1. Creating and Renaming Files/Directories

```
ubuntu@ip-172-31-11-135:~$ mkdir test_dir
ubuntu@ip-172-31-11-135:~$ ls
test_dir
ubuntu@ip-172-31-11-135:~$ touch example.txt
ubuntu@ip-172-31-11-135:~$ ls
example.txt   test_dir
ubuntu@ip-172-31-11-135:~$ mv example.txt test_dir
ubuntu@ip-172-31-11-135:~$ ls
test_dir
ubuntu@ip-172-31-11-135:~$ cat test_dir
cat: test_dir: Is a directory
ubuntu@ip-172-31-11-135:~$ cd test_dir
ubuntu@ip-172-31-11-135:~/test_dir$ ls
example.txt
ubuntu@ip-172-31-11-135:~/test_dir$ mv example.txt renamed_example.txt
ubuntu@ip-172-31-11-135:~/test_dir$ ls
renamed_example.txt
ubuntu@ip-172-31-11-135:~/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.

```
ubuntu@ip-172-31-11-135:~/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
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin
syslog:x:102:102::/nonexistent:/usr/sbin/nologin
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin
uuidd:x:103:103::/run/uuidd:/usr/sbin/nologin
tss:x:104:104:TPM software stack,,,:/var/lib/tpm:/bin/false
sshd:x:105:65534::/run/sshd:/usr/sbin/nologin
pollinate:x:106:1::/var/cache/pollinate:/bin/false
```

```
tcpdump:x:107:108::/nonexistent:/usr/sbin/nologin
landscape:x:108:109::/var/lib/landscape:/usr/sbin/nologin
fwupd-refresh:x:990:990:Firmware update daemon:/var/lib/fwupd:/usr/sbin/nologin
polkitd:x:989:989:User for polkitd:/:/usr/sbin/nologin
ec2-instance-connect:x:109:65534::/nonexistent:/usr/sbin/nologin
_chrony:x:110:112:Chrony daemon,,,:/var/lib/chrony:/usr/sbin/nologin
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash
newuser:x:1001:1001::/home/updateduser:/bin/sh
ubuntu@ip-172-31-11-135:~/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
ubuntu@ip-172-31-11-135:~/test_dir$ tail -n 5 /etc/passwd
polkitd:x:989:989:User for polkitd:/:/usr/sbin/nologin
ec2-instance-connect:x:109:65534::/nonexistent:/usr/sbin/nologin
_chrony:x:110:112:Chrony daemon,,,:/var/lib/chrony:/usr/sbin/nologin
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash
newuser:x:1001:1001::/home/updateduser:/bin/sh
ubuntu@ip-172-31-11-135:~/test_dir$
```

3.Searching for Patterns

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

```
ubuntu@ip-172-31-11-135:~/test_dir$ grep "root" /etc/passwd
root:x:0:0:root:/root:/bin/bash
ubuntu@ip-172-31-11-135:~/test_dir$
```

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.

```
ubuntu@ip-172-31-11-199:~$ zip -r test_dir.zip test_dir
updating: test_dir/ (stored 0%)
updating: test_dir/example.txt (stored 0%)
ubuntu@ip-172-31-11-199:~$ mkdir unzipped_dir
ubuntu@ip-172-31-11-199:~$ unzip test_dir.zip -d unzipped_dir
Archive:  test_dir.zip
   creating: unzipped_dir/test_dir/
 extracting: unzipped_dir/test_dir/example.txt
ubuntu@ip-172-31-11-199:~$
```

5. Downloading Files

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

```
ubuntu@ip-172-31-11-199:~$ wget https://gist.githubusercontent.com/Talha-Altair/b8a27d2b45add1dd7658fd34fa1968db/raw/bc45208c96df65e8e659c04e7d1f1bb54ec5b7e2/linux_com
mands.txt
--2025-06-03 09:20:52-- https://gist.githubusercontent.com/Talha-Altair/b8a27d2b45add1dd7658fd34fa1968db/raw/bc45208c96df65e8e659c04e7d1f1bb54ec5b7e2/linux_commands.t
xt
Resolving gist.githubusercontent.com (gist.githubusercontent.com)... 185.199.111.133, 185.199.108.133, 185.199.109.133, ...
Connecting to gist.githubusercontent.com (gist.githubusercontent.com)|185.199.111.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1742 (1.7K) [text/plain]
Saving to: 'linux_commands.txt'

linux_commands.txt            100%[===================================================================================>]   1.70K  --.-KB/s    in 0s

2025-06-03 09:20:52 (36.4 MB/s) - 'linux_commands.txt' saved [1742/1742]

ubuntu@ip-172-31-11-199:~$ ls
linux_commands.txt  secure.txt  test_dir  test_dir.unzip  test_dir.zip  unzipped_dir
ubuntu@ip-172-31-11-199:~$ cat linux_command.txt
cat: linux_command.txt: No such file or directory
ubuntu@ip-172-31-11-199:~$ cat linux_commands.txt
ls - The most frequently used command in Linux to list directories
pwd - Print working directory command in Linux
cd - Linux command to navigate through directories
mkdir - Command used to create directories in Linux
mv - Move or rename files in Linux
cp - Similar usage as mv but for copying files in Linux
rm - Delete files or directories
touch - Create blank/empty files
ln - Create symbolic links (shortcuts) to other files
cat - Display file contents on the terminal
```

