

DAY -18 LSP Assignment

Task -1

1. List and execute all commands **ls**, **cd**, **cp**, **cd**, **rm**, **mv**, **pwd**, **mkdir**, **rmdir**, **cat**, **man** etc.

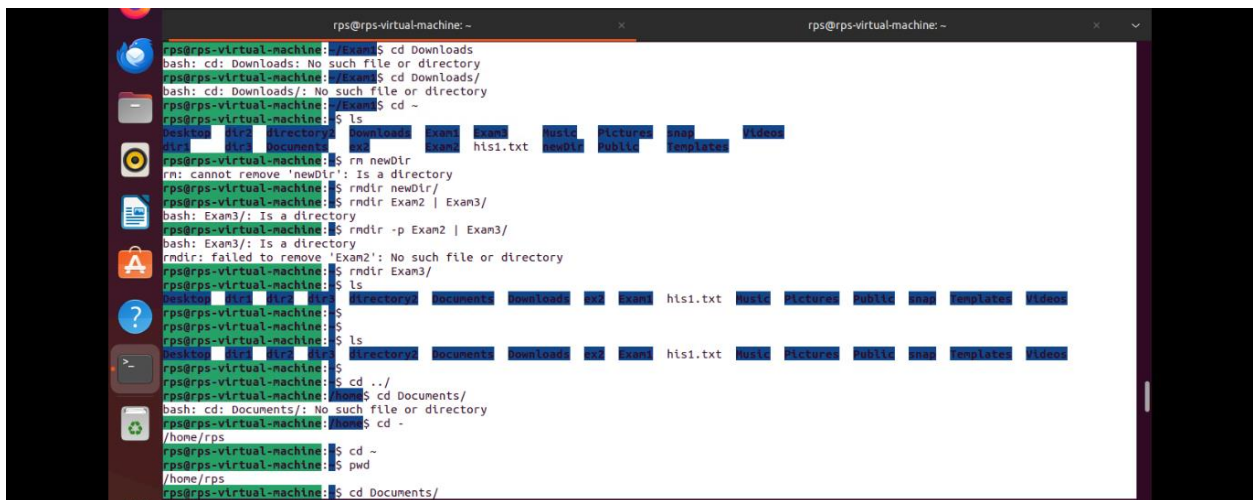
Commands

Descriptions

1. ls	show files in current position
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2. cd	Change directory
-------	------------------



3. cp

copy file or directory

```
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $ cp his1.txt Downloads/  
rps@rps-virtual-machine: $ ls Downloads/  
code_1.07.1.1709403702_and64.deb  'DAY-3 Inheritance.docx'  
'C++ Wipro training.pdf'          'DAY-3 Inheritance.pdf'  
'DAY -2 Assignments Programs.pdf' 'DAY - 4 LAB Assignment.pdf'  
'Day 2 C++ Program.pdf'          'DAY 4 Theoretical Quest. and LAB Quest..pdf'  
'Day 3 Inheritance code 2'        'DAY-5 LAB Assignments.docx'  
'Day 3 Inheritance code 2(1)'     'DAY - 6 Assignment and LABs.docx'  
'Day 3 Inheritance code 2(2)'     his1.txt  
rps@rps-virtual-machine: $ cp dir3 dir1/  
cp: -r not specified; omitting directory 'dir3'  
rps@rps-virtual-machine: $ cp dir3 Exam1/  
cp: -r not specified; omitting directory 'dir3'  
rps@rps-virtual-machine: $ cp -r dir3 Exam1/  
rps@rps-virtual-machine: $ ls Exam1/  
ls: cannot access 'Exam1/': No such file or directory  
rps@rps-virtual-machine: $ ls Exam1/  
file3  student1.txt  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $
```

4. mv

move file or directory

```
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $ mv his1.txt home/  
mv: cannot move 'his1.txt' to 'home/': Not a directory  
rps@rps-virtual-machine: $ mv his1.txt dir1  
rps@rps-virtual-machine: $ ls dir1  
file3  his1.txt  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $ rm his1.txt
```

5. rm

remove file or directory

```
rps@rps-virtual-machine: $ ls dir1  
file3  his1.txt  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $ rm his1.txt  
rm: cannot remove 'his1.txt': No such file or directory  
rps@rps-virtual-machine: $ cd dir1  
rps@rps-virtual-machine: /dir1 $ rm his1.txt  
rps@rps-virtual-machine: /dir1 $ rm file3  
rps@rps-virtual-machine: /dir1 $ ls  
rps@rps-virtual-machine: /dir1 $
```

