Assignment 1

1. **How do you use the "cp" command to copy a file named "file.txt" from the current directory to a directory named "backup"?**

   Ans:

```
Ayu@cdac1:~/Assignment1$ cp file.txt /home/Ayu/backup
Ayu@cdac1:~/Assignment1$ cd ..
Ayu@cdac1:~$ cd backup
Ayu@cdac1:~/backup$ ls
file.txt
Ayu@cdac1:~/backup$
```

2. **What is the difference between the "rm" and "rm -r" commands in Linux?**

   Ans:

   The difference between the **"rm"** and **"rm -r"** commands in Linux is

   rm: This command is used to remove (delete) individual files only. It does not delete directories.

   rm -r: The -r (recursive) option allows the removal of a directory and all of its contents, including subdirectories and files inside it. This means it deletes the directory recursively.

3. **How do you use the "mv" command to rename a file named "oldname.txt" to "newname.txt"?**

   Ans:

```
Ayu@cdac1:~/Assignment1$ echo "Oldname"> oldname.txt
Ayu@cdac1:~/Assignment1$ ls
file.txt  oldname.txt
Ayu@cdac1:~/Assignment1$ mv oldname.txt newname.txt
Ayu@cdac1:~/Assignment1$ ls
file.txt  newname.txt
Ayu@cdac1:~/Assignment1$
```

4. **What does the "pwd" command do in Linux?**

   Ans:

   The pwd command in Linux stands for "print working directory." It displays the full path of the current directory you are in, starting from the root directory /. This command is useful to know exactly where you are in the filesystem hierarchy.

5. **How do you create a new empty file named "newfile.txt" in the current directory using the command line?**

   Ans:

```
Ayu@cdac1:~/Assignment1$ touch newfile.txt
Ayu@cdac1:~/Assignment1$ ls
file.txt  newfile.txt  newname.txt
```

6. **How do you rename a file named "oldname.txt" to "newname.txt" using the command line?**

```
Ayu@cdac1:~/Assignment1$ echo "Oldname"> oldname.txt
Ayu@cdac1:~/Assignment1$ ls
file.txt  oldname.txt
Ayu@cdac1:~/Assignment1$ mv oldname.txt newname.txt
Ayu@cdac1:~/Assignment1$ ls
file.txt  newname.txt
Ayu@cdac1:~/Assignment1$
```

7. **How do you remove a file named "file.txt" from the current directory using the command line?**

```
Ayu@cdac1:~/Assignment1$ rm file.txt
Ayu@cdac1:~/Assignment1$ ls
newfile.txt  newname.txt
```

8. **Use a command to show the current working directory**

```
Ayu@cdac1:~/Assignment1$ pwd
/home/Ayu/Assignment1
```

9. **List the directory contents in the short and long format**

```
Ayu@cdac1:~/Assignment1$ ls
newfile.txt  newname.txt
Ayu@cdac1:~/Assignment1$ ls -l
total 4
-rw-rw-r-- 1 Ayu Ayu 0 Aug 28 16:06 newfile.txt
-rw-rw-r-- 1 Ayu Ayu 8 Aug 28 15:48 newname.txt
```

10. **Explore attributes given in long format e.g. file type, file permissions, file size, file owner etc.**

```
Ayu@cdac1:~/Assignment1$ ls -n
total 4
-rw-rw-r-- 1 1000 1000 0 Aug 28 16:06 newfile.txt
-rw-rw-r-- 1 1000 1000 8 Aug 28 15:48 newname.txt
```

11. **List all files along with hidden files in the current working directory.**

```
Ayu@cdac1:~/Assignment1$ ls -a
.  ..  newfile.txt  newname.txt
```

