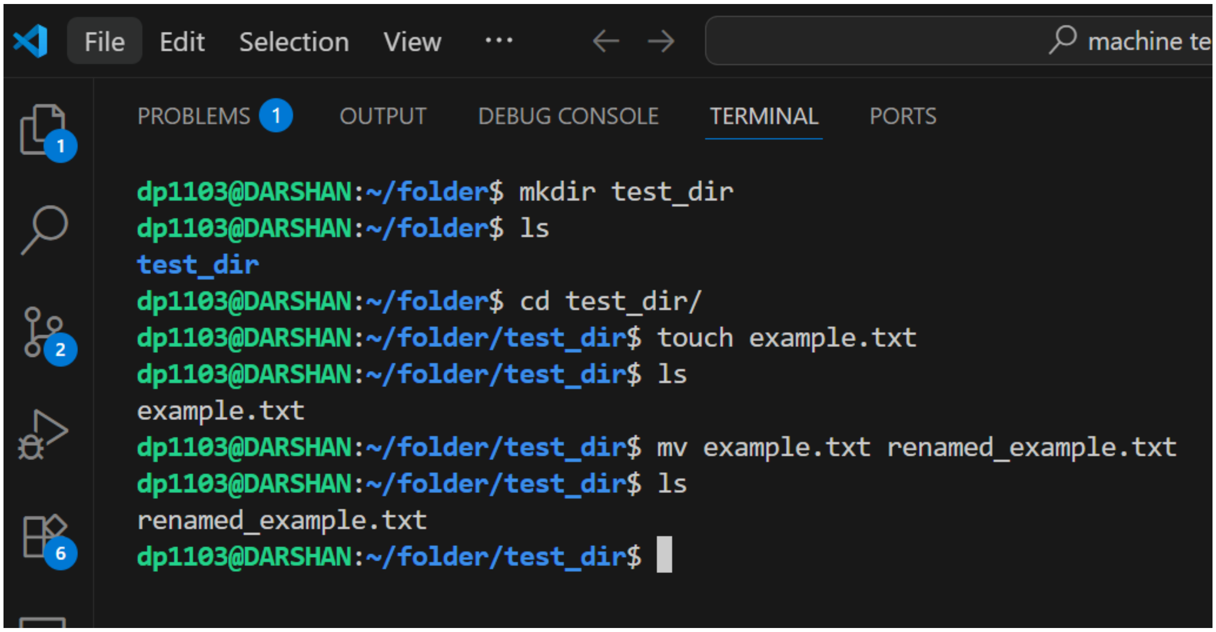
GitHub Repository Link: https://github.com/dp1103/Tutedude_Linux-Basics-assignment.git

1. Creating and Renaming Files/Directories

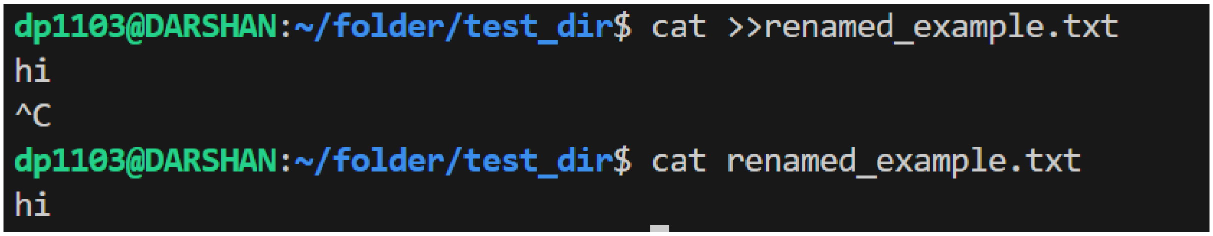
Create a directory named test_dir using mkdir.

Inside test_dir, create an empty file called example.txt.

