

Linux Commands Practice Questions -2

Assignment 2

File and Directory Operations

1. How do you copy a file named "report.pdf" from your home directory to a folder called "documents"?

```
Ayu@cdac1:~/shell$ cd ..
Ayu@cdac1:~$ touch report.pdf
Ayu@cdac1:~$ ls
abc.txt      copyhardlink.txt  Documents      pqr.txt      temp.txt
archive.tar  dbda25            Downloads      Public        unique.txt
Assignment1  dbda25_rnm3.sh    linux          report.pdf    Videos
Assignmet1   dbda25_rnm1.sh    ln_soft.txt    shell         vivocopy
ayu2         dbda25_rnm2.sh    Music          snap
backup       dbdaaug25         newtextfile.txt soft.txt
cdac1-dir    Desktop           newzip.zip     sort_ex.txt
cdac-dir     dir11            Pictures       Templates
Ayu@cdac1:~$ cp report.pdf home/Ayu/Documents
cp: cannot create regular file 'home/Ayu/Documents': No such file or directory
Ayu@cdac1:~$ cp report.pdf /home/Ayu/Documents/
Ayu@cdac1:~$ cd Documents
Ayu@cdac1:~/Documents$ ls
report.pdf
Ayu@cdac1:~/Documents$
```

2. What is the difference between `rmdir` and `rm -rf` commands?
Ans: The `rmdir` command only removes **empty directories**, while `rm -rf` can recursively and forcibly delete directories along with all their contents, including files and subdirectories.
3. How do you move a file named "data.csv" from the "downloads" folder to the "projects" folder?

```
Ayu@cdac1:~/projects$ cd ..
Ayu@cdac1:~$ cd Downloads
Ayu@cdac1:~/Downloads$ ls
Ayu@cdac1:~/Downloads$ touch data.csv
Ayu@cdac1:~/Downloads$ ls
data.csv
Ayu@cdac1:~/Downloads$ cd ..
Ayu@cdac1:~$ mv Downloads/data.csv projects/
Ayu@cdac1:~$ cd projects
Ayu@cdac1:~/projects$ ls
data.csv
Ayu@cdac1:~/projects$
```

4. What command shows your current location in the file system?

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

5. How do you create three empty files named "log1.txt", "log2.txt", and "log3.txt" simultaneously?

```
Ayu@cdac1:~/Assignment2$ touch log1.txt log2.txt log3.txt
Ayu@cdac1:~/Assignment2$ ls
log1.txt log2.txt log3.txt new_project workspace
```

6. How do you change a directory name from "old_project" to "new_project"?

```
Ayu@cdac1:~/Assignment2$ mkdir old_project
Ayu@cdac1:~/Assignment2$ ls
log1.txt,log2.txt,log3.txt old_project
Ayu@cdac1:~/Assignment2$ mv old_project new_project
Ayu@cdac1:~/Assignment2$ ls
log1.txt,log2.txt,log3.txt new_project
Ayu@cdac1:~/Assignment2$
```

7. How do you delete a file named "temp.log" without any confirmation prompt?

```
Ayu@cdac1:~/Assignment2$ touch temp.log
Ayu@cdac1:~/Assignment2$ ls
log1.txt,log2.txt,log3.txt new_project temp.log
Ayu@cdac1:~/Assignment2$ rm -f temp.log
Ayu@cdac1:~/Assignment2$ ls
log1.txt,log2.txt,log3.txt new_project
```

8. Display your current directory path using a command.

```
Ayu@cdac1:~/Assignment2$ pwd
/home/Ayu/Assignment2
```

9. Show directory contents with file sizes in human-readable format (KB, MB, GB).

```
Ayu@cdac1:~/Assignment2$ ls -lh
total 8.0K
-rw-rw-r-- 1 Ayu Ayu 0 Sep 1 16:00 log1.txt
-rw-rw-r-- 1 Ayu Ayu 0 Sep 1 16:00 log2.txt
-rw-rw-r-- 1 Ayu Ayu 0 Sep 1 16:00 log3.txt
drwxrwxr-x 2 Ayu Ayu 4.0K Sep 1 15:11 new_project
drwxrwxr-x 3 Ayu Ayu 4.0K Sep 1 15:57 workspace
```

10. Explain the meaning of the first character in file permissions (d, -, l) when using `ls -l`.

Ans:

```
lrwxrwxrwx 1 Ayu Ayu 8 Sep 1 10:43 ln_soft.txt -> soft.txt
drwxr-xr-x 2 Ayu Ayu 4096 Aug 25 12:58 Music
-rw-rw-r-- 1 Ayu Ayu 1930 Aug 30 13:00 newtextfile.txt
```

The first character in the file permissions string shown by `ls -l` indicates the type of the file entry:

- **d** : Directory — This entry is a directory (folder) allowing traversal and listing of contents.
- **-** : Regular file — This entry is a normal file (text, data, executable, etc.).
- **l** : Symbolic link — This entry is a symbolic link to another file or directory.

