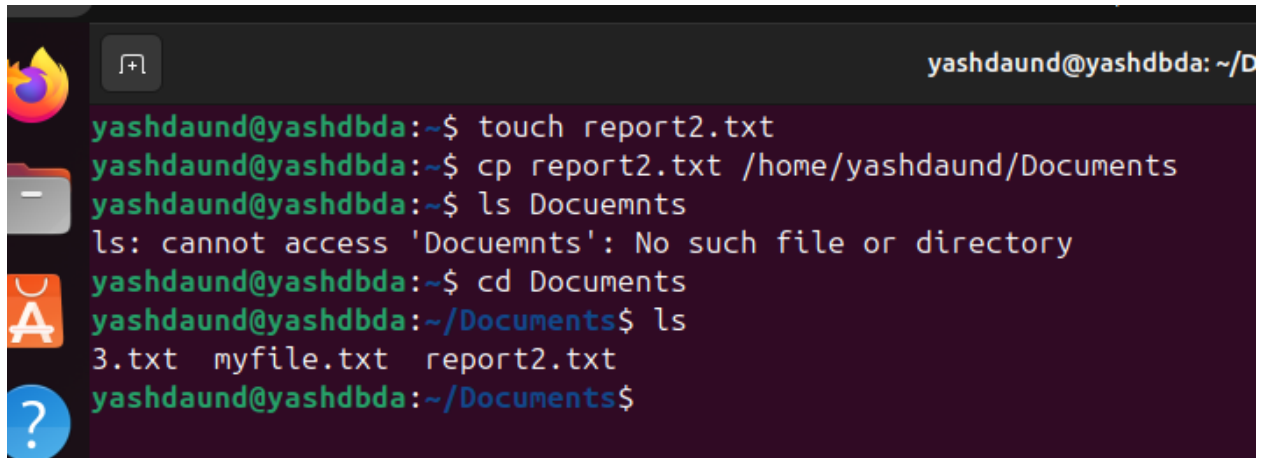


Linux Commands Practice Questions -2

File and Directory Operations

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

A terminal window with a dark purple background and a sidebar on the left containing icons for Firefox, a file manager, the Ubuntu Software Center, and a help icon. The terminal shows a series of commands and their outputs. The user 'yashdaund' is logged into a machine named 'yashdbda'. The prompt is '~\$'. The commands and outputs are: 'touch report2.txt' (no output), 'cp report2.txt /home/yashdaund/Documents' (no output), 'ls Docuemnts' (output: 'ls: cannot access 'Docuemnts': No such file or directory'), 'cd Documents' (no output), and 'ls' (output: '3.txt myfile.txt report2.txt'). The prompt changes to '~/Documents\$' after the 'cd' command.

```
yashdaund@yashdbda: ~/D
yashdaund@yashdbda:~$ touch report2.txt
yashdaund@yashdbda:~$ cp report2.txt /home/yashdaund/Documents
yashdaund@yashdbda:~$ ls Docuemnts
ls: cannot access 'Docuemnts': No such file or directory
yashdaund@yashdbda:~$ cd Documents
yashdaund@yashdbda:~/Documents$ ls
3.txt  myfile.txt  report2.txt
yashdaund@yashdbda:~/Documents$
```

2. What is the difference between `rmdir` and `rm -rf` commands?

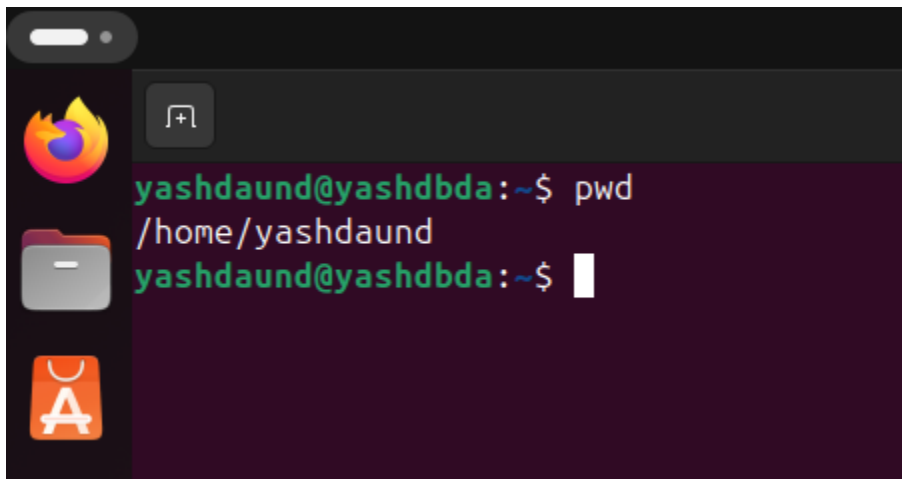
```
yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ ls  
1.sh          archive_name.zip  dbda_cdc.sh  Documents  ln_soft.txt  Pictu  
20.txt        backup            dbda_rm1.sh  Downloads  Music        Publi  
2.sh          backup1           dbda_rm3.sh  file1.txt  myfile.txt   renam  
3.sh          cdac-air1         Desktop      file2.txt  newfile1.txt repor  
4.bash        cdac_dir1         dir1         file3.sh   newfile2.txt repor  
5.sh          copy_hardlink.txt dir14        file4.sh   newfile5.txt shell  
60.txt        daund.sh          dir2         file5.sh   newfile.txt  snap  
archive1.tar.gz dbda_abb.sh       dir23        file5.txt  newname1.txt soft.  
archive2.tar  dbda_abcd.sh      dir3         file70.txt newname.txt  sort_  
archive_name.tar dbda_abc.sh       documents    linux      num_sort_example.txt temp1  
yashdaund@yashdbda:~$ rm -rf newfile1.txt  
yashdaund@yashdbda:~$ ls  
1.sh          archive_name.zip  dbda_cdc.sh  Documents  ln_soft.txt  Publi  
20.txt        backup            dbda_rm1.sh  Downloads  Music        renam  
2.sh          backup1           dbda_rm3.sh  file1.txt  myfile.txt   repor  
3.sh          cdac-air1         Desktop      file2.txt  newfile2.txt repor  
4.bash        cdac_dir1         dir1         file3.sh   newfile5.txt shell  
5.sh          copy_hardlink.txt dir14        file4.sh   newfile.txt  snap  
60.txt        daund.sh          dir2         file5.sh   newname1.txt soft.  
archive1.tar.gz dbda_abb.sh       dir23        file5.txt  newname.txt  sort_  
archive2.tar  dbda_abcd.sh      dir3         file70.txt num_sort_example.txt temp1  
archive_name.tar dbda_abc.sh       documents    linux      Pictures     Templ  
yashdaund@yashdbda:~$
```

```
yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ ls  
1.sh          archive_name.zip  dbda_cdc.sh  Documents  ln_soft.txt  num_sort_exam  
20.txt        backup            dbda_rm1.sh  Downloads  Music        Pictures  
2.sh          backup1          dbda_rm3.sh  file1.txt  mydir1       Public  
3.sh          cdac-air1        Desktop      file2.txt  myfile.txt   rename1  
4.bash        cdac_dir1        dir1         file3.sh  newfile1.txt report1.txt  
5.sh          copy_hardlink.txt dir14        file4.sh  newfile2.txt report2.txt  
60.txt        daund.sh         dir2         file5.sh  newfile5.txt shell  
archive1.tar.gz dbda_abb.sh      dir23        file5.txt  newfile.txt  snap  
archive2.tar  dbda_abcd.sh     dir3         file70.txt newname1.txt soft.txt  
archive_name.tar dbda_abc.sh      documents    linux      newname.txt  sort_example.  
yashdaund@yashdbda:~$ rmdir cadc-air1  
rmdir: failed to remove 'cadc-air1': No such file or directory  
yashdaund@yashdbda:~$ rmdir cadc_dir1  
rmdir: failed to remove 'cadc_dir1': No such file or directory  
yashdaund@yashdbda:~$ rmdir mydir1  
yashdaund@yashdbda:~$ ls  
1.sh          archive_name.zip  dbda_cdc.sh  Documents  ln_soft.txt  Pictu  
20.txt        backup            dbda_rm1.sh  Downloads  Music        Publi  
2.sh          backup1          dbda_rm3.sh  file1.txt  myfile.txt   renam  
3.sh          cdac-air1        Desktop      file2.txt  newfile1.txt repor  
4.bash        cdac_dir1        dir1         file3.sh  newfile2.txt repor  
5.sh          copy_hardlink.txt dir14        file4.sh  newfile5.txt shell  
60.txt        daund.sh         dir2         file5.sh  newfile.txt  snap  
archive1.tar.gz dbda_abb.sh      dir23        file5.txt  newname1.txt soft.  
archive2.tar  dbda_abcd.sh     dir3         file70.txt newname.txt  sort_  
archive_name.tar dbda_abc.sh      documents    linux      num_sort_example.txt temp1  
yashdaund@yashdbda:~$
```