Rename example.txt to renamed_example.txt using mv



```
dp1103@DARSHAN:~/folder$ mkdir test_dir
dp1103@DARSHAN:~/folder$ ls
test_dir
dp1103@DARSHAN:~/folder$ cd test_dir/
dp1103@DARSHAN:~/folder/test_dir$ touch example.txt
dp1103@DARSHAN:~/folder/test_dir$ ls
example.txt
dp1103@DARSHAN:~/folder/test_dir$ mv example.txt renamed_example.txt
dp1103@DARSHAN:~/folder/test_dir$ ls
renamed_example.txt
dp1103@DARSHAN:~/folder/test_dir$ 
```



```
dp1103@DARSHAN:~/folder/test_dir$ cat >>renamed_example.txt
hi
^C
dp1103@DARSHAN:~/folder/test_dir$ cat renamed_example.txt
hi
```

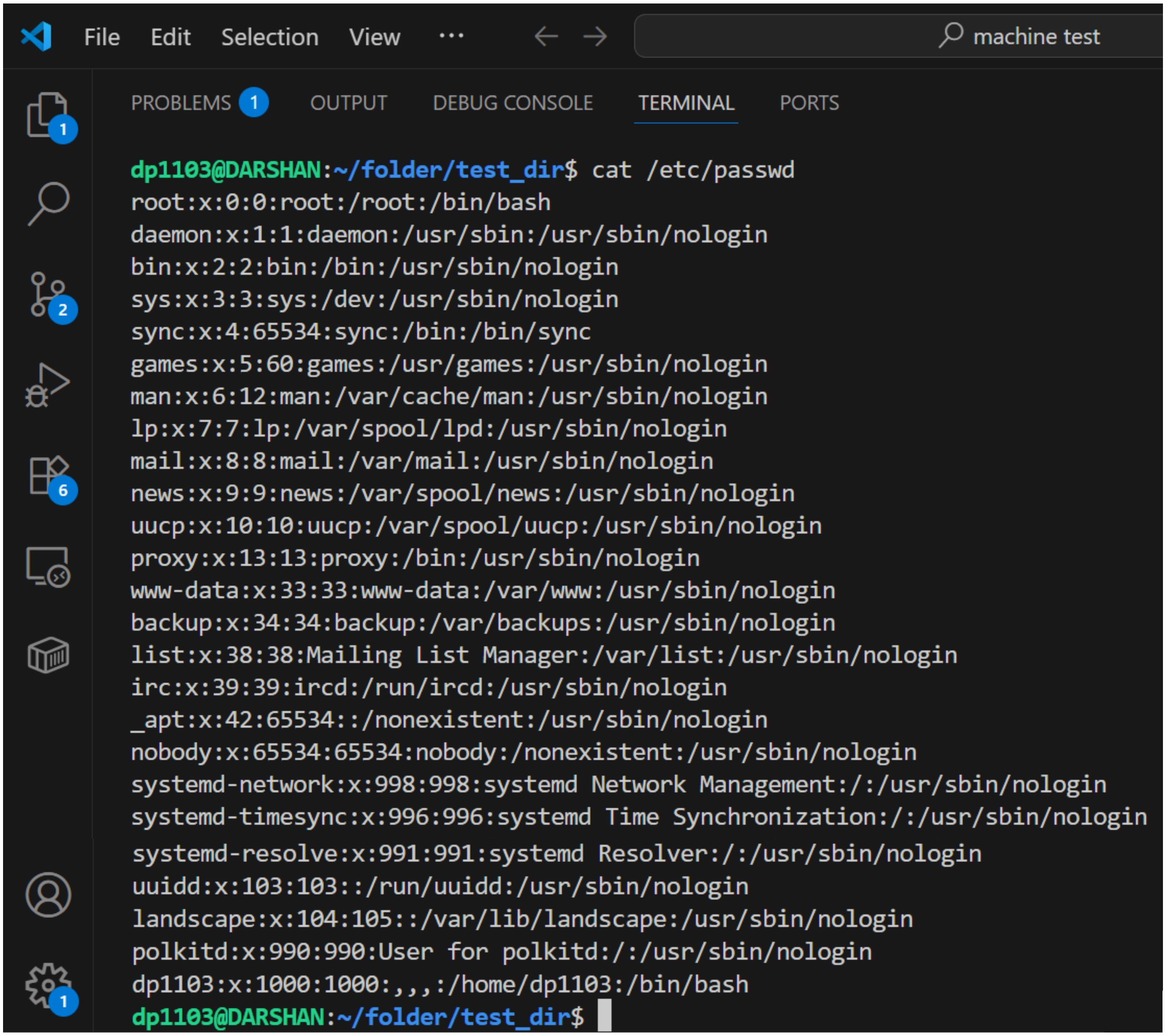
- **mkdir**: This command is used to create a new directory. For example, mkdir projects will make a folder named "projects".