This character helps quickly identify what kind of file system object is being dealt with before the detailed permission bits follow.

11. List all files including those starting with a dot (.) in the "/etc" directory.

```
Ayu@cdac1:~$ ls -la /etc
total 1188
drwxr-xr-x 141 root          root          12288 Sep  2 16:24 .
drwxr-xr-x  23 root          root           4096 Aug 28 13:22 ..
-rw-r--r--   1 root          root          3444 Jul  5  2023 addu
ser.conf
drwxr-xr-x   3 root          root           4096 Aug  5 22:20 alsa
drwxr-xr-x   2 root          root           4096 Aug 30 16:49 alte
natives
-rw-r--r--   1 root          root           335 Apr  8  2024 anac
rontab
-rw-r--r--   1 root          root           433 Apr  8  2024 appg.
conf
drwxr-xr-x   5 root          root           4096 Aug  5 22:20 apn
drwxr-xr-x   2 root          root           4096 Aug  5 22:20 appa
rmor
drwxr-xr-x   9 root          root           4096 Aug  5 22:23 appa
rmor.d
```

12. Show only files that start with a dot in your home directory.

```
Ayu@cdac1:~$ ls -d ~/.*
/home/Ayu/.bash_history  /home/Ayu/.lessht
/home/Ayu/.bash_logout  /home/Ayu/.local
/home/Ayu/.bashrc       /home/Ayu/.profile
/home/Ayu/.cache        /home/Ayu/.ssh
/home/Ayu/.config       /home/Ayu/.sudo_as_admin_successful
/home/Ayu/.gnupg        /home/Ayu/.unique.txt.swp
Ayu@cdac1:~$
```

13. Create a directory structure "workspace/projects/web/frontend" in a single command.

```
Ayu@cdac1:~/Assignment2/new_project$ mkdir -p workspace/projects/web/frontend
Ayu@cdac1:~/Assignment2/new_project$ tree
.
├── workspace
│   └── projects
│       └── web
│           └── frontend
└── 5 directories, 0 files
Ayu@cdac1:~/Assignment2/new_project$
```

14. Create the following nested structure in one command:

```
company/
├── departments/
│   ├── hr/
│   ├── finance/
│   └── tech/
└── employees/
```

```
├─ active/
└─ former/
```

Ans:

```
Ayu@cdac1:~/Assignment2/new_project$ mkdir -p company/departments/hr company/departments/finance company/departments/tech company/employees/active company/employees/former
Ayu@cdac1:~/Assignment2/new_project$ tree
.
├─ company
│   ├── departments
│   │   ├── finance
│   │   ├── hr
│   │   └── tech
│   └── employees
│       ├── active
│       └── former
└─ 9 directories, 0 files
```

15. Create a directory named "test_dir", then remove it and verify it's gone.

```
Ayu@cdac1:~/Assignment2$ mkdir test_dir
Ayu@cdac1:~/Assignment2$ ls
log1.txt,log2.txt,log3.txt  new_project  test_dir
Ayu@cdac1:~/Assignment2$ rm -r test_dir
Ayu@cdac1:~/Assignment2$ ls
log1.txt,log2.txt,log3.txt  new_project
Ayu@cdac1:~/Assignment2$
```

File Content and Text Processing

16. Save the manual page of the `find` command to a file named "find_manual.txt".

```
Ayu@cdac1:~/Assignment2$ man find > find_manual.txt
```