3. How do you move a file named "data.csv" from the "downloads" folder to the "projects" folder?

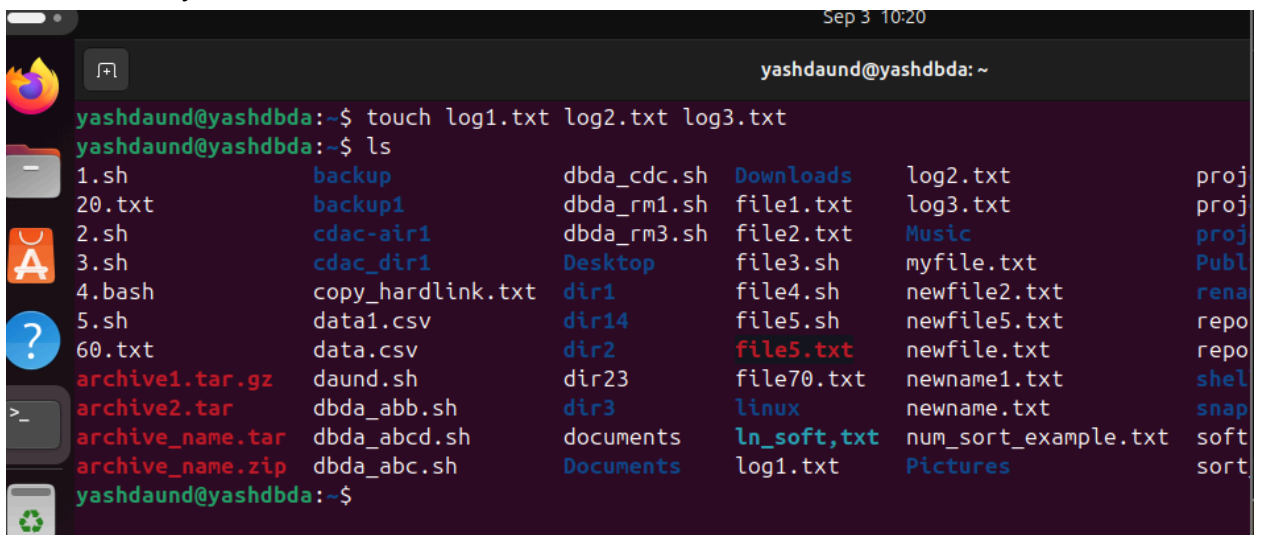
```
yashdaund@yashdbda: ~/project2  
yashdaund@yashdbda:~$ mkdir project  
mkdir: cannot create directory 'project': File exists  
yashdaund@yashdbda:~$ mv ~/Downloads/data.csv ~/project/  
mv: cannot stat '/home/yashdaund/project/': Not a directory  
yashdaund@yashdbda:~$ mkdir project2  
yashdaund@yashdbda:~$ mv ~/Downloads/data.csv ~/project2/  
yashdaund@yashdbda:~$ ls project  
project  
yashdaund@yashdbda:~$ cd project2  
yashdaund@yashdbda:~/project2$ ls  
data.csv  
yashdaund@yashdbda:~/project2$
```

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



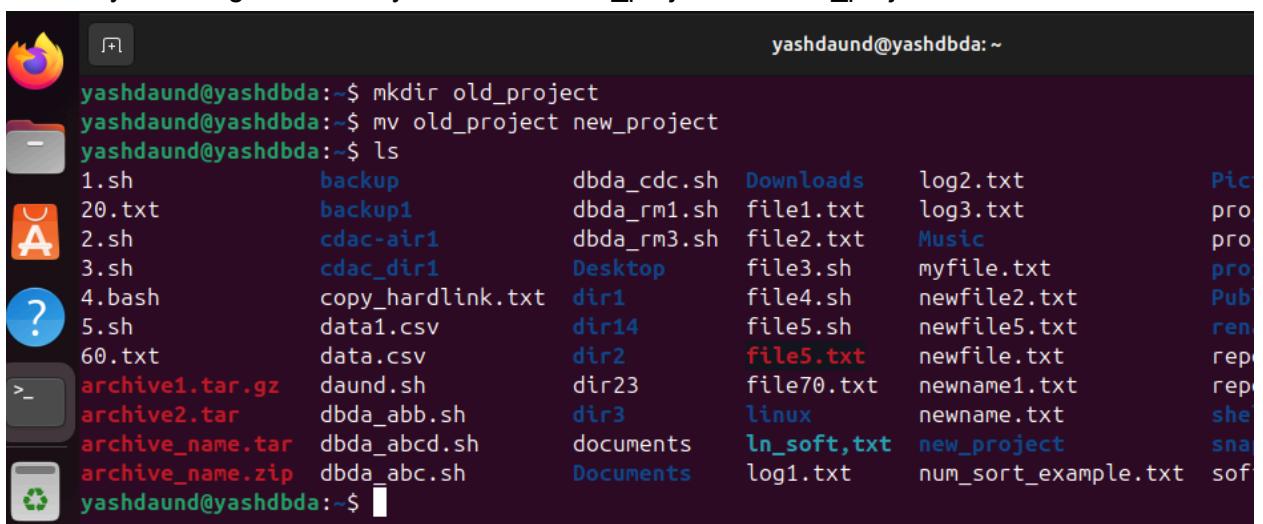
```
yashdaund@yashdbda:~$ pwd
/home/yashdaund
yashdaund@yashdbda:~$
```