- **touch**: It creates an empty file. If you run touch notes.txt, it will generate a blank file called "notes.txt".

- **mv**: You can use this to move or rename files. For instance, mv old.txt new.txt renames "old.txt" to "new.txt".
- **ls**: This lists all files and folders in the current directory. Typing ls will show you what's inside.
- **cd**: It lets you change your current directory. So, cd documents will take you into the "documents" folder.

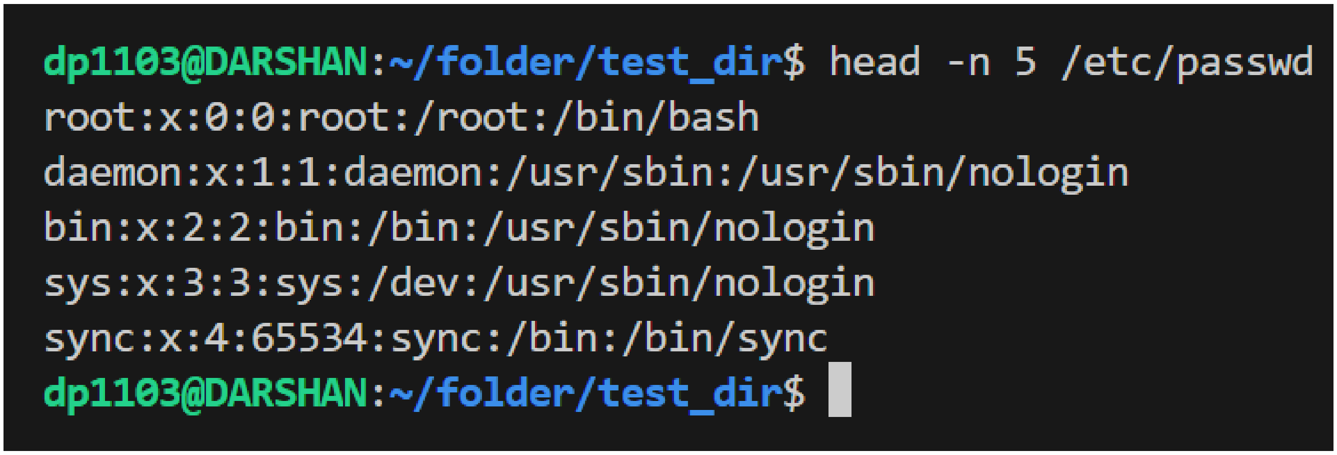
2. Viewing File Contents

Use cat to display the contents of /etc/passwd.