17. Display the first 15 lines and last 8 lines of "find_manual.txt".

```

Ayu@cdac1:~/Assignment2$ head -15 find_manual.txt
FIND(1)                                General Commands Manual                                FIND(1)

NAME

    find - search for files in a directory hierarchy

SYNOPSIS

    find [-H] [-L] [-P] [-D debugopts] [-Olevel] [starting-point...] [ex-
    pression]

DESCRIPTION

    This manual page documents the GNU version of find.  GNU find searches
    the directory tree rooted at each given starting-point by evaluating
    the given expression from left to right, according to the rules of
    precedence (see section OPERATORS), until the outcome is known (the
    left hand side is false for and operations, true for or), at which
Ayu@cdac1:~/Assignment2$ tail -8 find_manual.txt
SEE ALSO

    chmod(1), locate(1), ls(1), updatedb(1), xargs(1), lstat(2), stat(2),
    ctime(3) fnmatch(3), printf(3), strftime(3), locatedb(5), regex(7)

    Full documentation <https://www.gnu.org/software/findutils/find>
    or available locally via: info find

```

18. Copy "find_manual.txt" to a folder named "manuals" and rename the copy to "find_help.txt".

```

Ayu@cdac1:~/Assignment2$ cp find_manual.txt /home/Ayu/manuals
Ayu@cdac1:~/Assignment2$ cd..
cd..: command not found
Ayu@cdac1:~/Assignment2$ cd ..
Ayu@cdac1:~$ cd manuals
Ayu@cdac1:~/manuals$ ls
find_manual.txt
Ayu@cdac1:~/manuals$ mv find_manual.txt find_help.txt
Ayu@cdac1:~/manuals$ ls
find_help.txt
Ayu@cdac1:~/manuals$

```

19. Count the total lines, words, and characters in "find_manual.txt".

```

Ayu@cdac1:~/Assignment2$ wc -l find_manual.txt
1760 find_manual.txt
Ayu@cdac1:~/Assignment2$ wc -w find_manual.txt
11921 find_manual.txt
Ayu@cdac1:~/Assignment2$ wc -m find_manual.txt
91246 find_manual.txt
Ayu@cdac1:~/Assignment2$

```

20. Show your last 15 executed commands.

```
Ayu@cdac1:~$ history | tail -15
572 cp find_manual.txt manuals/find_help.txt
573 cp find_manual.txt /home/Ayu/manuals
574 cd..
575 cd ..
576 cd manuals
577 ls
578 mv find_manual.txt find_help.txt
579 ls
580 cd ..
581 cd Assignment2
582 wc -l find_manual.txt
583 wc -w find_manual.txt
584 wc -m find_manual.txt
585 cd ..
586 history | tail -15
```

21. Create a tar.gz archive of your home directory's Documents folder.

```
Ayu@cdac1:~$ tar -cvf acb.tar dir11
dir11/
dir11/temp.txt
Ayu@cdac1:~$
```

22. Create a zip archive of your Desktop folder and list its contents without extracting.

```
Ayu@cdac1:~$ zip -r desktop.zip ~/Desktop
updating: home/Ayu/Desktop/ (stored 0%)
adding: home/Ayu/Desktop/file1.txt (deflated 61%)
Ayu@cdac1:~$ unzip -l desktop.zip
Archive: desktop.zip
  Length      Date    Time    Name
  -----
      0  2025-09-03  19:35   home/Ayu/Desktop/
     71  2025-09-03  19:35   home/Ayu/Desktop/file1.txt
  -----
     71
  2 files
Ayu@cdac1:~$
```

23. Set permissions for "script.sh" to be readable, writable, and executable by owner only.

```
Ayu@cdac1:~/Assignment2$ nano script.sh
Ayu@cdac1:~/Assignment2$ ls -l script.sh
-rw-rw-r-- 1 Ayu Ayu 13 Sep  1 19:49 script.sh
Ayu@cdac1:~/Assignment2$ chmod 700 script.sh
Ayu@cdac1:~/Assignment2$ ls -l script.sh
-rwx----- 1 Ayu Ayu 13 Sep  1 19:49 script.sh
Ayu@cdac1:~/Assignment2$
```

24. Change the owner of "database.txt" to user "admin".

```
Ayu@cdac1:~/Assignment2$ sudo useradd -m admin
Ayu@cdac1:~/Assignment2$ id admin
uid=1005(admin) gid=1006(admin) groups=1006(admin)
Ayu@cdac1:~/Assignment2$ ls -l database.txt
-rw-rw-r-- 1 Ayu Ayu 0 Sep  1 19:53 database.txt
Ayu@cdac1:~/Assignment2$ sudo chown admin database.txt
Ayu@cdac1:~/Assignment2$ ls -l database.txt
-rw-rw-r-- 1 admin Ayu 0 Sep  1 19:53 database.txt
Ayu@cdac1:~/Assignment2$
```