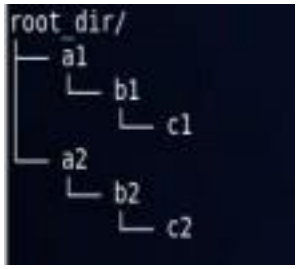
12. **list only hidden files in the directory**

```
Ayu@cdac1:~$ ls -ld .*
-rw-------  1 Ayu Ayu 2295 Aug 28 16:18 .bash_history
-rw-r--r--  1 Ayu Ayu  220 Mar 31  2024 .bash_logout
-rw-r--r--  1 Ayu Ayu 3771 Mar 31  2024 .bashrc
drwx------ 13 Ayu Ayu 4096 Aug 28 15:50 .cache
drwx------ 17 Ayu Ayu 4096 Aug 28 15:50 .config
drwx------  2 Ayu Ayu 4096 Aug 25 07:29 .gnupg
-rw-------  1 Ayu Ayu   20 Aug 29 17:44 .lesshst
drwx------  4 Ayu Ayu 4096 Aug 25 07:28 .local
-rw-r--r--  1 Ayu Ayu  807 Mar 31  2024 .profile
drwx------  2 Ayu Ayu 4096 Aug 25 07:25 .ssh
-rw-r--r--  1 Ayu Ayu    0 Aug 25 21:16 .sudo_as_admin_successful
Ayu@cdac1:~$
```

13. **Make a directory and name it as cdac-dir and change the current working directory to the new directory.(Hint : use mkdir,cd commands). 3. Create following nested**

directories inside the current directory by invoking a single command for only one time.

Note : here root_dir is the current directory.



Directory structure 1 Directory structure 2

Ans:

```
Ayu@cdac1:~$ mkdir cdac-dir
Ayu@cdac1:~$ cd cdac-dir
Ayu@cdac1:~/cdac-dir$ mkdir -p a1/b1 a1/b2 a2/c1 a2/c2
Ayu@cdac1:~/cdac-dir$ tree
locales-launch: Data of en_US locale not found, generating, please wait...
^C
Ayu@cdac1:~/cdac-dir$ tree
.
├── a1
│   ├── b1
│   └── b2
└── a2
    ├── c1
    └── c2

7 directories, 0 files
```

```
Ayu@cdac1:~$ mkdir cdac1-dir
Ayu@cdac1:~$ cd cdac1-dir
Ayu@cdac1:~/cdac1-dir$ mkdir -p a1/b1/c1  a2/b2/c2
Ayu@cdac1:~/cdac1-dir$ tree
.
├── a1
│   └── b1
│       └── c1
└── a2
    └── b2
        └── c2

7 directories, 0 files
```

14. **(Hint : explore the man page of mkdir).**

```
MKDIR(1)                        User Commands                        MKDIR(1)

NAME
       mkdir - make directories

SYNOPSIS
       mkdir [OPTION]... DIRECTORY...

DESCRIPTION
       Create the DIRECTORY(ies), if they do not already exist.

       Mandatory  arguments  to  long  options are mandatory for short options
       too.

       -m, --mode=MODE
              set file mode (as in chmod), not a=rwx - umask
```

15. **List the directories(folders), then remove the cdac-dir directory and list the folders again to show that it is no longer present.(Hint : use rm, ls command)**

Ans:

```
Ayu@cdac1:~/Assignment1$ ls
cdac-dir  newfile.txt  newname.txt
Ayu@cdac1:~/Assignment1$ rm -r cdac-dir
Ayu@cdac1:~/Assignment1$ ls
newfile.txt  newname.txt
Ayu@cdac1:~/Assignment1$
```

16. **Question-2**

17. Display the man-page for ls, but redirect the output into temp.txt, then use the cat,less, and more commands to display the new file

```
Ayu@cdac1:~$ less temp.txt

[1]+  Stopped                 less temp.txt
Ayu@cdac1:~$ more temp.txt
LS(1)                           User Commands                           LS(1)

NAME
```

18. Display the initial 10 lines and final 5 lines of **temp.txt** with the obvious Linux commands.(Hint: use **head** and **tail** commands).

```
Ayu@cdac1:~$ head -n 10 temp.txt
LS(1)                          User Commands                          LS(1)

NAME
       ls - list directory contents

SYNOPSIS
       ls [OPTION]... [FILE]...

DESCRIPTION
       List  information  about  the FILEs (the current directory by default).
Ayu@cdac1:~$ tail -n 5 temp.txt

       Full documentation <https://www.gnu.org/software/coreutils/ls>
       or available locally via: info '(coreutils) ls invocation'

GNU coreutils 9.4                 April 2024                          LS(1)
```

