1. **Creating and Renaming Files/Directories**

- Create a directory named test_dir using mkdir.
- Inside test_dir, create an empty file called example.txt.
- Rename example.txt to renamed_example.txt using mv

```
shubham:~$ mkdir test_dir
shubham:~$ touch test_dir/example.txt
shubham:~$ ls -la
total 48
shubham:~$ mkdir test_dir
shubham:~$ ls
Desktop  ssl  test_dir
shubham:~$ cd test_dir/
shubham:~/test_dir$ touch example.txt
shubham:~/test_dir$ ls
example.txt
shubham:~/test_dir$ mv example.txt renamed_example.txt
shubham:~/test_dir$ ls
renamed_example.txt
shubham:~/test_dir$
```

Command:- **mkdir test_dir**

Creates a new folder (directory) called test_dir.

Command:- touch test_dir/example.txt

Creates an empty file named example.txt inside test_dir.

Command:- mv test_dir/example.txt test_dir/renamed_example.txt

Renames the file example.txt to renamed_example.txt inside test_dir.

2. Viewing File Contents

- Use cat to display the contents of /etc/passwd.
- Display only the first 5 lines of /etc/passwd using head.
- Display only the last 5 lines of /etc/passwd using tail.

```
shubham:~/test_dir$ cat /etc/passwd
root:x:0:0:root:/root:/bin/sh
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/mail:/sbin/nologin
news:x:9:13:news:/usr/lib/news:/sbin/nologin
uucp:x:10:14:uucp:/var/spool/uucppublic:/sbin/nologin
cron:x:16:16:cron:/var/spool/cron:/sbin/nologin
ftp:x:21:21::/var/lib/ftp:/sbin/nologin
sshd:x:22:22:sshd:/dev/null:/sbin/nologin
games:x:35:35:games:/usr/games:/sbin/nologin
ntp:x:123:123:NTP:/var/empty:/sbin/nologin
guest:x:405:1000:guest:/dev/null:/sbin/nologin
nobody:x:65534:65534:nobody:/:/sbin/nologin
klogd:x:100:101:klogd:/dev/null:/sbin/nologin
abc:x:1000:1000::/config:/bin/bash
messagebus:x:101:100:messagebus:/dev/null:/sbin/nologin
nginx:x:102:103:nginx:/var/lib/nginx:/sbin/nologin
pulse:x:103:105:PulseAudio daemon:/var/run/pulse:/sbin/nologin
dockremap:x:104:106::/home/dockremap:/sbin/nologin
polkitd:x:105:107:polkitd:/var/empty:/sbin/nologin
```

```
shubham:~/test_dir$ head -n 5 /etc/passwd
root:x:0:0:root:/root:/bin/sh
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shubham:~/test_dir$ tail -n 5 /etc/passwd
messagebus:x:101:100:messagebus:/dev/null:/sbin/nologin
nginx:x:102:103:nginx:/var/lib/nginx:/sbin/nologin
pulse:x:103:105:PulseAudio daemon:/var/run/pulse:/sbin/nologin
dockremap:x:104:106::/home/dockremap:/sbin/nologin
polkitd:x:105:107:polkitd:/var/empty:/sbin/nologin
```

Command:- cat /etc/passwd

Shows the entire content of the file /etc/passwd on your screen.

Command:- head -n 5 /etc/passwd

Shows only the first 5 lines of /etc/passwd.

Command:- tail -n 5 /etc/passwd

Shows only the last 5 lines of /etc/passwd.

3.Searching for Patterns

- Use grep to find all lines containing the word "root" in /etc/passwd.

```
shubham:~/test_dir$ grep "root" /etc/passwd
root:x:0:0:root:/root:/bin/sh
shubham:~/test_dir$
```

Command:- grep "root" /etc/passwd

Looks inside /etc/passwd and prints all lines that contain the word "root".

4. Zipping and Unzipping

- Compress the test_dir directory into a file named test_dir.zip using zip.
- Unzip test_dir.zip into a new directory named unzipped_dir.

```
shubham:~$ zip -r test_dir.zip test_dir
  adding: test_dir/ (stored 0%)
  adding: test_dir/renamed_example.txt (stored 0%)
shubham:~$ ls
Desktop  ssl  test_dir  test_dir.zip
shubham:~$ unzip test_dir.zip -d unzipped_dir
Archive:  test_dir.zip
   creating: unzipped_dir/test_dir/
 extracting: unzipped_dir/test_dir/renamed_example.txt
shubham:~$ ls
Desktop  ssl  test_dir  test_dir.zip  unzipped_dir
```

Command:- zip -r test_dir.zip test_dir

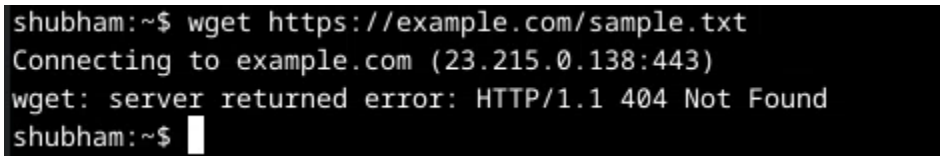
Compresses the test_dir folder and all its contents into a zip file named test_dir.zip. The -r means "recursive," so it includes everything inside the directory.