6. pwd

show current position

```
rps@rps-virtual-machine: /dir1 $  
rps@rps-virtual-machine: /dir1 $ pwd  
/home/rps/dir1  
rps@rps-virtual-machine: /dir1 $ cd ../  
rps@rps-virtual-machine: $ cd ../ pwd  
bash: cd: too many arguments  
rps@rps-virtual-machine: $ pwd  
/home/rps  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $
```

7. mkdir

create directory

```
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $ echo "Use of mkdir for creating directory."  
Use of mkdir for creating directory.  
rps@rps-virtual-machine: $ mkdir d1/  
rps@rps-virtual-machine: $ mkdir -p d2 d3  
rps@rps-virtual-machine: $ ls  
Desktop d1 d2 d3 directory2 Documents Downloads ex1.txt Exam Exam Music Pictures Public snap Templates Videos  
rps@rps-virtual-machine: $ mkdir d2 | touch ex1.txt  
mkdir: cannot create directory 'd2': File exists  
rps@rps-virtual-machine: $ mkdir d4 | touch ex1.txt  
rps@rps-virtual-machine: $ ls d4  
ex1.txt  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $ echo "Use of rmdir for deleting/ removing directory."  
Use of less, more, cat commands for viewing the output.
```

8. rmdir

remove directory

```
d2 d4 d1r1 d1r2 d1r3 directory2 Documents ex1.txt Exam Pictures snap Videos  
rps@rps-virtual-machine: $ echo "Use of rmdir for deleting/ removing directory."  
Use of rmdir for deleting/ removing directory.  
rps@rps-virtual-machine: $ rmdir d1  
rps@rps-virtual-machine: $ rmdir -p d2 d3  
rps@rps-virtual-machine: $ ls  
Desktop d2 d4 d1r1 d1r2 d1r3 directory2 Documents Downloads ex1.txt Exam Exam Music Pictures Public snap Templates Videos  
rps@rps-virtual-machine: $ rmdir d4  
rps@rps-virtual-machine: $ ls  
Desktop d2 d3 d1r1 d1r2 directory2 Documents Downloads ex1.txt Exam Exam Music Pictures Public snap Templates Videos  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $ echo "Use of less, more, cat commands for viewing the output."  
Use of less, more, cat commands for viewing the output.
```

9. less, more, cat

display file contents

```
Desktop d1r1 d1r2 d1r3 directory2 Documents Downloads ex1.txt Exam Exam Music Pictures Public snap Templates Videos  
rps@rps-virtual-machine: $  
rps@rps-virtual-machine: $ echo "Use of less, more, cat commands for viewing the output."  
Use of less, more, cat commands for viewing the output.  
rps@rps-virtual-machine: $ cat >ex1.txt  
#include<iostream>  
#include<string>  
  
int main(){  
  
std::string name;  
std::cout<<" Enter your name ";  
std::getline(std::cin,name);  
std::cout<<"Hello."<<name<<"!"<<std::endl;  
return 0;  
}  
rps@rps-virtual-machine: $ cat ex1.txt  
#include<iostream>  
#include<string>  
  
int main(){  
  
std::string name;  
std::cout<<" Enter your name ";  
std::getline(std::cin,name);  
std::cout<<"Hello."<<name<<"!"<<std::endl;  
return 0;  
}  
rps@rps-virtual-machine: $ less ex1.txt  
rps@rps-virtual-machine: $ more ex1.txt  
#include<iostream>  
#include<string>  
  
int main(){
```

10. man

display online manual

```
rps@rps-virtual-machine: $ echo " Use of MAN command "  
Use of MAN command  
rps@rps-virtual-machine: $ man man  
rps@rps-virtual-machine: $
```