25. Display currently running processes in your terminal, all system processes, and sort processes by CPU usage.

```
Ayu@cdac1:~$ ps aux --sort=-%cpu
```

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
Ayu	23458	5.4	18.0	3231096	364148	?	Sl	20:52	1:06	/snap/firefox
Ayu	3276	1.9	17.0	4055232	342984	?	Ssl	14:03	8:30	/usr/bin/gnom
Ayu	25529	1.7	2.9	2814760	59604	?	Sl	21:12	0:00	gjs /usr/shar
Ayu	24157	1.0	8.1	2633364	163672	?	Sl	20:52	0:12	/snap/firefox
Ayu	23628	0.6	5.7	2510108	114912	?	Sl	20:52	0:07	/snap/firefox
Ayu	22209	0.4	9.0	1668500	182532	?	Sl	20:13	0:16	/usr/bin/gnom
root	25414	0.2	0.0	0	0	?	I	21:02	0:01	[kworker/0:1-
Ayu	4930	0.2	1.6	567620	32620	?	Ssl	14:04	0:59	/usr/libexec/
root	22110	0.1	0.0	0	0	?	I	20:08	0:06	[kworker/0:0-
avahi	687	0.1	0.0	9092	1880	?	Ss	14:02	0:29	avahi-daemon:
Ayu	3399	0.1	0.3	471236	7684	?	Ssl	14:03	0:28	/usr/bin/ibus
root	17	0.1	0.0	0	0	?	S	14:02	0:26	[ksoftirqd/0]
Ayu	23825	0.1	3.4	2461436	69452	?	Sl	20:52	0:01	/snap/firefox
root	25422	0.0	0.0	0	0	?	I<	21:03	0:00	[kworker/0:1H
root	25126	0.0	0.0	0	0	?	I<	20:55	0:00	[kworker/0:2H
root	18	0.0	0.0	0	0	?	I	14:02	0:18	[rcu_preempt]
Ayu	20791	0.0	0.3	15428	6076	?	S	19:26	0:04	sshd: Ayu@pts
root	726	0.0	1.3	1849380	27184	?	Ssl	14:02	0:14	/usr/lib/snap

26. Show the current date/time and display the calendar for the current month.

```
Ayu@cdac1:~/Assignment2$ date
Tue Sep  2 03:36:16 PM IST 2025
Ayu@cdac1:~/Assignment2$ cal
    September 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
Ayu@cdac1:~/Assignment2$
```

27. Set the system date to January 15th, 2025, 2:30 PM.


```
Ayu@cdac1:~/Assignment2$ date
Tue Sep  2 03:36:16 PM IST 2025
Ayu@cdac1:~/Assignment2$ cal
    September 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

Ayu@cdac1:~/Assignment2$ sudo date -s "2025-01-15 14:30:00"
Wed Jan 15 02:30:00 PM IST 2025
Ayu@cdac1:~/Assignment2$
```

System Information Commands

28. Research and explain these commands: **uptime**, **df**, **du**, **free**.

Ans:

Uptime: The **uptime** command shows how long the system has been running, the current time, the number of logged-in users, and system load averages over the last 1, 5, and 15 minutes.

Df: The **df** command displays information about disk space usage on file systems.

Du: The **du** command summarizes disk usage for files and directories.

Free: The **free** command shows the amount of used and free memory, including RAM, swap space, buffers, and cache.

29. Create a directory "linux_lab", navigate into it, create "permissions_test.txt", check its default permissions, modify umask to 022, create "new_permissions_test.txt", and compare their permissions.

```
Ayu@cdac1:~/Assignment2$ mkdir linux_lab
Ayu@cdac1:~/Assignment2$ cd linux_lab
Ayu@cdac1:~/Assignment2/linux_lab$ touch permissions_test.txt
Ayu@cdac1:~/Assignment2/linux_lab$ ls -l permissions_test.txt
-rw-rw-r-- 1 Ayu Ayu 0 Sep  3 14:54 permissions_test.txt
Ayu@cdac1:~/Assignment2/linux_lab$ umask 022
Command 'umask' not found, did you mean:
  command 'unmass' from deb unmass (0.9-7)
Try: sudo apt install <deb name>
Ayu@cdac1:~/Assignment2/linux_lab$ umask 022
Ayu@cdac1:~/Assignment2/linux_lab$ touch new_permissions_test.txt
Ayu@cdac1:~/Assignment2/linux_lab$ ls -l new_permissions_test.txt
-rw-r--r-- 1 Ayu Ayu 0 Sep  3 14:56 new_permissions_test.txt
Ayu@cdac1:~/Assignment2/linux_lab$ ls -lh
total 0
-rw-r--r-- 1 Ayu Ayu 0 Sep  3 14:56 new_permissions_test.txt
-rw-rw-r-- 1 Ayu Ayu 0 Sep  3 14:54 permissions_test.txt
Ayu@cdac1:~/Assignment2/linux_lab$
```