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



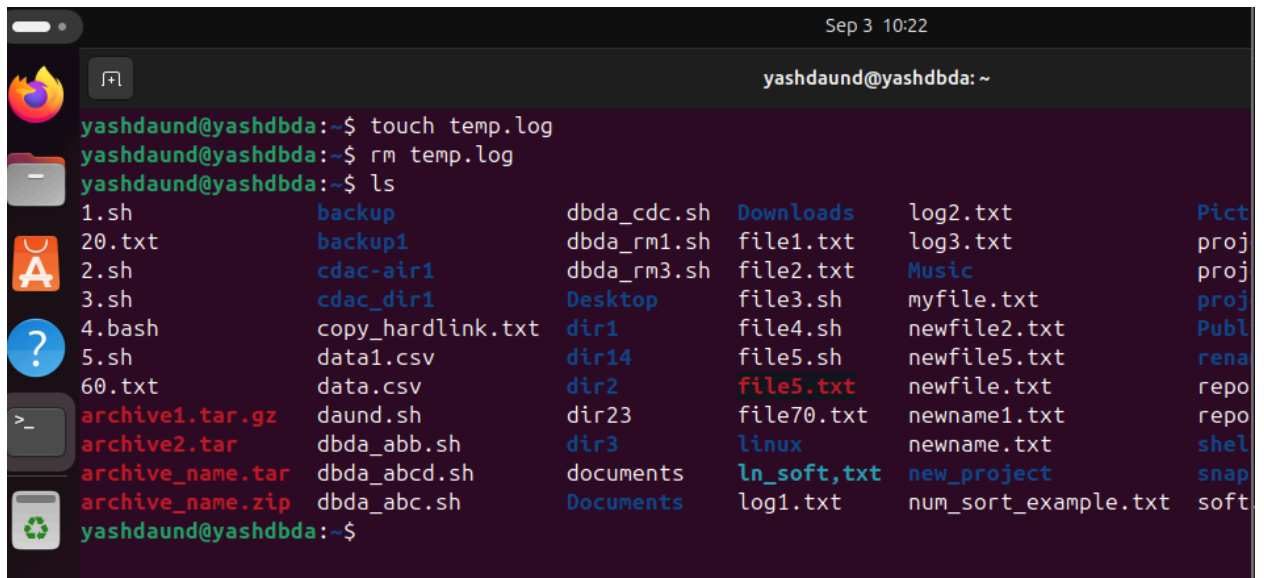
```
Sep 3 10:20
yashdaund@yashdbda: ~
yashdaund@yashdbda:~$ touch log1.txt log2.txt log3.txt
yashdaund@yashdbda:~$ ls
1.sh          backup          dbda_cdc.sh    Downloads      log2.txt       proj
20.txt        backup1         dbda_rm1.sh    file1.txt      log3.txt       proj
2.sh          cdac-air1       dbda_rm3.sh    file2.txt      Music          proj
3.sh          cdac_dir1       Desktop        file3.sh       myfile.txt     Publ
4.bash        copy_hardlink.txt dir1           file4.sh       newfile2.txt   rena
5.sh          data1.csv       dir14          file5.sh       newfile5.txt   repo
60.txt        data.csv        dir2           file70.txt     newfile.txt    repo
archive1.tar.gz daund.sh        dir23          linux          newname1.txt   shel
archive2.tar  dbda_abb.sh     dir3           ln_soft,txt   newname.txt    snap
archive_name.tar dbda_abcd.sh   documents      log1.txt      num_sort_example.txt soft
archive_name.zip dbda_abc.sh    Documents      log1.txt      Pictures       sort
yashdaund@yashdbda:~$
```

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



```
yashdaund@yashdbda: ~
yashdaund@yashdbda:~$ mkdir old_project
yashdaund@yashdbda:~$ mv old_project new_project
yashdaund@yashdbda:~$ ls
1.sh          backup          dbda_cdc.sh    Downloads      log2.txt       Pic
20.txt        backup1         dbda_rm1.sh    file1.txt      log3.txt       pro
2.sh          cdac-air1       dbda_rm3.sh    file2.txt      Music          pro
3.sh          cdac_dir1       Desktop        file3.sh       myfile.txt     pro
4.bash        copy_hardlink.txt dir1           file4.sh       newfile2.txt   Pub
5.sh          data1.csv       dir14          file5.sh       newfile5.txt   ren
60.txt        data.csv        dir2           file70.txt     newfile.txt    rep
archive1.tar.gz daund.sh        dir23          linux          newname1.txt   rep
archive2.tar  dbda_abb.sh     dir3           ln_soft,txt   newname.txt    she
archive_name.tar dbda_abcd.sh   documents      log1.txt      num_sort_example.txt sof
archive_name.zip dbda_abc.sh    Documents      log1.txt      Pictures       sof
yashdaund@yashdbda:~$
```

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

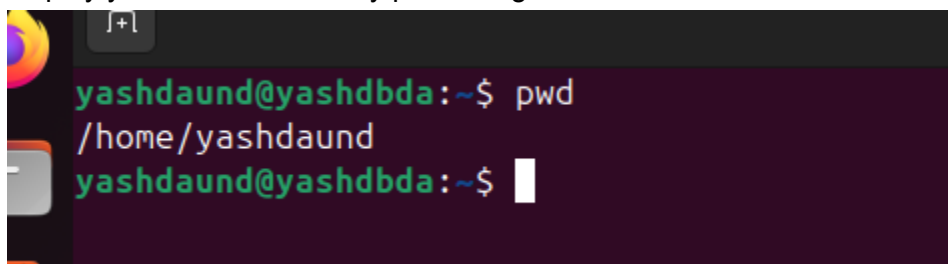


A terminal window titled "yashdaund@yashdbda: ~" showing the following commands and output:

```
yashdaund@yashdbda:~$ touch temp.log
yashdaund@yashdbda:~$ rm temp.log
yashdaund@yashdbda:~$ ls
```

The output of the `ls` command is a long listing of files and directories in the home directory, including `1.sh`, `20.txt`, `2.sh`, `3.sh`, `4.bash`, `5.sh`, `60.txt`, `archive1.tar.gz`, `archive2.tar`, `archive_name.tar`, `archive_name.zip`, `backup`, `backup1`, `cdac-air1`, `cdac_dir1`, `copy_hardlink.txt`, `data1.csv`, `data.csv`, `daund.sh`, `dbda_abb.sh`, `dbda_abcd.sh`, `dbda_abc.sh`, `dbda_cdc.sh`, `dbda_rm1.sh`, `dbda_rm3.sh`, `dir1`, `dir14`, `dir2`, `dir23`, `dir3`, `Documents`, `Downloads`, `file1.txt`, `file2.txt`, `file3.sh`, `file4.sh`, `file5.sh`, `file5.txt`, `file70.txt`, `ln_soft.txt`, `log1.txt`, `log2.txt`, `log3.txt`, `Music`, `myfile.txt`, `newfile2.txt`, `newfile5.txt`, `newfile.txt`, `newname1.txt`, `newname.txt`, `new_project`, `num_sort_example.txt`, `Pict`, `proj`, `proj`, `proj`, `Publ`, `rena`, `repo`, `repo`, `shel`, `snap`, and `soft`.