19. Copy **temp.txt** to another directory and rename it there.

    (**Hint**: use **cp** to copy and **mv** command to rename).

```
Ayu@cdac1:~/dir11$ cp temp.txt /home/Ayu/Assignment1
Ayu@cdac1:~/dir11$ cd ..
Ayu@cdac1:~$ cd Assignment1
Ayu@cdac1:~/Assignment1$ ls
dir1  newfile.txt  newname.txt  temp.txt
Ayu@cdac1:~/Assignment1$ mv temp.txt temp1.txt
Ayu@cdac1:~/Assignment1$ ls
dir1  newfile.txt  newname.txt  temp1.txt
Ayu@cdac1:~/Assignment1$
```

20. Display the number of lines, words and characters in file using Linux command

    (**Hint**: use **wc** command).na

```
Ayu@cdac1:~/Assignment1$ wc -l kohli.txt
7 kohli.txt
Ayu@cdac1:~/Assignment1$ wc -w kohli.txt
336 kohli.txt
Ayu@cdac1:~/Assignment1$ wc -m kohli.txt
1922 kohli.txt
Ayu@cdac1:~/Assignment1$
```

21. Use history command to display the last 10 commands used. (**Hint**: use **history** command).

```
Ayu@cdac1:~$ history 10
  250  more temp.txt
  251  ls -d *.
  252  cd ..
  253  ls -d *.
  254  sudo snap install tree
  255  date
  256  cal
  257  sudo date -s "14 mar 2024 10:10:00"
  258  history
  259  history 10
```

22. Create a tar archive file of any directory present in your home directory. (**Hint**: use **tar** command)

```
Ayu@cdac1:~$ tar -cvf archive.tar Assignment1
Assignment1/
Assignment1/dir1/
Assignment1/newname.txt
Assignment1/kohli.txt
Assignment1/newfile.txt
Assignment1/archive.tar
Assignment1/temp1.txt
Ayu@cdac1:~$ ls
archive.tar  ayu2       cdac-dir        dbda25_rnm1.sh  Desktop    Downloads  Pictures  s
Assignment1  backup     dbda25          dbda25_rnm2.sh  dir11      linux      Public    T
Assignmet1   cdac1-dir  dbda25_rmn3.sh  dbdaaug25       Documents  Music      snap      t
Ayu@cdac1:~$
```

23. Create a zip file of another directory. (**Hint**: use **zip** command) - list the contents of the zip file without extracting.

```
Ayu@cdac1:~$ zip -r newzip.zip /home/Ayu/dbda25_rmn3.sh
  adding: home/Ayu/dbda25_rmn3.sh (stored 0%)
Ayu@cdac1:~$ ls
archive.tar  ayu2       cdac-dir        dbda25_rnm1.sh  Desktop    Downloads  newzip.zip
Assignment1  backup     dbda25          dbda25_rnm2.sh  dir11      linux      Pictures
Assignmet1   cdac1-dir  dbda25_rmn3.sh  dbdaaug25       Documents  Music      Public
Ayu@cdac1:~$ zip -r newzip.zip dbda25
  adding: dbda25/ (stored 0%)
  adding: dbda25/file7.txt (stored 0%)
  adding: dbda25/.file7.txt (stored 0%)
Ayu@cdac1:~$ zip -sf newzip.zip
Archive contains:
  home/Ayu/dbda25_rmn3.sh
  dbda25/
  dbda25/file7.txt
  dbda25/.file7.txt
Total 4 entries (14 bytes)
Ayu@cdac1:~$
```

24. Give read, write & execute permissions to your file. (**Hint**: use **chmod** command)

```
Ayu@cdac1:~$ chmod 777 abc.txt
Ayu@cdac1:~$ ls
abc.txt      Assignmet1  cdac1-dir  dbda25_rmn3.sh  dbdaaug25  Documents  Music       Pub
archive.tar  ayu2        cdac-dir   dbda25_rnm1.sh  Desktop    Downloads  newzip.zip  sna
Assignment1  backup      dbda25     dbda25_rnm2.sh  dir11      linux      Pictures    sor
Ayu@cdac1:~$ ls -l abc.txt
-rwxrwxrwx 1 Ayu Ayu 0 Aug 29 20:01 abc.txt
Ayu@cdac1:~$
```