30. Create "original.txt" and make a hard link named "hard_copy.txt" pointing to it.


```
Ayu@cdac1:~/Assignment2$ touch original.txt
Ayu@cdac1:~/Assignment2$ ln original.txt hard_copy.txt
Ayu@cdac1:~/Assignment2$ ls
```

31. Create "source.txt" and make a symbolic link named "sym_link.txt" pointing to it.

```
Ayu@cdac1:~/Assignment2$ touch source.txt
Ayu@cdac1:~/Assignment2$ ln -s source.txt sym_link.txt
Ayu@cdac1:~/Assignment2$ ls
database.txt      linux_lab  log3.txt      script.sh
find_manual.txt  log1.txt   new_project   source.txt
hard_copy.txt    log2.txt   original.txt   sym_link.txt
Ayu@cdac1:~/Assignment2$
```

32. Copy the entire "projects" directory from a remote server to your local "Downloads" folder using SCP

33. Download files from a public FTP server like ftp.gnu.org using command line FTP client.

36. How do you remove a directory named "old_data" containing files and subdirectories?

```
Ayu@cdac1:~/Assignment2$ ls
database.txt      linux_lab  log3.txt      original.txt  sym_link.txt
find_manual.txt  log1.txt   new_project   script.sh
hard_copy.txt    log2.txt   old_data      source.txt
Ayu@cdac1:~/Assignment2$ cd old_data
Ayu@cdac1:~/Assignment2/old_data$ ls
abc  abc.txt
Ayu@cdac1:~/Assignment2/old_data$ cd ..
Ayu@cdac1:~/Assignment2$ rm -rf old_data
Ayu@cdac1:~/Assignment2$ ls
database.txt      linux_lab  log3.txt      script.sh
find_manual.txt  log1.txt   new_project   source.txt
hard_copy.txt    log2.txt   original.txt   sym_link.txt
Ayu@cdac1:~/Assignment2$
```

37. List all files in "/var/log" showing detailed information including hidden files.

```
Ayu@cdac1:~$ ls -la /var/log
total 7420
drwxrwxr-x 17 root      syslog      4096 Sep  3 14:02 .
drwxr-xr-x 14 root      root        4096 Aug 25 12:53 ..
-rw-r--r--  1 root      root        26633 Aug 30 16:49 alternatives.log
-rw-r-----  1 root      adm          0 Sep  3 00:00 apport.log
-rw-r-----  1 root      adm       43294 Sep  2 22:02 apport.log.1
-rw-r-----  1 root      adm       2660 Sep  1 17:18 apport.log.2.gz
drwxr-xr-x  2 root      root        4096 Sep  2 16:24 apt
-rw-r-----  1 syslog    adm       181525 Sep  3 15:17 auth.log
-rw-r-----  1 root      root       14646 Sep  3 14:02 boot.log
-rw-r-----  1 root      root     117667 Sep  2 15:45 boot.log.1
-rw-r--r--  1 root      root     118497 Aug  5 22:18 bootstrap.
```

38. Create a file named "config.txt" in the path "/opt/myapp/config/" using command line.

```
Ayu@cdac1:~$ sudo mkdir -p /opt/myapp/config/
[sudo] password for Ayu:
Ayu@cdac1:~$ touch /opt/myapp/config/config.txt
touch: cannot touch '/opt/myapp/config/config.txt': Permission denied
Ayu@cdac1:~$ sudo touch /opt/myapp/config/config.txt
Ayu@cdac1:~$ ls
abc.txt          dbda25_rmn3.sh      manuals           soft.txt
acb.tar          dbda25_rnm1.sh      Music            sort_ex.txt
archive.tar      dbda25_rnm2.sh      Newone           Templates
Assignment1      dbdaaug25           newtextfile.txt  temp.txt
Assignment2      Desktop             newzip.zip       unique.txt
Assignmet1       desktop.zip          Pictures         version1.txt
ayu2             dir11               pqr.txt          version2.txt
backup           Documents            projects         Videos
cdac1-dir        documents_backup.tar.gz Public            vivocopy
cdac-dir         Downloads            report.pdf
copyhardlink.txt linux                shell
dbda25           ln_soft.txt          snap
```