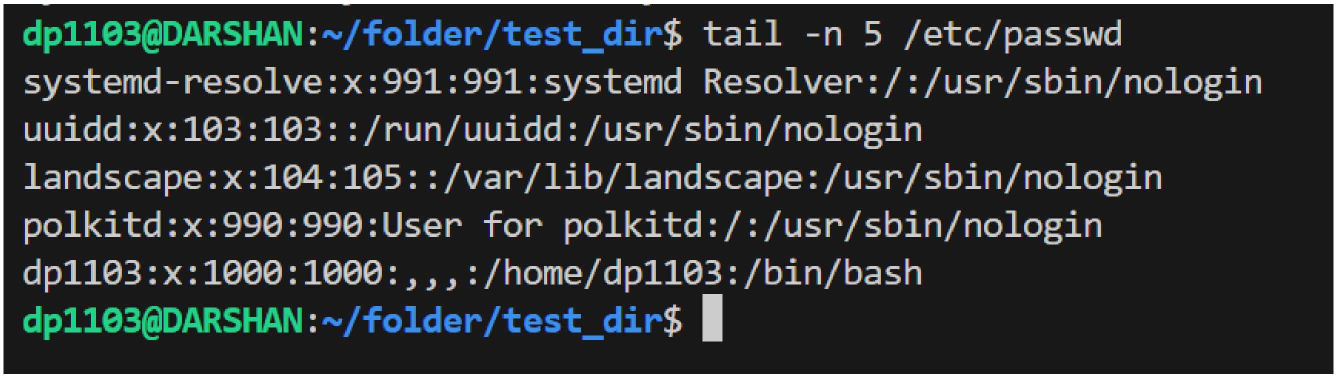
```
dp1103@DARSHAN:~/folder/test_dir$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin
systemd-timesync:x:996:996:systemd Time Synchronization:/:/usr/sbin/nologin
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin
uuidd:x:103:103::/run/uuidd:/usr/sbin/nologin
landscape:x:104:105::/var/lib/landscape:/usr/sbin/nologin
polkitd:x:990:990:User for polkitd:/:/usr/sbin/nologin
dp1103:x:1000:1000:,,,:/home/dp1103:/bin/bash
dp1103@DARSHAN:~/folder/test_dir$
```

Display only the first 5 lines of /etc/passwd using head.



```
dp1103@DARSHAN:~/folder/test_dir$ head -n 5 /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
dp1103@DARSHAN:~/folder/test_dir$
```

Display only the last 5 lines of /etc/passwd using tail.

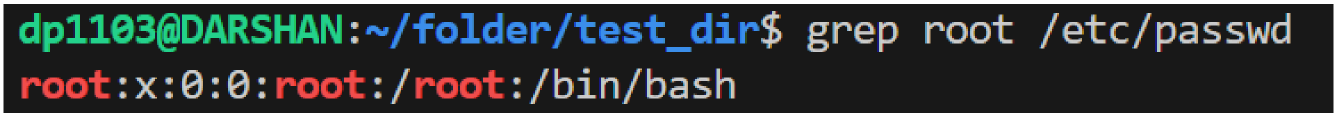


```
dp1103@DARSHAN:~/folder/test_dir$ tail -n 5 /etc/passwd
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin
uuidd:x:103:103::/run/uuidd:/usr/sbin/nologin
landscape:x:104:105::/var/lib/landscape:/usr/sbin/nologin
polkitd:x:990:990:User for polkitd:/:/usr/sbin/nologin
dp1103:x:1000:1000:,,,:/home/dp1103:/bin/bash
dp1103@DARSHAN:~/folder/test_dir$
```

- **cat**: This command displays the entire content of a file. For example, cat file.txt will print everything inside file.txt to the terminal. It's also used to combine files or redirect content into new ones.
- **head**: It shows the first few lines of a file. If you run head file.txt, you'll see the beginning of the file. You can customize it with head -n 5 file.txt to show just the first 5 lines.
- **tail**: This command displays the last few lines of a file—again. For example, tail file.txt shows the end of the file. You can use tail -f file.txt to follow live updates, which is great for monitoring logs.