25. Change ownership of that file.(**Hint**: use **chown** command)

```
Ayu@cdac1:~$ sudo chown admin uniqe.txt
Ayu@cdac1:~$ ls -l uniqe.txt
-rw-rw--w- 1 admin Ayu 100 Aug 30 14:01 uniqe.txt
Ayu@cdac1:~$
```

26. List processes running in shell, all running processes(**Hint**: use man page of **ps** command) and show top processes in decreasing order of their resource utilization.(**Hint**: use **top** command).

```
Ayu@cdac1:~/Assignment1$ ps -ef
UID          PID    PPID  C STIME TTY          TIME CMD
root           1       0  0 14:02 ?        00:00:05 /sbin/init splash
root           2       0  0 14:02 ?        00:00:00 [kthreadd]
root           3       2  0 14:02 ?        00:00:00 [pool_workqueue_release]
root           4       2  0 14:02 ?        00:00:00 [kworker/R-rcu_gp]
root           5       2  0 14:02 ?        00:00:00 [kworker/R-sync_wq]
root           6       2  0 14:02 ?        00:00:00 [kworker/R-kvfree_rcu_reclai
root           7       2  0 14:02 ?        00:00:00 [kworker/R-slub_flushwq]
root           8       2  0 14:02 ?        00:00:00 [kworker/R-netns]
```

```
Ayu@cdac1:~/Assignment1$ top

top - 18:58:36 up  4:55,  1 user,  load average: 0.27, 0.11, 0.06
Tasks: 213 total,   1 running, 211 sleeping,   0 stopped,   1 zombie
%Cpu(s):  1.1 us,  1.4 sy,  0.0 ni, 97.0 id,  0.0 wa,  0.0 hi,  0.5 si,  0.0 st
MiB Mem :   1968.3 total,    411.9 free,   1207.2 used,    537.5 buff/cache
MiB Swap:      0.0 total,      0.0 free,      0.0 used.    761.1 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   3276 Ayu       20   0 4038828 324208  51872 S   4.0  16.1   6:15.12 gnome-s+
   8247 Ayu       20   0 1709924 208440  23792 S   4.0  10.3   0:09.22 nautilus
   4930 Ayu       20   0  565260  32548  18852 S   0.7   1.6   0:47.35 gnome-t+
    687 avahi     20   0    9092   2008   1240 S   0.3   0.1   0:24.80 avahi-d+
   9467 Ayu       20   0  162692   1952   1312 S   0.3   0.1   0:02.12 sd_dummy
  17178 root      20   0       0      0      0 I   0.3   0.0   0:01.76 kworker+
  17597 root      20   0       0      0      0 I   0.3   0.0   0:05.66 kworker+
  18605 root      20   0       0      0      0 I   0.3   0.0   0:00.70 kworker+
  19510 Ayu       20   0   23204   5764   3588 R   0.3   0.3   0:00.06 top
      1 root      20   0   23332   9040   4176 S   0.0   0.4   0:05.10 systemd
```

27. Display current time and calendar (**Hint**: use **date, cal** commands) 2. Change the current date and time of the system to following 14th March 2024, 10:10 AM

```
Ayu@cdac1:~$ date
Thu Aug 28 05:29:27 PM UTC 2025
Ayu@cdac1:~$ cal
    August 2025
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
Ayu@cdac1:~$ sudo date -s "14 mar 2024 10:10:00"
Thu Mar 14 10:10:00 AM UTC 2024
Ayu@cdac1:~$
```

28. Explore following command.
29. who, whoami, whatis, whereis, (**Hint**: use man pages).

```
Ayu@cdac1:~$ who
Ayu      seat0        2025-08-28 11:50 (login screen)
Ayu      tty2         2025-08-28 11:50 (tty2)
Ayu@cdac1:~$ whoami
Ayu
Ayu@cdac1:~$ whatis
whatis what?
Ayu@cdac1:~$ whatis ls
ls (1)               - list directory contents
Ayu@cdac1:~$ whereis ls
ls: /usr/bin/ls /usr/share/man/man1/ls.1.gz
Ayu@cdac1:~$
```

