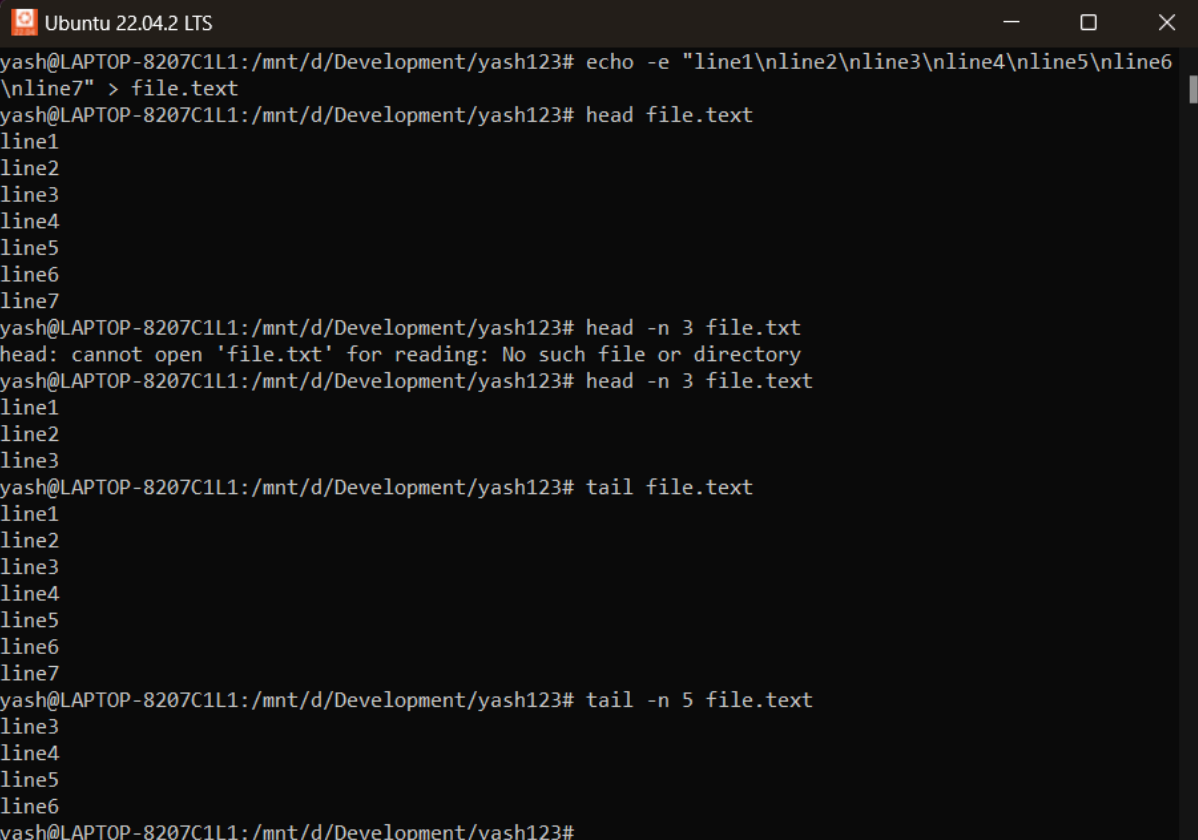


```
Ubuntu 22.04.2 LTS
yash@LAPTOP-8207C1L1:/mnt/d/Development# cd yash123/
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# touch newfile.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# ls
newfile.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# mv newfile.txt newname.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# ls
newname.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123#
```

Display the current directory using pwd: **pwd**

Create a new file: **sudo touch newfile.txt**

Rename the file: **mv newfile.txt newname.txt**



```
Ubuntu 22.04.2 LTS
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# echo -e "line1\nline2\nline3\nline4\nline5\nline6\nline7" > file.txt
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# head file.txt
line1
line2
line3
line4
line5
line6
line7
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# head -n 3 file.txt
head: cannot open 'file.txt' for reading: No such file or directory
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# head -n 3 file.txt
line1
line2
line3
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# tail file.txt
line1
line2
line3
line4
line5
line6
line7
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# tail -n 5 file.txt
line3
line4
line5
line6
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123#
```