3.Searching for Patterns

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

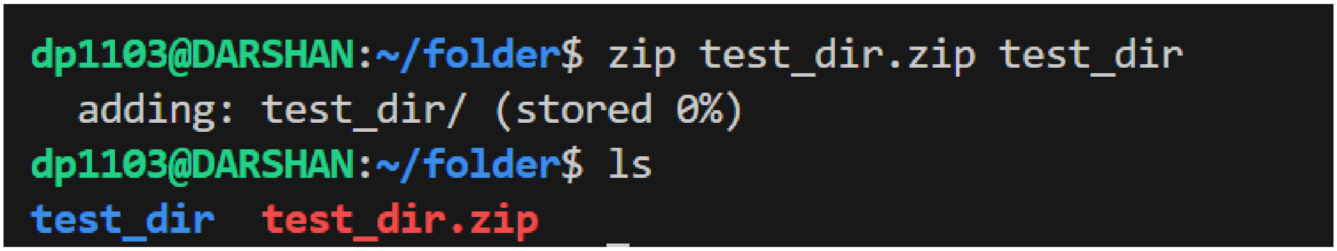


```
dp1103@DARSHAN:~/folder/test_dir$ grep root /etc/passwd
root:x:0:0:root:/root:/bin/bash
```

- **grep:** searches for specific patterns or words in a file and prints the lines that contain them. For example, grep "error" log.txt will show all lines in log.txt that contain the word "error".

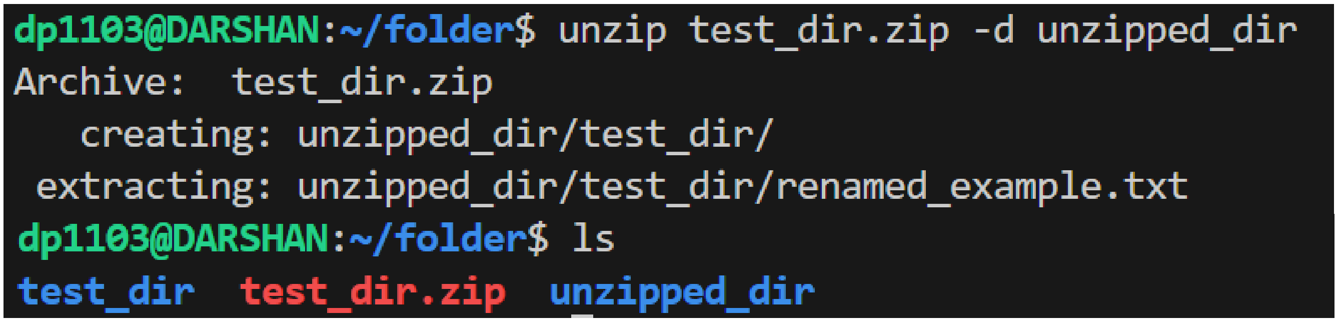
4. Zipping and Unzipping

Compress the test_dir directory into a file named test_dir.zip using zip.



```
dp1103@DARSHAN:~/folder$ zip test_dir.zip test_dir
  adding: test_dir/ (stored 0%)
dp1103@DARSHAN:~/folder$ ls
test_dir  test_dir.zip
```

Unzip test_dir.zip into a new directory named unzipped_dir.



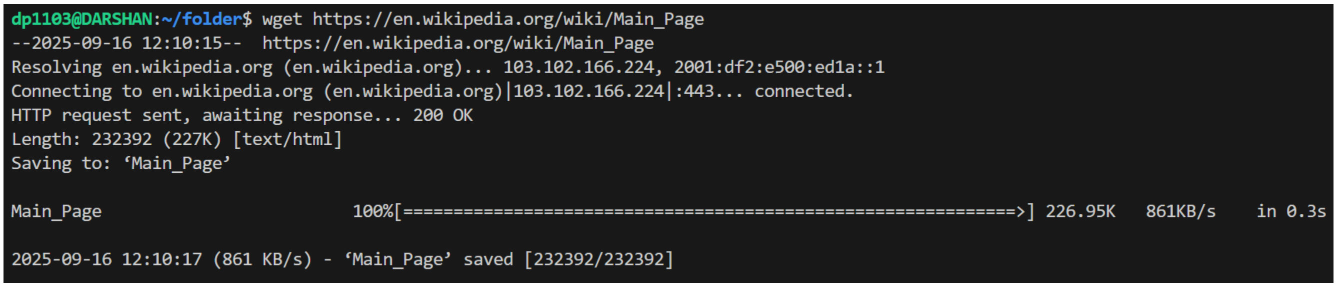
```
dp1103@DARSHAN:~/folder$ unzip test_dir.zip -d unzipped_dir
Archive:  test_dir.zip
   creating: unzipped_dir/test_dir/
 extracting: unzipped_dir/test_dir/renamed_example.txt
dp1103@DARSHAN:~/folder$ ls
test_dir  test_dir.zip  unzipped_dir
```