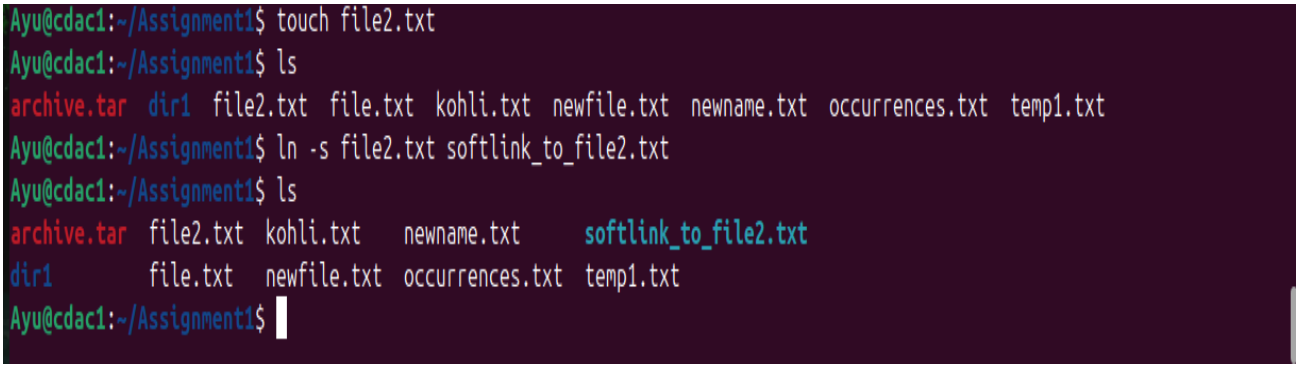
30. Create one directory named linux. cd to that directory and create one file named **testperms.txt.** Check the permissions of that file. Check the value of **umask**. Change the value of umask and create one new file **newtestperms.txt** and check its permissions. Note down the difference.(Hint: use **umask, ls** command)

```
Ayu@cdac1:~$ mkdir linux
Ayu@cdac1:~$ cd linux
Ayu@cdac1:~/linux$ touch testperms.txt
Ayu@cdac1:~/linux$ ls -l testperms.txt
-rw-rw-r-- 1 Ayu Ayu 0 Mar 14 10:33 testperms.txt
Ayu@cdac1:~/linux$ umask
0002
Ayu@cdac1:~/linux$ umask 022
Ayu@cdac1:~/linux$ touch newtestperms.txt
Ayu@cdac1:~/linux$ ls -l newtestperms.txt
-rw-r--r-- 1 Ayu Ayu 0 Mar 14 10:34 newtestperms.txt
Ayu@cdac1:~/linux$ umask
0022
Ayu@cdac1:~/linux$
```

31. Create a file and name it as file1.txt and create a hardlink to this file. (Hint: use **ln** command).

```
Ayu@cdac1:~$ touch pqr.txt
Ayu@cdac1:~$ ln pqr.txt hardfile.txt
Ayu@cdac1:~$ ls
abc.txt      ayu2       dbda25          dbdaaug25  Downloads     newzip.zip  snap
archive.tar  backup     dbda25_rmn3.sh  Desktop    hardfile.txt  Pictures    sort_ex.txt
Assignment1  cdac1-dir  dbda25_rnm1.sh  dir11      linux         pqr.txt     Templates
Assignmet1   cdac-dir   dbda25_rnm2.sh  Documents  Music         Public      temp.txt
Ayu@cdac1:~$
```

32. Create a file and name it as file2.txt and create a softlink to this file. (Hint: use **ln** command).



Hard Link	Soft link
Hard line with being a link.	Soft link is a link which indicates path to its parent file.
Since it is a file by itself, if parent file is deleted, child file remains as it was previously.	Since its a path, if parent file is deleted, child doesn't point tp proper path and becomes a zombie file.
Can be used for creating backup files.	Can be used as a shortcut.
Syntax is: In parentfile.ext childfile.ext	Syntax is: In -s parentfile.ext Q childfile.ext (here, -s indicates soft link)