Create a file with multiple lines for demonstration: **echo-e "line1\nline2\nline3\nline4\nline5\nline6\nline7\nline8\nline9\nline10" > file.txt**

Display the first 10 lines of the file (default): **head file.txt**

Display the first 5 lines of the file: **head-n 5 file.txt**

Display the last 10 lines of the file (default): **tail file.txt**

Display the last 5 lines of the file: **tail-n 5 file.txt**

```
newuser@LAPTOP-8207C1L1: ~
yash@LAPTOP-8207C1L1:/# su - yash
yash@LAPTOP-8207C1L1:~# adduser newuser
Adding user `newuser' ...
Adding new group `newuser' (1002) ...
Adding new user `newuser' (1000) with group `newuser' ...
Creating home directory `/home/newuser' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for newuser
Enter the new value, or press ENTER for the default
  Full Name []: newuser
    Room Number []: 123
    Work Phone []: 123
    Home Phone []: 123
    Other []: 123
Is the information correct? [Y/n] Y
yash@LAPTOP-8207C1L1:~# apt update
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1472 kB]
Hit:5 http://archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1683 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [253 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1876 kB]
Get:9 http://archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [312 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1933 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [318 kB]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [853 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [164 kB]
Get:14 http://archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [328 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1075 kB]Get:16 http://archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [24
Fetched 10.7 MB in 4s (2452 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
152 packages can be upgraded. Run 'apt list --upgradable' to see them.
yash@LAPTOP-8207C1L1:~# su - newuser
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.10.16.3-microsoft-standard-WSL2 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

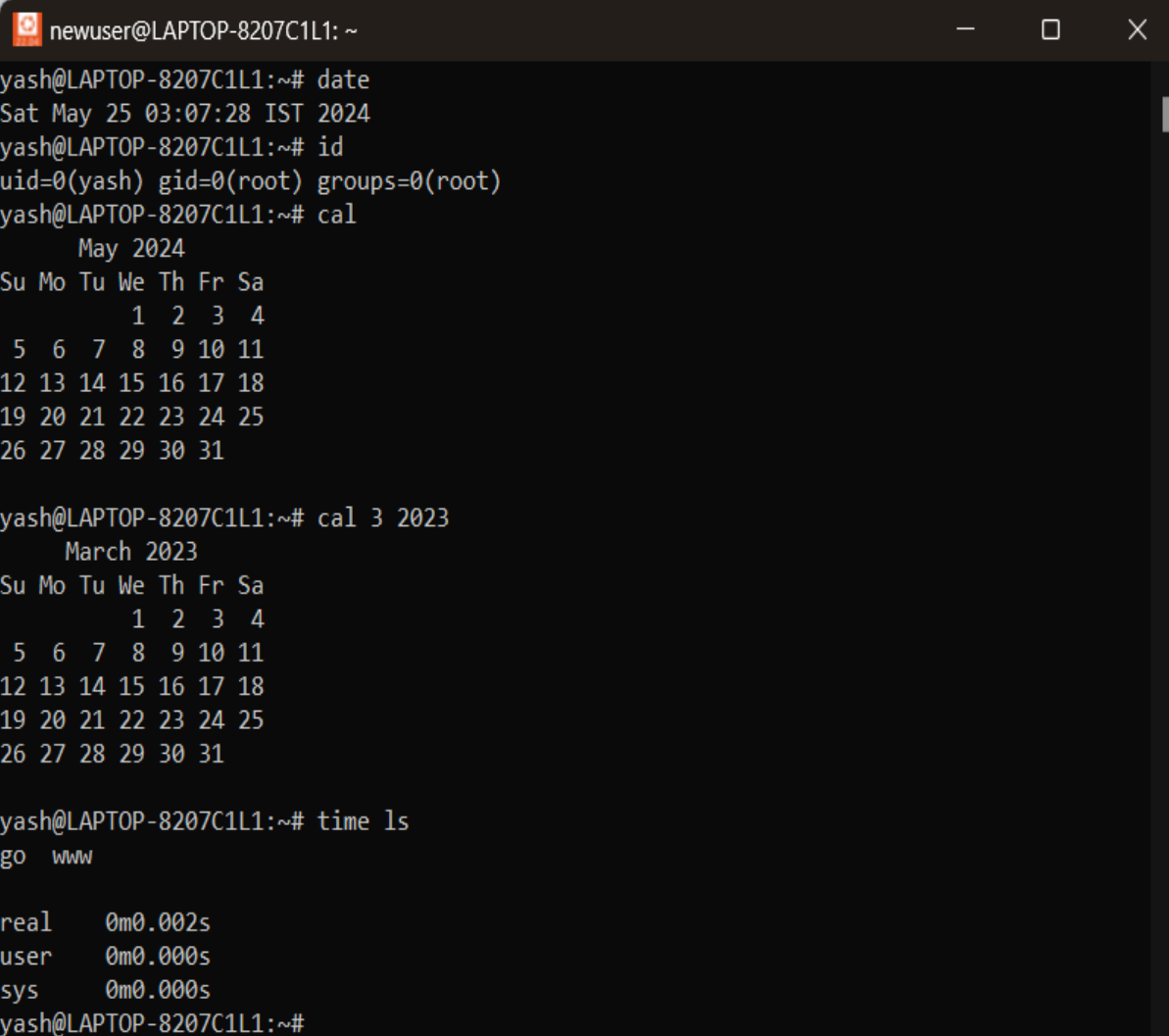
This message is shown once a day. To disable it please create the
/home/newuser/.hushlogin file.
newuser@LAPTOP-8207C1L1:~$ pwd
/home/newuser
```