- **zip:** zip command compresses one or more files or directories into a .zip archive to save space or make sharing easier. For example, zip archive.zip file1.txt file2.txt creates a compressed file named archive.zip containing file1.txt and file2.txt.

- **unzip:** The unzip command extracts files from a .zip archive back into their original form. For instance, unzip archive.zip will unpack all files inside archive.zip into the current directory.

5. Downloading Files

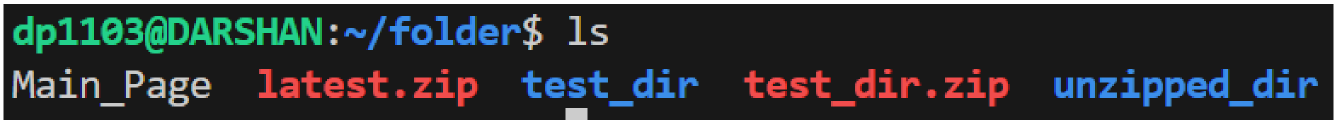
Use wget to download a file from a URL (e.g., https://example.com/sample.txt).



```
dp1103@DARSHAN:~/folder$ wget https://en.wikipedia.org/wiki/Main_Page
--2025-09-16 12:10:15--  https://en.wikipedia.org/wiki/Main_Page
Resolving en.wikipedia.org (en.wikipedia.org)... 103.102.166.224, 2001:df2:e500:ed1a::1
Connecting to en.wikipedia.org (en.wikipedia.org)|103.102.166.224|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 232392 (227K) [text/html]
Saving to: ‘Main_Page’

Main_Page                   100%[=============================================================>] 226.95K   861KB/s    in 0.3s

2025-09-16 12:10:17 (861 KB/s) - ‘Main_Page’ saved [232392/232392]
```

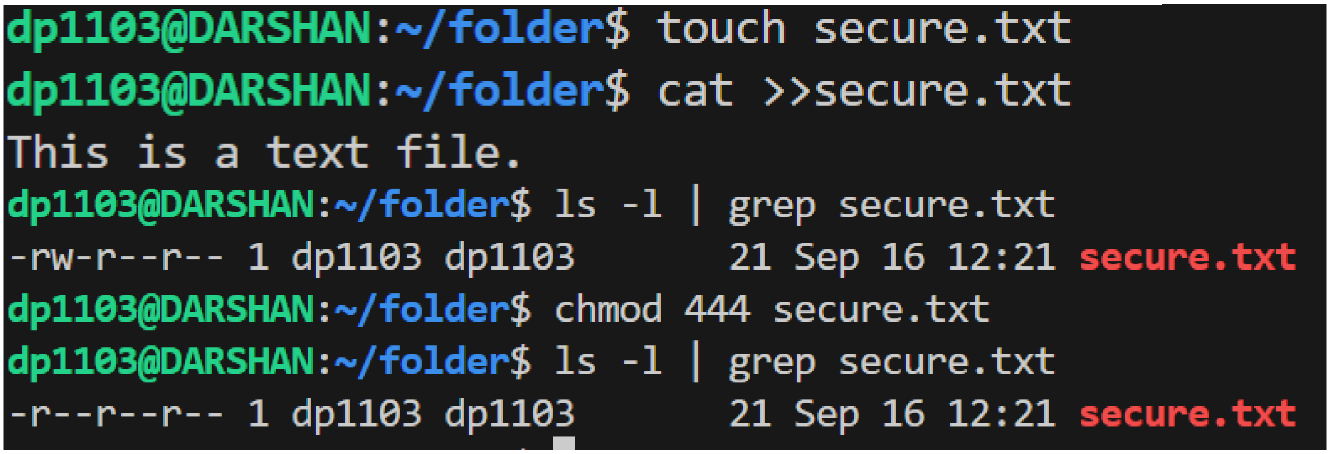


```
dp1103@DARSHAN:~/folder$ ls
Main_Page  latest.zip  test_dir  test_dir.zip  unzipped_dir
```