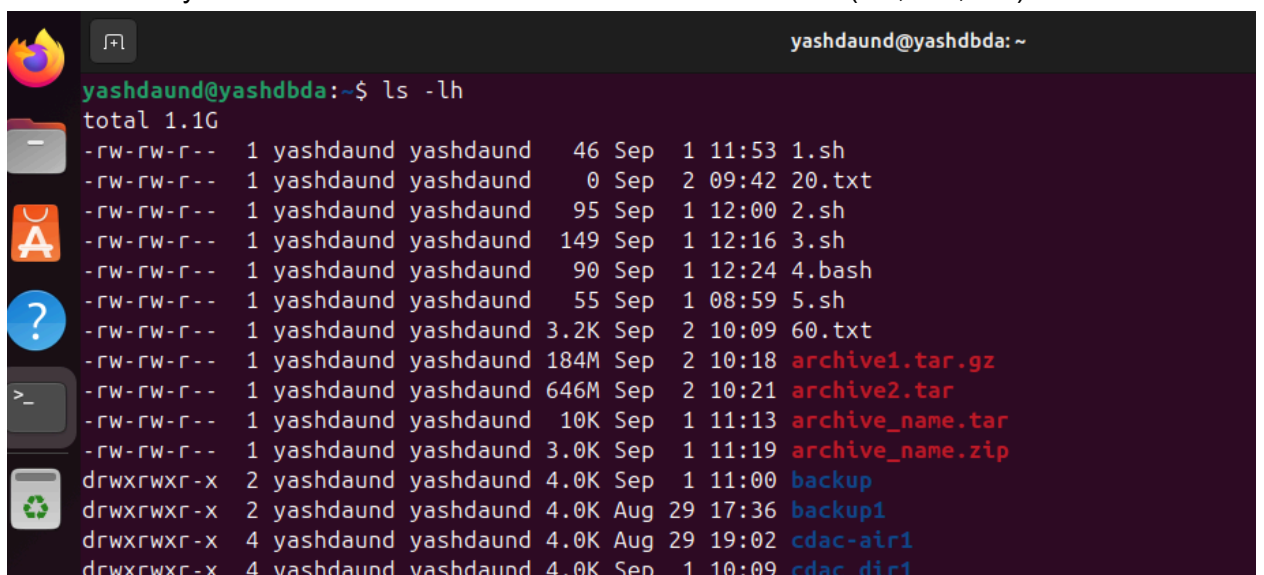
8. Display your current directory path using a command.



A terminal window titled "yashdaund@yashdbda: ~" showing the following command and output:

```
yashdaund@yashdbda:~$ pwd
/home/yashdaund
yashdaund@yashdbda:~$
```

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



A terminal window titled "yashdaund@yashdbda: ~" showing the following command and output:

```
yashdaund@yashdbda:~$ ls -lh
```

The output of the `ls -lh` command is a long listing of files and directories in the home directory, including file sizes in human-readable format (KB, MB, GB).

Permissions	Size	Owner	Group	Size	Month	Day	Time	File Name
-rw-rw-r--	1	yashdaund	yashdaund	46	Sep	1	11:53	1.sh
-rw-rw-r--	1	yashdaund	yashdaund	0	Sep	2	09:42	20.txt
-rw-rw-r--	1	yashdaund	yashdaund	95	Sep	1	12:00	2.sh
-rw-rw-r--	1	yashdaund	yashdaund	149	Sep	1	12:16	3.sh
-rw-rw-r--	1	yashdaund	yashdaund	90	Sep	1	12:24	4.bash
-rw-rw-r--	1	yashdaund	yashdaund	55	Sep	1	08:59	5.sh
-rw-rw-r--	1	yashdaund	yashdaund	3.2K	Sep	2	10:09	60.txt
-rw-rw-r--	1	yashdaund	yashdaund	184M	Sep	2	10:18	archive1.tar.gz
-rw-rw-r--	1	yashdaund	yashdaund	646M	Sep	2	10:21	archive2.tar
-rw-rw-r--	1	yashdaund	yashdaund	10K	Sep	1	11:13	archive_name.tar
-rw-rw-r--	1	yashdaund	yashdaund	3.0K	Sep	1	11:19	archive_name.zip
drwxrwxr-x	2	yashdaund	yashdaund	4.0K	Sep	1	11:00	backup
drwxrwxr-x	2	yashdaund	yashdaund	4.0K	Aug	29	17:36	backup1
drwxrwxr-x	4	yashdaund	yashdaund	4.0K	Aug	29	19:02	cdac-air1
drwxrwxr-x	4	yashdaund	yashdaund	4.0K	Sep	1	10:09	cdac_dir1

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

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

```
yashdaund@yashdbda:~$ ls -a
.                  .bash_history      dbda_rm1.sh        file5.sh           newfile.txt        sna
..                 .bash_logout       dbda_rm3.sh        file5.txt          newname1.txt       sof
1.sh               .bashrc            Desktop            file70.txt         newname.txt        sor
20.txt             .cache              dir1                .gnupg             new_project        .ss
2.sh               cdac-air1           dir14              .lessht           num_sort_example.txt .su
3.sh               cdac_dir1           dir2                linux              Pictures           tem
4.bash             .config            dir23              ln_soft.txt        .profile           Tem
5.sh               copy_hardlink.txt  dir3               .local            project            Vid
60.txt             data1.csv           documents          log1.txt           project1           wor
archive1.tar.gz    data.csv           Documents          log2.txt           project2           wor
archive2.tar       daund.sh           Downloads          log3.txt           Public            yas
archive_name.tar   dbda_abb.sh        file1.txt          Music              rename1            yas
archive_name.zip   dbda_abcd.sh       file2.txt          myfile.txt         report1.txt        yas
backup            dbda_abc.sh        file3.sh           newfile2.txt       report2.txt
backup1           dbda_cdc.sh        file4.sh           newfile5.txt       shell
yashdaund@yashdbda:~$
```

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

```

backup1          dbda_cdc.sh          file4.sh         newfile5.txt    shell
yashdaund@yashdbda:~$ dir -a
.                .bash_history    dbda_rm1.sh     file5.sh        newfile.txt     sna
..               .bash_logout    dbda_rm3.sh     file5.txt       newname1.txt    sof
1.sh             .bashrc         Desktop        file70.txt      newname.txt     sor
20.txt           .cache          dir1            .gnupg          new_project     .ss
2.sh             cdac-air1       dir14          .lessht        num_sort_example.txt .su
3.sh             cdac_dir1       dir2           linux           Pictures        tem
4.bash           .config         dir23          ln_soft.txt     .profile        Tem
5.sh             copy_hardlink.txt dir3           .local          project         Vid
60.txt           data1.csv       documents       log1.txt        project1        wor
archive1.tar.gz  data.csv        Documents      log2.txt        project2        wor
archive2.tar     daund.sh        Downloads      log3.txt        Public          yas
archive_name.tar dbda_abb.sh     file1.txt      Music           rename1         yas
archive_name.zip dbda_abcd.sh    file2.txt      myfile.txt      report1.txt     yas
backup           dbda_abc.sh     file3.sh       newfile2.txt    report2.txt
backup1          dbda_cdc.sh     file4.sh       newfile5.txt    shell
yashdaund@yashdbda:~$