**Adding a New User: `sudo adduser newuser`**

**For installing a package: `sudo apt update`**

**Switching to the New User: `su- newuser`**



```
newuser@LAPTOP-8207C1L1: ~  
yash@LAPTOP-8207C1L1:~# date  
Sat May 25 03:07:28 IST 2024  
yash@LAPTOP-8207C1L1:~# id  
uid=0(yash) gid=0(root) groups=0(root)  
yash@LAPTOP-8207C1L1:~# cal  
      May 2024  
Su Mo Tu We Th Fr Sa  
          1  2  3  4  
 5  6  7  8  9 10 11  
12 13 14 15 16 17 18  
19 20 21 22 23 24 25  
26 27 28 29 30 31  
  
yash@LAPTOP-8207C1L1:~# cal 3 2023  
      March 2023  
Su Mo Tu We Th Fr Sa  
          1  2  3  4  
 5  6  7  8  9 10 11  
12 13 14 15 16 17 18  
19 20 21 22 23 24 25  
26 27 28 29 30 31  
  
yash@LAPTOP-8207C1L1:~# time ls  
go  www  
  
real    0m0.002s  
user    0m0.000s  
sys     0m0.000s  
yash@LAPTOP-8207C1L1:~#
```

**Display the current date and time: `date`**

**Measure the time taken to list files: `time ls`**

**Display the current month's calendar: `cal`**

**Display a specific month's calendar (March 2023): `cal 3 2023`**

```
newuser@LAPTOP-8207C1L1: ~  
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# ls  
file.txt  newname.txt  
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# gzip file.txt  
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# ls  
file.txt.gz  newname.txt  
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# gunzip file.txt.gz  
gzip: file.txt.gz: No such file or directory  
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# gunzip file.text.gz  
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123# ls  
file.txt  newname.txt  
yash@LAPTOP-8207C1L1:/mnt/d/Development/yash123#
```

**Compress a file:** **gzip file.txt**

**Decompress a file:** **gunzip file.txt.gz**