- **wget**: wget fetches files from web servers and saves them locally. For example, wget https://example.com/file.zip will download file.zip from that URL into your current directory.

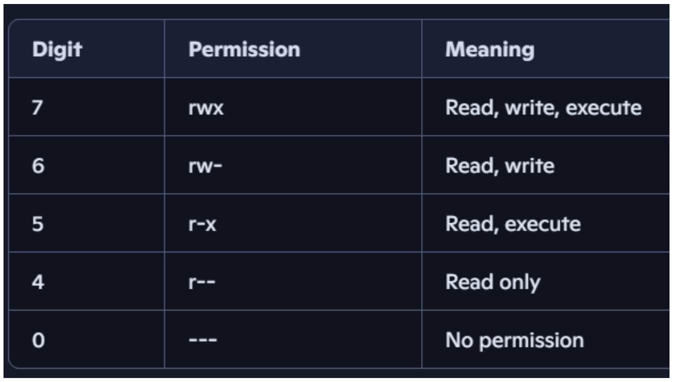
6. Changing Permissions

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



```
dp1103@DARSHAN:~/folder$ touch secure.txt
dp1103@DARSHAN:~/folder$ cat >>secure.txt
This is a text file.
dp1103@DARSHAN:~/folder$ ls -l | grep secure.txt
-rw-r--r-- 1 dp1103 dp1103      21 Sep 16 12:21 secure.txt
dp1103@DARSHAN:~/folder$ chmod 444 secure.txt
dp1103@DARSHAN:~/folder$ ls -l | grep secure.txt
-r--r--r-- 1 dp1103 dp1103      21 Sep 16 12:21 secure.txt
```

- **chmod** : chmod command in Linux is used to **change the permissions** of files and directories. It stands for **"change mode"**, and it lets you control who can **read**, **write**, or **execute** a file.
- **grep**: grep scans files line by line and prints only those lines that match the pattern you specify.

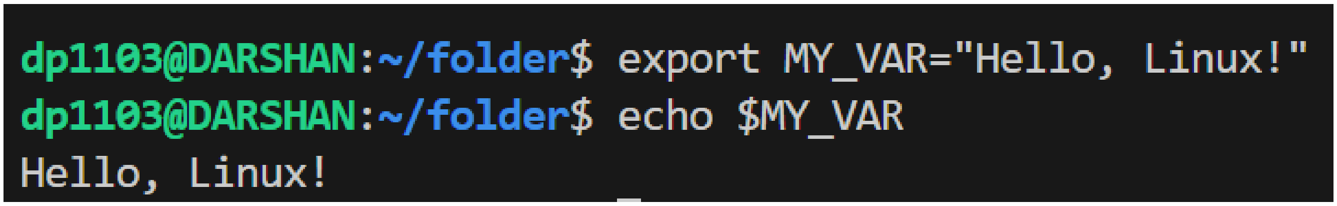


Digit	Permission	Meaning
7	rwx	Read, write, execute
6	rw-	Read, write
5	r-x	Read, execute
4	r--	Read only
0	---	No permission

444 sets read-only access for: **User (owner)**, **Group, Others**

7. Working with Environment Variables

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



```
dp1103@DARSHAN:~/folder$ export MY_VAR="Hello, Linux!"
dp1103@DARSHAN:~/folder$ echo $MY_VAR
Hello, Linux!
```

echo: Prints text or variable values to the terminal.

export: Sets environment variables and makes them available to child processes.