39. Search for the word "error" in all ".log" files within the current directory and subdirectories.

```
Ayu@cdac1:~$ grep -r --include="*.log" "error"
my.log:echo "error"
Ayu@cdac1:~$
```

40. Create a directory "myproject" with permissions 755 (rwxr-xr-x).

```
Ayu@cdac1:~/Assignment2$ chmod 755 myproject
Ayu@cdac1:~/Assignment2$ getfacl myproject
# file: myproject
# owner: Ayu
# group: Ayu
user::rwx
group::r-x
other::r-x
Ayu@cdac1:~/Assignment2$
```

41. Create a compressed tar archive named "backup.tar.gz" containing all files and subdirectories in "/home/user/documents".

```
Ayu@cdac1:~$ tar -czvf backup.tar.gz -c /home/Ayu/Documents
tar: Removing leading '/' from member names
/home/Ayu/Documents/
/home/Ayu/Documents/report.pdf
/home/Ayu/Documents/myfile.txt
Ayu@cdac1:~$
```

42. Give read and write permissions to owner and group, but only read permission to others for "shared.txt".

```
Ayu@cdac1:~/Assignment2$ ls
database.txt    linux_lab  log3.txt      script.sh    sym_link.txt
find_manual.txt log1.txt    new_project  shared.txt
hard_copy.txt   log2.txt    original.txt  source.txt
Ayu@cdac1:~/Assignment2$ ls -l shared.txt
-rw-r--r-- 1 Ayu Ayu 13 Sep  3 15:41 shared.txt
Ayu@cdac1:~/Assignment2$ chmod 664 shared.txt
Ayu@cdac1:~/Assignment2$ ls -l shared.txt
-rw-rw-r-- 1 Ayu Ayu 13 Sep  3 15:41 shared.txt
Ayu@cdac1:~/Assignment2$
```

43. Find the size of "video.mp4" and display it in human-readable format (MB/GB).

```
Ayu@cdac1:~/Assignment2$ du -h video.mp4
0      video.mp4
```

44. Find all files in "/home" and subdirectories that were modified in the last 7 days.

```
Ayu@cdac1:~$ find /home/Ayu -type f -mtime -7
/home/Ayu/sort_ex.txt
/home/Ayu/dbda25/file7.txt
/home/Ayu/dbda25/.file7.txt
/home/Ayu/snap/firefox/6738/.config/user-dirs.locale.md5sum
/home/Ayu/snap/firefox/6738/.config/user-dirs.dirs
/home/Ayu/snap/firefox/6738/.config/user-dirs.dirs.md5sum
/home/Ayu/snap/firefox/6738/.config/fontconfig/fonts.conf
/home/Ayu/snap/firefox/6738/.config/pulse/cookie
/home/Ayu/snap/firefox/6738/.last_revision
/home/Ayu/snap/firefox/6700/.config/user-dirs.locale.md5sum
/home/Ayu/snap/firefox/6700/.config/user-dirs.dirs
/home/Ayu/snap/firefox/6700/.config/user-dirs.dirs.md5sum
/home/Ayu/snap/firefox/6700/.config/fontconfig/fonts.conf
/home/Ayu/snap/firefox/6700/.config/pulse/cookie
/home/Ayu/snap/firefox/6700/.last_revision
/home/Ayu/snap/firefox/common/.mozilla/firefox/Profile Groups/85b7df1e.sqlite-sh
m
```

45. Compare "version1.txt" and "version2.txt" and show only the differences.

```
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]"
```

46. Synchronize "/home/user/photos" with "/backup/photos" preserving all file attributes

47. Extract characters 10-25 from each line in "data.txt".

```
Ayu@cdac1:~/Assignment2$ cut -c 10-25 data.txt
sh
rma was born on
12] His mother,

r, Gurunath Shar
s raised by his
visit his parent
as a younger bro

ined a cricket c
d, his coach at
collects, "I tol
ur years I didn'
ma started as an
led in the Harri
Ayu@cdac1:~/Assignment2$
```