33. Use **ssh** to connect to your friend's shell by specifying **port number** in the **ssh** command. use **exit** command to come out of your friends shell.
(Hint: use **ssh** command)

```
Ayu@cdac1:~$ sudo systemctl start ssh
Ayu@cdac1:~$ hostname -I
192.168.4.246
Ayu@cdac1:~$ ssh user@192.168.5.19
The authenticity of host '192.168.5.19 (192.168.5.19)' can't be established.
ED25519 key fingerprint is SHA256:OdlW3eDXydjoyfOR2yjwgsDb94Xl1DhPRm+bOc7888c.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.5.19' (ED25519) to the list of known hosts.
user@192.168.5.19's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-28-generic x86_64)
user@cdacDBDAA:~$ exit
logout
Connection to 192.168.5.19 closed.
Ayu@cdac1:~$
```

34. Use **scp** using your friend's credentials to copy a file into a directory **owned by your friend,** inside his home directory, specify port number in **scp** command.

```
user@cdacDBDAA:~$ scp /home/user/file1.txt Ayu@192.168.4.246:/home/Ayu/Desktop
Ayu@192.168.4.246's password:
file1.txt                                     100%   71     4.9KB/s   00:00
user@cdacDBDAA:~$ scp /home/user/file1.txt Ayu@192.168.4.246:/home/Ayu/Newone
Ayu@192.168.4.246's password:
file1.txt                                     100%   71     8.5KB/s   00:00
```

35. Use **scp** using your friend's credentials to copy **directory** into a directory **owned by you**, inside your home directory, specify port number in **scp** command

```
user@cdacDBDAA:~$ scp /home/user/file1.txt Ayu@192.168.4.246:/home/Ayu/Desktop
Ayu@192.168.4.246's password:
file1.txt                                     100%   71     4.9KB/s   00:00
user@cdacDBDAA:~$ scp /home/user/file1.txt Ayu@192.168.4.246:/home/Ayu/Newone
Ayu@192.168.4.246's password:
file1.txt                                     100%   71     8.5KB/s   00:00
```

36. Use **scp** using your friend's credentials to copy **directory** into a directory **owned by you**, inside your home directory, specify port number in **scp** command

37. Connect to any publicly available **ftp** server from the terminal and try to download, upload and delete files. If you get error in any process (connect, upload, download or delete), justify the reasons behind them.(Hint: use **ftp** command) Example:
Try to access **ftp.netbsd.org**
username : **anonymous**
password : **anonymous**

38. How do you remove a directory named "mydir" and all of its contents using the command line?

Ans:

```
Ayu@cdac1:~$ ls
abc.txt      cdac-dir          dir11        newtextfile.txt  snap
archive.tar  copyhardlink.txt  Documents    newzip.zip       soft.txt
Assignment1  dbda25            Downloads    Pictures         sort_ex.txt
Assignment2  dbda25_rmn3.sh    linux        pqr.txt          Templates
Assignmet1   dbda25_rnm1.sh    ln_soft.txt  projects         temp.txt
ayu2         dbda25_rnm2.sh    manuals      Public           uniqe.txt
backup       dbdaaug25         Music        report.pdf       Videos
cdac1-dir    Desktop           mydir        shell            vivocopy
Ayu@cdac1:~$ rm -r mydir
Ayu@cdac1:~$ ls
abc.txt      cdac-dir          dir11            newzip.zip  soft.txt
archive.tar  copyhardlink.txt  Documents        Pictures    sort_ex.txt
Assignment1  dbda25            Downloads        pqr.txt     Templates
Assignment2  dbda25_rmn3.sh    linux            projects    temp.txt
Assignmet1   dbda25_rnm1.sh    ln_soft.txt      Public      uniqe.txt
ayu2         dbda25_rnm2.sh    manuals          report.pdf  Videos
backup       dbdaaug25         Music            shell       vivocopy
cdac1-dir    Desktop           newtextfile.txt  snap
Ayu@cdac1:~$
```

39. How do you use the "ls" command to list all files and directories in the current directory?

```
yu@cdac1:~$ ls
bc.txt      cdac-dir          dir11            newzip.zip  soft.txt
rchive.tar  copyhardlink.txt  Documents        Pictures    sort_ex.txt
ssignment1  dbda25            Downloads        pqr.txt     Templates
ssignment2  dbda25_rmn3.sh    linux            projects    temp.txt
ssignmet1   dbda25_rnm1.sh    ln_soft.txt      Public      uniqe.txt
yu2         dbda25_rnm2.sh    manuals          report.pdf  Videos
ackup       dbdaaug25         Music            shell       vivocopy
dac1-dir    Desktop           newtextfile.txt  snap
```