Task - 2

A. Type following command in your directory.

1. `ls`
2. `ls -a`
3. `ls -la`
4. `ls -Fa`

The screenshot shows a terminal window with the following commands and output:

```
rps@rps-virtual-machine:~$ man man
rps@rps-virtual-machine:~$ echo "***TASK -2**"
***TASK -2**
rps@rps-virtual-machine:~$ ls
Directory  Documents  Downloads  ex1.txt  local  music  picture  public  rps  templates  videos
rps@rps-virtual-machine:~$ ls -a
.  .bashrc  .cache  .config  .dotnet  .local  .mozilla  .profile  .sudo_as_admin_successful  .viminfo  .vscode
.bash_history  .bash_logout  .bashrc  .lessht  .lessht  .lessht  .lessht  .lessht  .lessht  .lessht  .lessht
rps@rps-virtual-machine:~$ ls -la
total 144
drwxr-xr-x  3 rps rps 4096 Jul 17 09:44 .
drwxr-xr-x  3 root root 4096 Mar 16 2023 ..
-rw-r--r--  1 rps rps 4473 Jul 16 11:50 .bash_history
-rw-r--r--  1 rps rps 228 Mar 16 2023 .bash_logout
-rw-r--r--  1 rps rps 3771 Mar 16 2023 .bashrc
drwx----- 18 rps rps 4096 Jul 16 12:06 .cache
drwx----- 17 rps rps 4096 Jul 16 12:03 .config
drwxr-xr-x  3 rps rps 4096 Jul 16 21:21 .dotnet
drwxrwxr-x  2 rps rps 4096 Jul 17 09:31 local
drwxrwxr-x  2 rps rps 4096 Jul 16 15:43 music
drwxrwxr-x  2 rps rps 4096 Jul 16 15:29 picture
drwxrwxr-x  2 rps rps 4096 Jul 16 15:27 public
drwxr-xr-x  6 rps rps 4096 Jul 16 21:28 templates
drwxrwxr-x  3 rps rps 4096 Mar 10 09:58 videos
rps@rps-virtual-machine:~$ ls -Fa
./  ./bashrc  ./cache  ./config  ./dotnet  ./local  ./mozilla  ./profile  ./sudo_as_admin_successful  ./viminfo  ./vscode
./bash_history  ./bash_logout  ./bashrc  ./lessht  ./lessht  ./lessht  ./lessht  ./lessht  ./lessht  ./lessht  ./lessht
rps@rps-virtual-machine:~$ ls -Fa
./  ./bashrc  ./cache  ./config  ./dotnet  ./local  ./mozilla  ./profile  ./sudo_as_admin_successful  ./viminfo  ./vscode
./bash_history  ./bash_logout  ./bashrc  ./lessht  ./lessht  ./lessht  ./lessht  ./lessht  ./lessht  ./lessht  ./lessht
rps@rps-virtual-machine:~$ echo "Make a Directory."
Make a Directory.
```

B. Make a directory

1. `mkdir linux`
2. `pwd`
3. `cd linux`
4. `pwd`
5. `cd`
6. `pwd`
7. `rmdir linux`

```
.bash_logout Desktop/ directory/ ex1.txt lessshst Pictures/ snap/ thunderbird/
rps@rps-virtual-machine:~$ echo "Make a Directory."
Make a Directory.
rps@rps-virtual-machine:~$ mkdir linux
rps@rps-virtual-machine:~$ ls
Desktop  Downloads  ex1.txt  linux  music  Pictures  Public  Templates  Videos
rps@rps-virtual-machine:~$ pwd
/home/rps
rps@rps-virtual-machine:~$ cd linux
rps@rps-virtual-machine:~/linux$ cd ../
rps@rps-virtual-machine:~$ pwd
/home/rps
rps@rps-virtual-machine:~$ mkdir linux
rps@rps-virtual-machine:~$ ls
Desktop  Downloads  ex1.txt  linux  music  Pictures  Public  Templates  Videos
rps@rps-virtual-machine:~$
```

Task - 3

A. List of Unix / Linux Commands.

Use ‘sudo’ for commands that require **superuser privileges**.

1. Basic Commands:

a. su:	Switch user to another user account.
Syntax:	su [username]
Example :	su root

This command will prompt you for the root user's password and then switch to the root user.

b. passwd:	Change password of user account.
Syntax :	passwd [username]
Example :	passwd

This command will change the password of the current user. If you want to change the password of another user, you can specify the username (requires superuser privileges).

c. useradd:	Create a new user account.
Syntax:	sudo useradd [options] username
Example:	sudo useradd newuser

This command will create a new user named ‘newuser’. You may need to set a password for the new user using ‘passwd’.

d. userdel: Delete a user account.

Syntax: sudo userdel [options] username
--

Example: sudo userdel newuser

This command will delete the user 'newuser'. You can add the -r option to remove the user's home directory and mail spool.

e. mount: Mount a filesystem.