48. Extract only the file "readme.txt" from "archive.tar.gz" without extracting the entire archive.

Tar -xvf archive.tar.gz readme.txt

49. Count how many times the word "function" appears in "script.js".

```
Ayu@cdac1:~$ nano script.js
Ayu@cdac1:~$ grep -o "function" script.js | wc -l
1
Ayu@cdac1:~$
```

Advanced Questions

52. How do you monitor real-time changes to a log file named "application.log"?

```
Ayu@cdac1:~$ tail -f application.log
test log entry
abc
bc
re

```

53. How do you find all files larger than 100MB in your entire file system?

```
Ayu@cdac1:~$ sudo find / -type f -size +100M
[sudo] password for Ayu:
/snap/firefox/6738/usr/lib/firefox/libxul.so
/snap/firefox/6700/usr/lib/firefox/libxul.so
/snap/gnome-42-2204/202/usr/lib/x86_64-linux-gnu/libLLVM-15.so.1
/proc/kcore
find: '/proc/9455/task/9455/net': Invalid argument
find: '/proc/9455/net': Invalid argument
find: '/proc/29142/task/29142/fdinfo/6': No such file or directory
find: '/proc/29142/fdinfo/5': No such file or directory
find: '/run/user/1000/gvfs': Permission denied
find: '/run/user/1000/doc': Permission denied
/usr/lib/llvm-18/lib/libLLVM.so.1
/usr/lib/x86_64-linux-gnu/libLLVM.so.19.1
/var/lib/snapd/cache/a657afe5ecb3e915ba48b902d3f1e14dfdb85f448f755a964e6b7c65c8d508247786
/var/lib/snapd/cache/74d09279c332cf23579e5f2a12d380a559f1aa8ec9e82d3ad7ec0f4b25aa919a0347
/var/lib/snapd/snaps/gnome-42-2204_202.snap
/var/lib/snapd/snaps/firefox_6738.snap
/var/lib/snapd/snaps/firefox_6700.snap
/var/lib/snapd/seed/snaps/firefox_6565.snap
/var/lib/snapd/seed/snaps/gnome-42-2204_202.snap
```

54. How do you create a file with specific content using command line without opening an editor?

```
Ayu@cdac1:~$ echo "this is the content of the file">file7.txt
Ayu@cdac1:~$ cat file7.txt
this is the content of the file
Ayu@cdac1:~$
```

55. How do you compress a directory using gzip and preserve the original?

56. How do you find all files owned by user "john" in the "/home" directory?

```
CDAC@dbda:~$ sudo find /home -user john
/home/john
/home/john/.bashrc
/home/john/.bash_logout
/home/john/.profile
```

57. How do you schedule a command to run every day at 9 AM using cron?

58. How do you check disk usage of the current directory and sort by size?

```
Ayu@cdac1:~$ du -sh * | sort -h
0      abc.txt
0      Assignmet1
0      dbda25_rmn3.sh
0      dbda25_rnm1.sh
0      dbda25_rnm2.sh
0      ln_soft.txt
0      pqr.txt
0      report.pdf
0      temp.txt
4.0K   application.log
4.0K   backup.tar.gz
4.0K   copyhardlink.txt
4.0K   desktop.zip
4.0K   dir11
4.0K   Documents
4.0K   documents_backup.tar.gz
4.0K   Downloads
4.0K   file7.txt
4.0K   linux
4.0K   Music
4.0K   my.log
4.0K   Newone
```

59. How do you find and kill a process by name?

```
Ayu@cdac1:~$ ps
  PID TTY          TIME CMD
  4941 pts/0    00:00:01 bash
 30255 pts/0    00:00:00 ps
Ayu@cdac1:~$ kill 4941
```

60. How do you create a symbolic link that points to a directory instead of a file?

```
Ayu@cdac1:~$ ln -s dir11 symlink.txt
Ayu@cdac1:~$ ls
abc.txt          dbda25_rnm3.sh    manuals          snap
acb.tar          dbda25_rnm1.sh    Music            soft.txt
application.log  dbda25_rnm2.sh    my.log           sort_ex.txt
archive.tar      dbdaaug25         Newone           symlink.txt
Assignment1      Desktop          newtextfile.txt  Templates
Assignment2      desktop.zip       newzip.zip       temp.txt
Assignmet1       dir11            photos           unique.txt
ayu2             Documents        Pictures          version1.txt
backup           documents_backup.tar.gz pqr.txt          version2.txt
backup.tar.gz    Downloads        projects         Videos
cdac1-dir        file7.txt        Public           vivocopy
cdac-dir         file93.txt       report.pdf
copyhardlink.txt linux            script.js
dbda25           ln_soft.txt      shell
```