40. How do you create a new file named "myfile.txt" in the directory "/home/user/documents" using the command line?

```
Ayu@cdac1:~$ touch /home/Ayu/Documents/myfile.txt
Ayu@cdac1:~$ cat > /home/Ayu/Documents/myfile.txt
^[[A^[[A^C
Ayu@cdac1:~$ ls
abc.txt      cdac-dir          dir11            newzip.zip  soft.txt
archive.tar  copyhardlink.txt  Documents        Pictures    sort_ex.txt
Assignment1  dbda25            Downloads        pqr.txt     Templates
Assignment2  dbda25_rmn3.sh    linux            projects    temp.txt
Assignmet1   dbda25_rnm1.sh    ln_soft.txt      Public      uniqe.txt
ayu2         dbda25_rnm2.sh    manuals          report.pdf  Videos
backup       dbdaaug25         Music            shell       vivocopy
cdac1-dir    Desktop           newtextfile.txt  snap
Ayu@cdac1:~$ cd Documents
Ayu@cdac1:~/Documents$ ls
myfile.txt  report.pdf
Ayu@cdac1:~/Documents$
```

41. How do you use the "grep" command to search for a specific word or phrase in multiple files at once?

Ans :

```
Ayu@cdac1:~$ cd Assignment1
Ayu@cdac1:~/Assignment1$ ls
archive.tar  dir1  kohli.txt  newfile.txt  newname.txt  temp1.txt
Ayu@cdac1:~/Assignment1$ grep 'his' kohli.txt
Kohli has received many accolades for his performances in cricket. He won the IC
C ODI Player of the Year award four times in 2012, 2017, 2018, and 2023. He also
 won the Sir Garfield Sobers Trophy, given to the ICC Cricketer of the Year, on
two occasions, in 2017 and 2018 respectively. In 2018, he became the first playe
r to win both ICC ODI and Test Player of the Year awards in the same year. Also,
 he was named the Wisden Leading Cricketer in the World for three consecutive ye
ars, from 2016 to 2018. At the national level, Kohli was honoured with the Arjun
a Award in 2013, the Padma Shri in 2017, and India's highest sporting honour, th
e Khel Ratna award, in 2018.
Ayu@cdac1:~/Assignment1$
```

42. How do you use the "tar" command to create a compressed archive of all files in the current directory and its subdirectories?

```
Ayu@cdac1:~$ tar -cvf archive.tar Assignment1
Assignment1/
Assignment1/dir1/
Assignment1/newname.txt
Assignment1/kohli.txt
Assignment1/newfile.txt
Assignment1/archive.tar
Assignment1/temp1.txt
Ayu@cdac1:~$ ls
archive.tar  ayu2       cdac-dir        dbda25_rnm1.sh  Desktop    Downloads  Pictures  s
Assignment1  backup      dbda25          dbda25_rnm2.sh  dir11      linux      Public    T
Assignmet1   cdac1-dir   dbda25_rmn3.sh  dbdaaug25       Documents  Music      snap      t
Ayu@cdac1:~$
```

43. How do you use the "chmod" command to give read and write permissions to the owner and group for a file named "file.txt"?

```
Ayu@cdac1:~/Assignment1$ ls
archive.tar  dir1  file.txt  kohli.txt  newfile.txt  newname.txt  temp1.txt
Ayu@cdac1:~/Assignment1$ chmod u=rw g=rw file.txt
chmod: cannot access 'g=rw': No such file or directory
Ayu@cdac1:~/Assignment1$ chmod u=rw,g=rw file.txt
Ayu@cdac1:~/Assignment1$ ls -l file.txt
-rw-rw-r-- 1 Ayu Ayu 0 Sep  3 14:23 file.txt
Ayu@cdac1:~/Assignment1$
```

44. How do you find the size of a file named "file.txt" in bytes, kilobytes, and megabytes using the command line?

```
Ayu@cdac1:~/Assignment1$ ls -lh file.txt
-rw-r--r-- 1 Ayu Ayu 833 Sep  3 17:51 file.txt
```

45. How do you use the "awk" command to extract a specific column from a comma-separated value (CSV) file and sort it in reverse order?