```

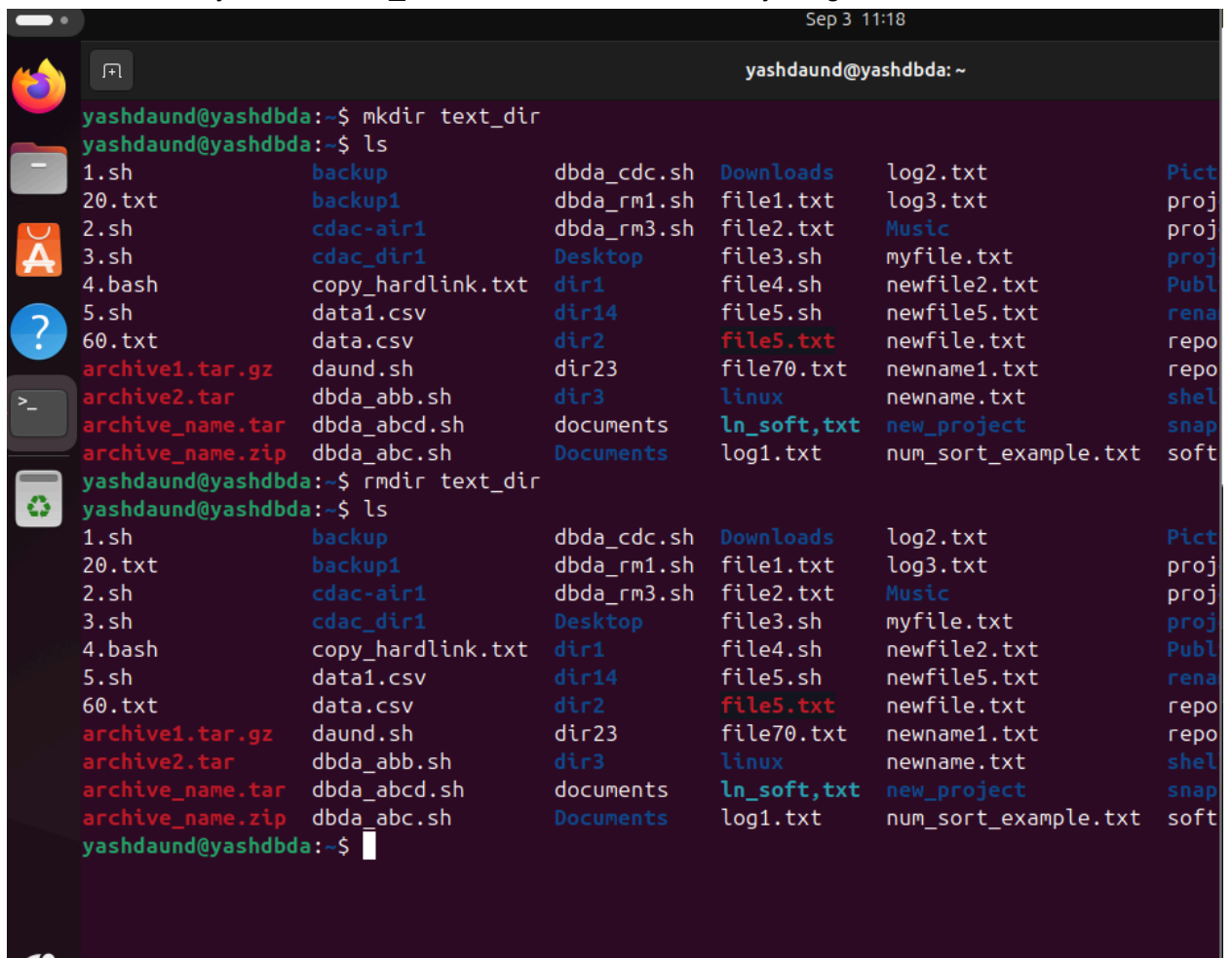
13. Create a directory structure "workspace/projects/web/frontend" in a single command.

```
yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ mkdir -p workspace/projects/web/frontend  
yashdaund@yashdbda:~$ ls  
1.sh          backup        dbda_cdc.sh   Downloads     log2.txt      Pict  
20.txt        backup1       dbda_rm1.sh   file1.txt     log3.txt      proj  
2.sh          cdac-air1     dbda_rm3.sh   file2.txt     Music         proj  
3.sh          cdac_dir1     Desktop       file3.sh      myfile.txt    proj  
4.bash        copy_hardlink.txt dir1          file4.sh      newfile2.txt  Publ  
5.sh          data1.csv     dir14         file5.sh      newfile5.txt  rena  
60.txt        data.csv      dir2          file5.txt     newfile.txt   repo  
archive1.tar.gz daund.sh     dir23         file70.txt    newname1.txt  repo  
archive2.tar  dbda_abb.sh  dir3          linux         newname.txt   shel  
archive_name.tar dbda_abcd.sh documents     ln_soft.txt   new_project   snap  
archive_name.zip dbda_abc.sh  Documents     log1.txt      num_sort_example.txt soft  
yashdaund@yashdbda:~$
```

Create the following nested structure in one command:

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

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

A terminal window titled 'yashdaund@yashdbda: ~' with a date/time stamp 'Sep 3 11:18'. The terminal shows the following commands and output:
1. Command: `mkdir test_dir`
2. Command: `ls`
Output: A long list of files and directories including 1.sh, 20.txt, 2.sh, 3.sh, 4.bash, 5.sh, 60.txt, archive1.tar.gz, archive2.tar, archive_name.tar, archive_name.zip, backup, backup1, cdac-air1, cdac_dir1, copy_hardlink.txt, data1.csv, data.csv, daund.sh, dbda_abb.sh, dbda_abcd.sh, dbda_abc.sh, dbda_cdc.sh, dbda_rm1.sh, dbda_rm3.sh, dir1, dir14, dir2, dir23, dir3, documents, Downloads, file1.txt, file2.txt, file3.sh, file4.sh, file5.sh, file5.txt, file70.txt, ln_soft.txt, log1.txt, log2.txt, log3.txt, Music, myfile.txt, newfile2.txt, newfile5.txt, newfile.txt, newname1.txt, newname.txt, new_project, num_sort_example.txt, Pict, proj, proj, proj, Publ, rena, repo, repo, shel, snap, soft.
3. Command: `rm -r test_dir`
4. Command: `ls`
Output: The same list of files and directories as before, but 'test_dir' is no longer present.
5. Command: `$` (prompt)
The terminal window has a sidebar with icons for file manager, applications, help, and trash.

File Content and Text Processing

16. Save the manual page of the `find` command to a file named "find_manual.txt".
17. Display the first 15 lines and last 8 lines of "find_manual.txt".
- clear


```
yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ tail -n 8 find_manual.txt  
SEE ALSO  
    chmod(1), locate(1), ls(1), updatedb(1), xargs(1), lstat(2), stat(2), ctime(3) fn  
    time(3), locatedb(5), regex(7)  
  
    Full documentation <https://www.gnu.org/software/findutils/find>  
    or available locally via: info find  
  
yashdaund@yashdbda:~$  
yashdaund@yashdbda:~$ head -n 15 find_manual.sh  
exho "edited with the help of a rich-text editor.[3] There are dozens of different wiki e  
and part of other software, such as bug tracking systems. Some wiki engines are free and  
    proprietary. Some permit control over different functions (levels of access); for exampl  
anging, adding, or removing material. Others may permit access without enforcing access d  
posed to organize content. In addition to hosting user-authored content, wikis allow thos  
ssions, and collaborate.[4]  
  
There are hundreds of thousands of wikis in use, both public and private, including wikis  
ement resources, note-taking tools, community websites, and intranets. Ward Cunningham, t  
software, WikiWikiWeb, originally described wiki as "the simplest online database that co  
pronounced [wiki][note 1]) is a Hawaiian word meaning "quick".[6][7][8]  
  
The online encyclopedia project Wikipedia is the most popular wiki-based website, as well  
st popular websites, having been ranked consistently as such since at least 2007.[9] Wiki  
rather a collection of hundreds of wikis, with each one pertaining to a specific language  
ce work of all time.[10] The English-language Wikipedia has the largest collection of art  
of September 2025.[11] "
```

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

```
yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ touch manuals  
yashdaund@yashdbda:~$ cp find_manual.txt manuals  
yashdaund@yashdbda:~$ mv manuals finf_help.txt  
yashdaund@yashdbda:~$ cat finf_help.txt  
FIND(1)                                General Commands Manual  
  
NAME  
    find - search for files in a directory hierarchy  
  
SYNOPSIS  
    find [-H] [-L] [-P] [-D debugopts] [-Olevel] [starting-point...] [expression]
```