61. How do you find all executable files in your PATH?

```
Ayu@cdac1:~$ find -type f -executable -print
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/times.json
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/gmp-gmpopenh264/2.6.0/libgmpopenh264.so
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/gmp-gmpopenh264/2.6.0/gmpopenh264.info
./temp.txt
./Assignment2/script.sh
./abc.txt
```

62. How do you merge two sorted files into one sorted file?

63. How do you display only unique lines from a file that contains duplicates?

```
Ayu@cdac1:~$ nano file93.txt
Ayu@cdac1:~$ sort file93.txt | uniq -u
banana
grape
Ayu@cdac1:~$
```

64. How do you monitor system resource usage in real-time?


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

top - 23:36:26 up 9:33, 1 user, load average: 0.02, 0.05, 0.00
Tasks: 229 total, 1 running, 226 sleeping, 1 stopped, 1 zombie
%Cpu(s): 0.2 us, 0.7 sy, 0.0 ni, 98.9 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
MiB Mem : 1968.3 total, 80.3 free, 1627.9 used, 427.7 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used, 340.5 avail Mem

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3276	Ayu	20	0	4066032	336804	50700	S	2.3	16.7	10:06.44	gnome-shell
687	avahi	20	0	9092	1880	1112	S	0.3	0.1	0:39.69	avahi-daemon
30286	Ayu	20	0	564332	51720	40708	S	0.3	2.6	0:02.11	gnome-terminal-
31269	Ayu	20	0	23184	5812	3636	R	0.3	0.3	0:00.02	top
1	root	20	0	23332	9800	4808	S	0.0	0.5	0:09.36	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.20	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.00	pool_workqueue_release
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-rcu_gp
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-sync_wq
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-kvfree_rcu_reclaim
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-slub_flushwq
8	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-netns
12	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/u8:0-ipv6_addrconf
13	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-mm_percpu_wq
14	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_kthread
15	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_rude_kthread
16	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthread
17	root	20	0	0	0	0	S	0.0	0.0	0:31.91	ksoftirqd/0

65. How do you find files that are exactly 0 bytes (empty files)?

```
Ayu@cdac1:~$ find . -type f -empty
```

./linux/testperms.txt
./linux/newtestperms.txt
./snap/firefox/common/.mozilla/firefox/Profile Groups/85b7df1e.sqlite-wal
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/webappsstore.sqlite-wal
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/storage/permanent/chrome/idb/387
l
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/storage/permanent/chrome/idb/291
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/storage/permanent/chrome/idb/356
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/storage/permanent/chrome/idb/145

66. How do you change file timestamps without modifying content?

67. How do you create a file that can only be read by the owner and no one else?

```
Ayu@cdac1:~$ touch file45.txt
Ayu@cdac1:~$ chmod 400 file45.txt
Ayu@cdac1:~$ ls -l file45.txt
```

-r----- 1 Ayu Ayu 0 Sep 3 23:39 file45.txt

68. How do you find broken symbolic links in a directory?

```
Ayu@cdac1:~$ find . -xtype l
```

./snap/firefox/6738/.config/gtk-2.0/gtkfilechooser.ini
./snap/firefox/6738/.config/gtk-3.0/settings.ini
./snap/firefox/6738/.config/gtk-3.0/gtk.css
./snap/firefox/6700/.config/gtk-2.0/gtkfilechooser.ini
./snap/firefox/6700/.config/gtk-3.0/settings.ini
./snap/firefox/6700/.config/gtk-3.0/gtk.css
./snap/firefox/common/.mozilla/firefox/vtdghxna.default/lock
./snap/firefox/common/.cache/immodules/im-multipress.so
./snap/firefox/common/.cache/immodules/im-am-et.so
./snap/firefox/common/.cache/immodules/im-inuktitut.so

69. How do you copy files while preserving their original timestamps?

70. How do you display the last 50 lines of a log file and continue monitoring new additions?