46. How do you use the "sed" command to replace all occurrences of a word or phrase in a file with a different word or phrase?

```
 Two players from the batting team, the striker and nonstriker, stand in front o
f either wicket holding bats, while one player from the fielding team, the bowle
r, bowls the ball toward the striker's wicket from the opposite end of the pitch
.
 The striker's goal is to hit the bowled ball with the bat and then switch place
s with the nonstriker, with the batting team scoring one run for each of these s
waps.
 Runs are also scored when the ball reaches the boundary of the field or when th
e ball is bowled illegally.
Ayu@cdac1:~/Assignment1$ sed -i 's/ball/cat/g' occurrences.txt
Ayu@cdac1:~/Assignment1$ bash occurrences.txt
Cricket is a bat-and-cat game that is played between two teams of eleven players
 on a field, at the centre of which is a 22-yard (20-metre; 66-foot) pitch with
a wicket at each end, each comprising two bails (small sticks) balanced on three
 stumps.
 Two players from the batting team, the striker and nonstriker, stand in front o
f either wicket holding bats, while one player from the fielding team, the bowle
r, bowls the cat toward the striker's wicket from the opposite end of the pitch.
 The striker's goal is to hit the bowled cat with the bat and then switch places
 with the nonstriker, with the batting team scoring one run for each of these sw
aps.
 Runs are also scored when the cat reaches the boundary of the field or when the
 cat is bowled illegally.
Ayu@cdac1:~/Assignment1$
```

47. How do you use the "find" command to search for all files in a directory and its subdirectories that were modified within the last 24 hours?

```
Ayu@cdac1:~$ find /home/Ayu -type f -name '*.sh' -mtime 1
/home/Ayu/Assignment2/script.sh
/home/Ayu/shell/10.sh
/home/Ayu/shell/11.sh
/home/Ayu/shell/12.sh
/home/Ayu/shell/9.sh
/home/Ayu/shell/13.sh
/home/Ayu/shell/8.sh
```

48. How do you use the "diff" command to compare two files and show only the lines that are different between them?

```
Ayu@cdac1:~$ nano version1.txt
Ayu@cdac1:~$ nano version2.txt
Ayu@cdac1:~$ diff version1.txt version2.txt
1c1,3
< echo "he origin of the English word cat, Old English catt, is thought to be th
e Late Latin word cattus, which was first used at the beginning of the 6th centu
ry.[4] The Late Latin word may be derived from an unidentified African language.
[5] The Nubian word kaddiska (wildcat) and Nobiin kadīs are possible sources or
cognates.[6]"
---
> echo "The Nubian word kaddiska (wildcat) and Nobiin kadīs are possible sources
 or cognates.[6]
>
> The forms might also have derived from an ancient Germanic word that was absor
bed into Latin and then into Greek, Syriac, and Arabic.[7] The word may be deriv
ed from Germanic and Northern European languages, and ultimately be borrowed fro
m Uralic, cf. Northern Sámi gáđfi, female stoat, and Hungarian hölgy, lady, fema
le stoat; from Proto-Uralic *käďwä, female (of a furred animal).[8]"
```

49. How do you use the "rsync" command to synchronize the contents of two directories, including all subdirectories and files, while preserving file permissions and ownerships?

50. How do you use the "cut" command to extract a specific range of characters or bytes from a file?

```
Ayu@cdac1:~/Assignment1$ cut -c 10-25 file.txt
 fielding team a
```

51. How do you use the "tar" command to extract a specific file or directory from a compressed archive without extracting the entire archive?

```
Ayu@cdac1:~$ tar -xvzf documents_backup.tar.gz Documents/report.pdf
Documents/report.pdf
Ayu@cdac1:~$
```

52. How do you use the "awk" command to count the number of occurrences of a specific word or phrase in a file?

```
Ayu@cdac1:~/Assignment1$ awk '/cat/ {count++} END {print count}' occurrences.txt
4
Ayu@cdac1:~/Assignment1$
```