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

```
yashdaund@yashdbda:~$ wc find_manual.txt  
1379 11854 85271 find_manual.txt  
yashdaund@yashdbda:~$
```

20. Show your last 15 executed commands.

```
yashdaund@yashdbda:~$ history 15
713 head -n 15 find_manual.sh
714 celar
715 clear
716 tail -n 8 find_manual.txt
717 clear
718 touch manuals
719 cp find_manual.txt manuals
720 mv manuals finf_help.txt
721 cat finf_help.txt
722 clear
723 wc finf_manual.txt
724 wc find_manual.txt
725 clear
726 history tail 15
727 history 15
yashdaund@yashdbda:~$
```

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

```

yashdaund@yashdbda: ~
yashdaund@yashdbda:~$ tar -cvf documents_backup.tar.gz ~/Documents
tar: Removing leading `/' from member names
/home/yashdaund/Documents/
/home/yashdaund/Documents/3.txt
/home/yashdaund/Documents/myfile.txt
/home/yashdaund/Documents/report2.txt
yashdaund@yashdbda:~$
```

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

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

```
yashdaund@yashdbda:~$ touch script.sh
yashdaund@yashdbda:~$ chmod 777 script.sh
yashdaund@yashdbda:~$ ls script.sh
script.sh
yashdaund@yashdbda:~$ ls -l script.sh
-rwxrwxrwx 1 yashdaund yashdaund 0 Sep  3 17:14 script.sh
yashdaund@yashdbda:~$
```

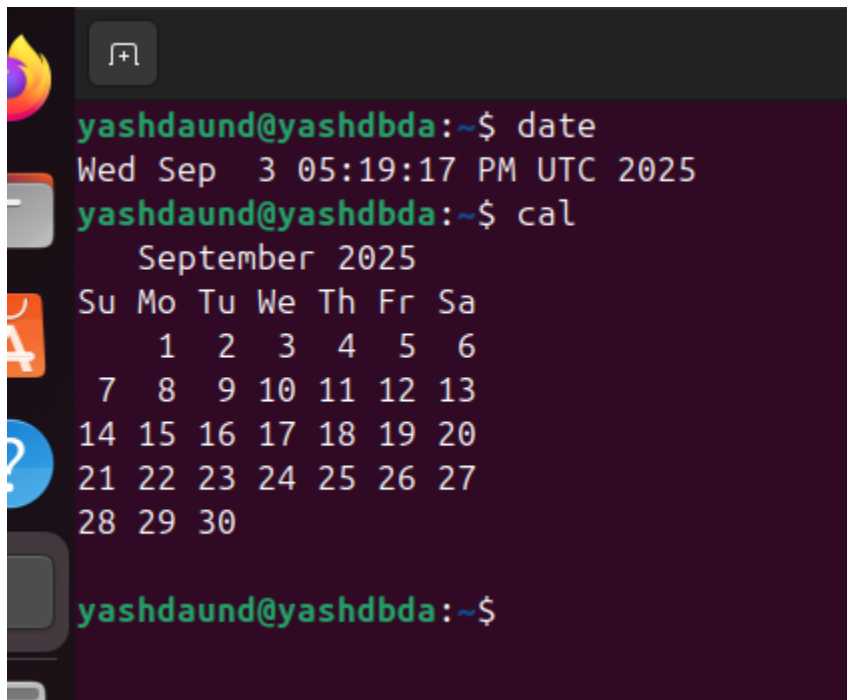
24. Change the owner of "database.txt" to user "admin".

```
yashdaund@yashdbda:~$ touch database.txt
yashdaund@yashdbda:~$ sudo chown yashdaund database.txt
yashdaund@yashdbda:~$ ls -il database.txt
1713846 -rw-rw-r-- 1 yashdaund yashdaund 0 Sep  3 17:17 database.txt
yashdaund@yashdbda:~$
```

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

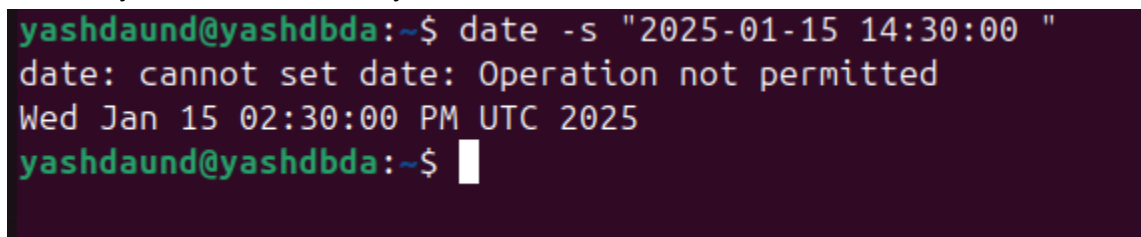
```
yashdaund@yashdbda:~$ ps
  PID TTY          TIME CMD
 2631 pts/0        00:00:00 bash
 2822 pts/0        00:00:00 ps
yashdaund@yashdbda:~$
```

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

A terminal window with a dark purple background. The prompt is 'yashdaund@yashdbda:~\$'. The first command is 'date', which outputs 'Wed Sep 3 05:19:17 PM UTC 2025'. The second command is 'cal', which outputs a calendar for September 2025. The calendar shows days of the week as headers and dates 1 through 30 in a grid. The prompt returns to 'yashdaund@yashdbda:~\$' after the second command.

```
yashdaund@yashdbda:~$ date
Wed Sep 3 05:19:17 PM UTC 2025
yashdaund@yashdbda:~$ 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
yashdaund@yashdbda:~$
```

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

A terminal window with a dark purple background. The prompt is 'yashdaund@yashdbda:~\$'. The command is 'date -s "2025-01-15 14:30:00 "'. The output is 'date: cannot set date: Operation not permitted' followed by 'Wed Jan 15 02:30:00 PM UTC 2025'. The prompt returns to 'yashdaund@yashdbda:~\$' with a cursor.

```
yashdaund@yashdbda:~$ date -s "2025-01-15 14:30:00 "
date: cannot set date: Operation not permitted
Wed Jan 15 02:30:00 PM UTC 2025
yashdaund@yashdbda:~$
```

System Information Commands

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

```
yashdaund@yashdbda: ~$ free
              total        used        free      shared  buff/cache   available
Mem:      3911916      1025328      2203112        34680       946424      2886588
Swap:            0             0             0

yashdaund@yashdbda:~$ uptime
17:22:27 up 17 min,  1 user,  load average: 0.04, 0.11, 0.09

yashdaund@yashdbda:~$ df
Filesystem      1K-blocks      Used Available Use% Mounted on
tmpfs           391192         1472    389720   1% /run
/dev/sda2       51287520  8400224  40249628  18% /
tmpfs          1955956            0   1955956   0% /dev/shm
tmpfs           5120             8     5112   1% /run/lock
tmpfs          391188         112    391076   1% /run/user/1000

yashdaund@yashdbda:~$ du
4      ./projects12
4      ./project2
4      ./cdac_dir1/a2/c1
4      ./cdac_dir1/a2/c2
```