```
clear - Clear the terminal display
echo - Print any text that follows the command
man - Access manual pages for all Linux commands
uname - Linux command to get basic information about the OS
whoami - Get the active username
tar - Command to extract and compress files in Linux
grep - Search for a string within an output
head - Return the specified number of lines from the top
tail - Return the specified number of lines from the bottom
export - Export environment variables in Linux
zip - Zip files in Linux
unzip - Unzip files in Linux
ssh - Secure Shell command in Linux
service - Linux command to start and stop services
ps - Display active processes
kill and killall - Kill active processes by process ID or name
df - Display disk filesystem information
chmod - Command to change file permissions
ifconfig - Display network interfaces and IP addresses
wget - Direct download files from the internet
ufw - Firewall command
apt, pacman, yum, rpm - Package managers depending on the distro
sudo - Command to escalate privileges in Linux
alias - Create custom shortcuts for your regularly used commands
whereis - Locate the binary, source, and manual pages for a command
whatis - Find what a command is used for
top - View active processes live with their system usageubuntu@ip-172-31-11-199:~$
```

6. Changing Permissions

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

```
ubuntu@ip-172-31-11-199:~$ touch secure.txt
ubuntu@ip-172-31-11-199:~$ ls -al
total 44
drwxr-x--- 6 ubuntu ubuntu 4096 Jun  3 08:58 .
drwxr-xr-x 3 root   root   4096 Jun  3 08:36 ..
-rw-r--r-- 1 ubuntu ubuntu  220 Mar 31  2024 .bash_logout
-rw-r--r-- 1 ubuntu ubuntu 3771 Mar 31  2024 .bashrc
drwx------ 2 ubuntu ubuntu 4096 Jun  3 08:38 .cache
-rw-r--r-- 1 ubuntu ubuntu  807 Mar 31  2024 .profile
drwx------ 2 ubuntu ubuntu 4096 Jun  3 08:36 .ssh
-rw-r--r-- 1 ubuntu ubuntu    0 Jun  3 08:38 .sudo_as_admin_successful
-rw-rw-r-- 1 ubuntu ubuntu    0 Jun  3 08:58 secure.txt
drwxrwxr-x 2 ubuntu ubuntu 4096 Jun  3 08:39 test_dir
-rw-rw-r-- 1 ubuntu ubuntu  336 Jun  3 08:43 test_dir.unzip
-rw-rw-r-- 1 ubuntu ubuntu  336 Jun  3 08:46 test_dir.zip
drwxrwxr-x 3 ubuntu ubuntu 4096 Jun  3 08:48 unzipped_dir
ubuntu@ip-172-31-11-199:~$ chmod +x secure.txt
ubuntu@ip-172-31-11-199:~$ ls -al
total 44
drwxr-x--- 6 ubuntu ubuntu 4096 Jun  3 08:58 .
drwxr-xr-x 3 root   root   4096 Jun  3 08:36 ..
-rw-r--r-- 1 ubuntu ubuntu  220 Mar 31  2024 .bash_logout
-rw-r--r-- 1 ubuntu ubuntu 3771 Mar 31  2024 .bashrc
drwx------ 2 ubuntu ubuntu 4096 Jun  3 08:38 .cache
-rw-r--r-- 1 ubuntu ubuntu  807 Mar 31  2024 .profile
drwx------ 2 ubuntu ubuntu 4096 Jun  3 08:36 .ssh
-rw-r--r-- 1 ubuntu ubuntu    0 Jun  3 08:38 .sudo_as_admin_successful
-rwxrwxr-x 1 ubuntu ubuntu    0 Jun  3 08:58 secure.txt
drwxrwxr-x 2 ubuntu ubuntu 4096 Jun  3 08:39 test_dir
-rw-rw-r-- 1 ubuntu ubuntu  336 Jun  3 08:43 test_dir.unzip
-rw-rw-r-- 1 ubuntu ubuntu  336 Jun  3 08:46 test_dir.zip
drwxrwxr-x 3 ubuntu ubuntu 4096 Jun  3 08:48 unzipped_dir
ubuntu@ip-172-31-11-199:~$ chmod 444 secure.txt
ubuntu@ip-172-31-11-199:~$ ls -al
total 44
drwxr-x--- 6 ubuntu ubuntu 4096 Jun  3 08:58 .
drwxr-xr-x 3 root   root   4096 Jun  3 08:36 ..
-rw-r--r-- 1 ubuntu ubuntu  220 Mar 31  2024 .bash_logout
-rw-r--r-- 1 ubuntu ubuntu 3771 Mar 31  2024 .bashrc
drwx------ 2 ubuntu ubuntu 4096 Jun  3 08:38 .cache
-rw-r--r-- 1 ubuntu ubuntu  807 Mar 31  2024 .profile
drwx------ 2 ubuntu ubuntu 4096 Jun  3 08:36 .ssh
-rw-r--r-- 1 ubuntu ubuntu    0 Jun  3 08:38 .sudo_as_admin_successful
-r--r--r-- 1 ubuntu ubuntu    0 Jun  3 08:58 secure.txt
drwxrwxr-x 2 ubuntu ubuntu 4096 Jun  3 08:39 test_dir
-rw-rw-r-- 1 ubuntu ubuntu  336 Jun  3 08:43 test_dir.unzip
-rw-rw-r-- 1 ubuntu ubuntu  336 Jun  3 08:46 test_dir.zip
drwxrwxr-x 3 ubuntu ubuntu 4096 Jun  3 08:48 unzipped_dir
ubuntu@ip-172-31-11-199:~$
```

7. Working with Environment Variables

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

```
ubuntu@ip-172-31-11-199:~$ export MY_VAR="Hello, Linux!"
ubuntu@ip-172-31-11-199:~$ echo $MY_VAR
Hello, Linux!
ubuntu@ip-172-31-11-199:~$
```