Command:- unzip test_dir.zip -d unzipped_dir

Extracts the contents of test_dir.zip into a new directory called unzipped_dir.

5. Downloading Files

- Use wget to download a file from a URL (e.g., https://example.com/sample.txt).



Command:- wget https://example.com/sample.txt

Downloads the file located at the URL https://example.com/sample.txt and saves it in your current folder.

6. Changing Permissions

- Create a file named secure.txt and change its permissions to read-only for everyone using chmod.

```
shubham:~$ touch secure.txt
shubham:~$ ls
Desktop  secure.txt  ssl  test_dir  test_dir.zip  unzipped_dir
shubham:~$ ls -la
total 56
drwxr-xr-x 11 abc  users 4096 Aug 13 21:11 .
drwxr-xr-x  1 root root  4096 Aug 13 15:43 ..
-rw-------  1 abc  users    0 Aug 13 15:43 .ICEauthority
drwxr-xr-x  4 abc  users 4096 Aug 13 15:43 .XDG
-rw-r--r--  1 abc  users   28 Aug 13 15:43 .Xresources
-rw-r--r--  1 abc  users   37 Aug 13 15:43 .bashrc
drwx------  5 abc  users 4096 Aug 13 15:43 .cache
drwxr-xr-x  7 abc  users 4096 Aug 13 15:43 .config
drwx------  3 abc  users 4096 Aug 13 15:43 .dbus
drwxr-xr-x  4 abc  users 4096 Aug 13 15:43 .local
drwxr-xr-x  2 abc  users 4096 Aug 13 15:43 Desktop
-rw-r--r--  1 abc  users    0 Aug 13 21:11 secure.txt
drwxr-xr-x  2 abc  users 4096 Aug 13 15:43 ssl
drwxr-xr-x  2 abc  users 4096 Aug 13 15:49 test_dir
-rw-r--r--  1 abc  users  352 Aug 13 21:06 test_dir.zip
drwxr-xr-x  3 abc  users 4096 Aug 13 21:07 unzipped_dir
```

Command:- touch secure.txt

Creates an empty file called secure.txt.

```
shubham:~$ chmod 444 secure.txt
shubham:~$ ls -la
total 56
drwxr-xr-x 11 abc  users 4096 Aug 13 21:11 .
drwxr-xr-x  1 root root  4096 Aug 13 15:43 ..
-rw-------  1 abc  users    0 Aug 13 15:43 .ICEauthority
drwxr-xr-x  4 abc  users 4096 Aug 13 15:43 .XDG
-rw-r--r--  1 abc  users   28 Aug 13 15:43 .Xresources
-rw-r--r--  1 abc  users   37 Aug 13 15:43 .bashrc
drwx------  5 abc  users 4096 Aug 13 15:43 .cache
drwxr-xr-x  7 abc  users 4096 Aug 13 15:43 .config
drwx------  3 abc  users 4096 Aug 13 15:43 .dbus
drwxr-xr-x  4 abc  users 4096 Aug 13 15:43 .local
drwxr-xr-x  2 abc  users 4096 Aug 13 15:43 Desktop
-r--r--r--  1 abc  users    0 Aug 13 21:11 secure.txt
drwxr-xr-x  2 abc  users 4096 Aug 13 15:43 ssl
drwxr-xr-x  2 abc  users 4096 Aug 13 15:49 test_dir
-rw-r--r--  1 abc  users  352 Aug 13 21:06 test_dir.zip
drwxr-xr-x  3 abc  users 4096 Aug 13 21:07 unzipped_dir
```

Command:- chmod 444 secure.txt

Changes the permissions of secure.txt so that everyone (owner, group, others) can only read the file but cannot write or execute it.

7. Working with Environment Variables

- Use export to set a new environment variable called MY_VAR with the value "Hello, Linux!".

```
shubham:~$ export MY_VAR="Hello, Linux!"
shubham:~$ echo $MY_VAR
Hello, Linux!
shubham:~$
```

Command:- export MY_VAR="Hello, Linux!"

Sets an environment variable named MY_VAR with the value "Hello, Linux!". This variable is now available to any programs or scripts started from this shell session.