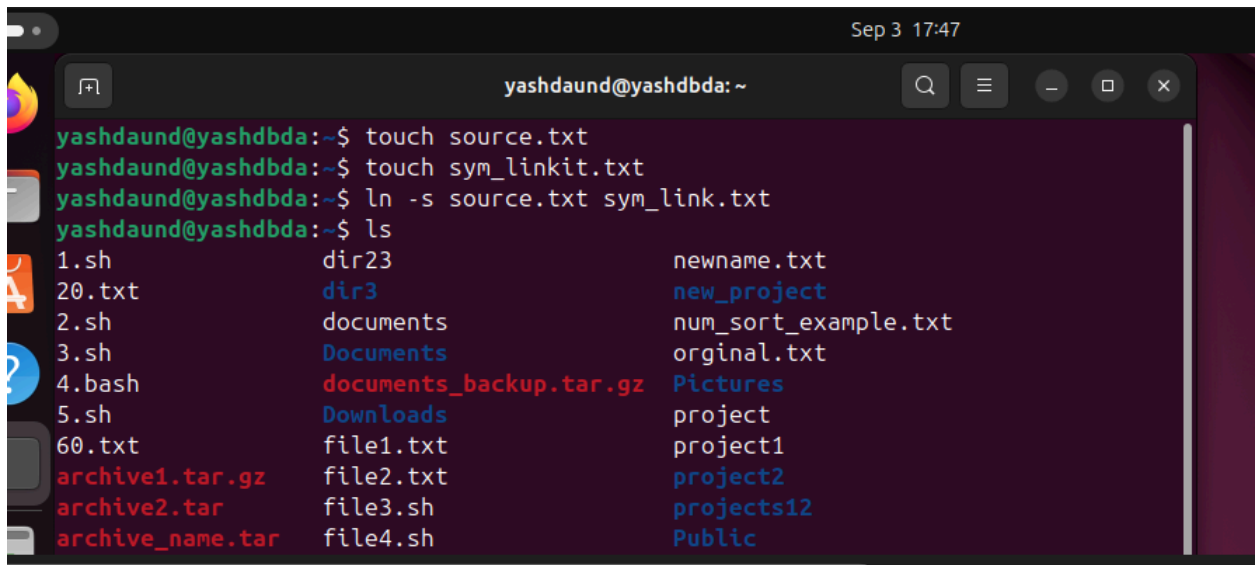
29. Create a directory "linux_lab", navigate into it, create "permissions_test.txt", check its default permissions, modify umask to 022, create "new_permissions_test.txt", and compare their permissions.

```
Sep 3 17:30
yashdaund@yashdbda: ~/linux_lab

yashdaund@yashdbda:~$ mkdir linux_lab
yashdaund@yashdbda:~$ cd linux_lab
bash: cd: linux_lab: No such file or directory
yashdaund@yashdbda:~$ cd linux_lab
yashdaund@yashdbda:~/linux_lab$ touch permission_test.txt
yashdaund@yashdbda:~/linux_lab$ ls -il
total 0
1713847 -rw-rw-r-- 1 yashdaund yashdaund 0 Sep  3 17:25 permission_test.txt
yashdaund@yashdbda:~/linux_lab$ umask 022 permission_test.txt
yashdaund@yashdbda:~/linux_lab$ touch new permission_test.txt
yashdaund@yashdbda:~/linux_lab$ ls
new permission_test.txt permission_test.txt
yashdaund@yashdbda:~/linux_lab$ ls -i
1713849 new 1713847 permission_test.txt 1713850 permission_test.txt
```

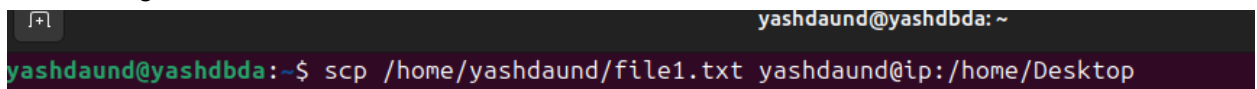
30. Create "original.txt" and make a hard link named "hard_copy.txt" pointing to it.

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



```
yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ touch source.txt  
yashdaund@yashdbda:~$ touch sym_linkit.txt  
yashdaund@yashdbda:~$ ln -s source.txt sym_link.txt  
yashdaund@yashdbda:~$ ls  
1.sh          dir23          newname.txt  
20.txt        dir3           new_project  
2.sh          documents      num_sort_example.txt  
3.sh          Documents      original.txt  
4.bash        documents_backup.tar.gz Pictures  
5.sh          Downloads     project  
60.txt        file1.txt      project1  
archive1.tar.gz file2.txt      project2  
archive2.tar  file3.sh      projects12  
archive_name.tar file4.sh      Public
```

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



```
yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ scp /home/yashdaund/file1.txt yashdaund@ip:/home/Desktop
```

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?

```
Firefox yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ ls  
1.sh          copy_hardlink.txt  dir23          find_manual.txt  newname  
20.txt        data1.csv          dir3           finf_help.txt    new_pro  
2.sh          database.txt       documents      hard_copy.txt    num_sor  
3.sh          data.csv          Documents     linux            original  
4.bash        daund.sh          documents_backup.tar.gz liux_lab        Picture  
5.sh          dbda_abb.sh       Downloads     ln_soft.txt      project  
60.txt        dbda_abcd.sh      file1.txt     log1.txt         project  
archive1.tar.gz dbda_abc.sh      file2.txt     log2.txt         project  
archive2.tar  dbda_cdc.sh      file3.sh      log3.txt         project  
archive_name.tar dbda_rm1.sh     file4.sh      Music            Public  
archive_name.zip dbda_rm3.sh     file5.sh      myfile.txt       rename1  
backup        Desktop          file5.txt     newfile2.txt     report1  
backup1       dir1            file70.txt    newfile5.txt     report2  
cdac-air1     dir14          finddd        newfile.txt      script.  
cdac_dir1     dir2           find_manual.sh newname1.txt     shell  
yashdaund@yashdbda:~$ rm -r dir3  
yashdaund@yashdbda:~$ ls  
1.sh          copy_hardlink.txt  dir23          finf_help.txt    new_proje  
20.txt        data1.csv          documents      hard_copy.txt    num_sort_  
2.sh          database.txt       Documents     linux            original.t  
3.sh          data.csv          documents_backup.tar.gz liux_lab        Pictures  
4.bash        daund.sh          Downloads     ln_soft.txt      project  
5.sh          dbda_abb.sh      file1.txt     log1.txt         project1  
60.txt        dbda_abcd.sh     file2.txt     log2.txt         project2
```

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

```
yashdaund@yashdbda: ~  
yashdaund@yashdbda:~$ ls -a /var/log  
.          apt          boot.log.7      dmesg.0         gpu-manager.log  
..         auth.log      bootstrap.log   dmesg.1.gz      hp  
alternatives.log auth.log.1    bttmp          dmesg.2.gz      installer  
alternatives.log.1 boot.log      bttmp.1        dmesg.3.gz      journal  
apport.log  boot.log.1   cloud-init.log  dmesg.4.gz      kern.log  
apport.log.1 boot.log.2   cloud-init-output.log dpkg.log         kern.log.1  
apport.log.2.gz boot.log.3   cups           dpkg.log.1      lastlog  
apport.log.3.gz boot.log.4   cups-browsed   faillog         openvpn  
apport.log.4.gz boot.log.5   dist-upgrade   fontconfig.log  private  
apport.log.5.gz boot.log.6   dmesg          gdm3            README  
yashdaund@yashdbda:~$
```

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

```
yashdaund@yashdbda:~$ touch /home/yashdaund/opt/myapp/config/file.txt
```

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

```
yashdaund@yashbdba:~$ find /home/yashdaund -type f -name "*.log"
/home/yashdaund/snap/firefox/common/.mozilla/firefox/Crash Reports/crash_helper_server.1
/home/yashdaund/.local/share/gvfs-metadata/root-b0aacf2d.log
/home/yashdaund/.local/share/gvfs-metadata/home-d22834d4.log
yashdaund@yashbdba:~$
```

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

```
yashdaund@yashbdba:~$ mkdir -m 755 myproject
yashdaund@yashbdba:~$
```

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

```
tar: Exiting with failure status due to previous errors
yashdaund@yashbdba:~$ tar -cvf backup.tar.gz /home/yashbdbaund/user/documets
```

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

```
yashdaund@yashbdba:~$ touch shared.txt
yashdaund@yashbdba:~$ chmod ug+rw,o+r shared.txt
yashdaund@yashbdba:~$ ls -il shared.txt
1713859 -rw-rw-r-- 1 yashdaund yashdaund 0 Sep  3 18:05 shared.txt
yashdaund@yashbdba:~$
```

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

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

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

```
yashdaund@yashbdba:~$ touch version.txt
yashdaund@yashbdba:~$ touch version1.txt
yashdaund@yashbdba:~$ diff version.txt version1.txt
yashdaund@yashbdba:~$
```

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

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

```
yashdaund@yashdbda:~$ nano word.sh
yashdaund@yashdbda:~$ cut -c 10-25 word.sh
li was born on 5

yashdaund@yashdbda:~$
```

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

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

Advance

```
yashdaund@yashdbda:~$ grep -o "the" for word.sh | wc -c
grep: for: No such file or directory
240
yashdaund@yashdbda:~$
```

d Questions

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

```
Firefox
yashdaund@yashdbda:~$ tail -f /home/yashdaund/word.sh
echo "Kohli was born on 5 November 1988 in Delhi into a Punjabi Hindu family. His mother
hile his father Prem Nath Kohli worked as a criminal lawyer. He has an elder brother Vik
is formative years were spent in Uttam Nagar. His early education was at Vishal Bharti F
ly, Kohli exhibited an early affinity for cricket as a 3-year-old. He would pick up a ba
him.[5] In 1998, the West Delhi Cricket Academy was created. In May, his father arrange
a.[6] Upon the suggestion of their neighbours, Kohli's father considered enrolling his s
demy, as they believed his ability merited more than gully cricket.[7] He was unable to
team, due to extraneous factors. His father reportedly received offers to relocate his
would ensure his selection, but he declined the proposals. Kohli eventually found his wa
ived training at the academy and participated in matches at the Sumeet Dogra Academy loc
n pursuit of furthering his cricketing career, he transferred to Saviour Convent School
.[7] On 18 December 2006, his father died due to a cerebral attack.[10] As per his mothe
iceably after his father's death. He took on cricket with newfound seriousness, priorit
```

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

```
yashdaund@yashdbda:~$ find / -type f -size +100
```

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

```
Firefox yashdaund@yas
yashdaund@yashdbda:~$ echo "my name is khan">file1.txt
yashdaund@yashdbda:~$
```

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

```
ashdaund@yashdbda:~$ gzip dir1
zip: dir1 is a directory -- ignored
ashdaund@yashdbda:~$
```

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

```
yashdaund@yashdbda: ~
yashdaund@yashdbda:~$ sudo find / home -user yashdaund
```

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?

```
Firefox
yashdaund@yashdbda:~$ du -h . | sort -rh
1.3G      .
244M      ./snap
241M      ./snap/firefox/common
241M      ./snap/firefox
181M      ./snap/firefox/common/.cache
180M      ./snap/firefox/common/.cache/mozilla/firefox/rmbiw4ao.default
180M      ./snap/firefox/common/.cache/mozilla/firefox
180M      ./snap/firefox/common/.cache/mozilla
149M      ./snap/firefox/common/.cache/mozilla/firefox/rmbiw4ao.default/cache2
148M      ./snap/firefox/common/.cache/mozilla/firefox/rmbiw4ao.default/cache2/entries
60M      ./snap/firefox/common/.mozilla/firefox
60M      ./snap/firefox/common/.mozilla
59M      ./snap/firefox/common/.mozilla/firefox/rmbiw4ao.default
```

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

```
yashdaund@yashdbda:~$ ps
  PID TTY          TIME CMD
 2686 pts/0        00:00:00 bash
 3252 pts/0        00:00:00 ps
yashdaund@yashdbda:~$ kill -9 2686
```

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

```
yashdaund@yashdbda: ~
yashdaund@yashdbda:~$ ln -s backup home
```

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

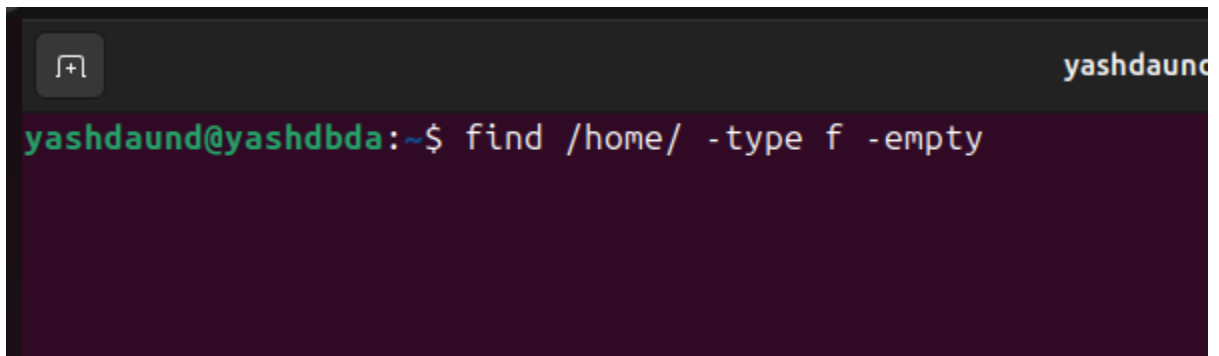
```
yashdaund@yashdbda: ~
yashdaund@yashdbda:~$ sort -m log1.csv log2.csv >> merged_sorted_file
```

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

```
yashdaund@yashdbda: ~
yashdaund@yashdbda:~$ uniq file1.txt
```

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

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

A terminal window with a dark background. The prompt is 'yashdaund@yashdbda:~\$'. The command 'find /home/ -type f -empty' is entered in green text. The terminal title bar shows a window icon and the name 'yashdaund'.

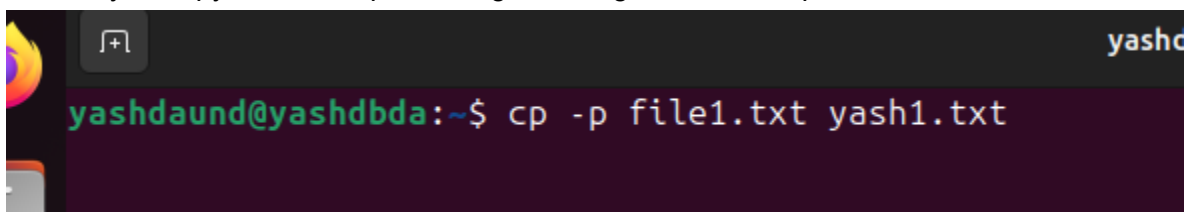
65. How do you find files that are exactly 0 bytes (empty files)?

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?

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

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

A terminal window with a dark background. The prompt is 'yashdaund@yashdbda:~\$'. The command 'cp -p file1.txt yash1.txt' is entered in green text. The terminal title bar shows a window icon and the name 'yashdaund'.

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