Syntax: sudo mount [options] device dir
--

Example: sudo mount /dev/sdb1 /mnt

This command will mount the device /dev/sdb1 to the directory /mnt.

f. umount: Unmount a filesystem.

Syntax: sudo umount [options] dir
--

Example: sudo umount /mnt

This command will unmount the filesystem mounted at /mnt.

g. df: Show disk space usage.

Syntax : df [options]

Example: df -h

This command will display the disk space usage in a human-readable format.

h. shutdown: Reboot or turn off the machine.

Syntax : sudo shutdown [options] time [message]
--

Example: i. sudo shutdown -h now : This command will halt the system immediately.
--

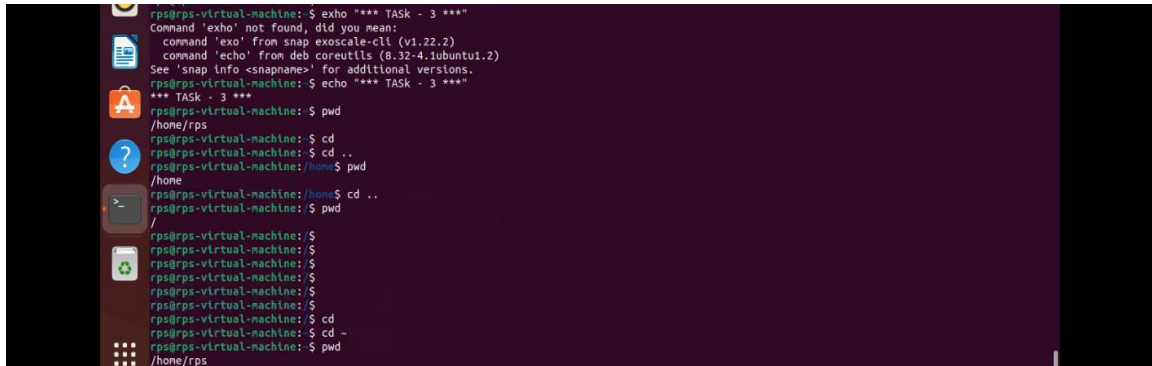
ii sudo shutdown -r now : To reboot.

2. Relative Path Commands:

- a. pwd: Print the current working directory.
- b. cd .: Change to the current directory (no change).
- c. pwd: Print the current working directory.
- d. cd ..: Change to the parent directory.
- e. pwd: Print the current working directory.
- f. cd: Change to the home directory.

Example sequence:

- a. pwd: Show current directory.
- b. cd .: No change.
- c. pwd: Show current directory.
- d. cd ..: Move up one directory.
- e. pwd: Show current directory.
- f. cd: Move to the home directory.

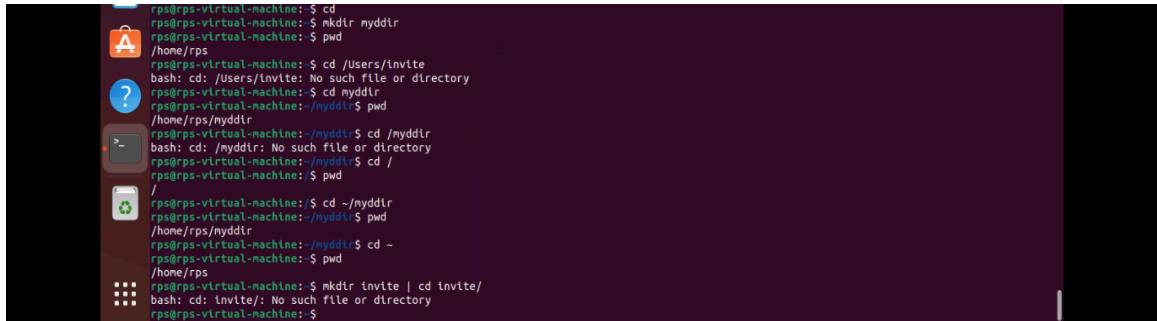


```
rps@rps-virtual-machine: $ exho "*** TASK - 3 ***"
Command 'exho' not found, did you mean:
  command 'exo' from snap exoscale-cli (v1.22.2)
  command 'echo' from deb coreutils (8.32-4.1ubuntu1.2)
See 'snap info <snapname>' for additional versions.
rps@rps-virtual-machine: $ echo "*** TASK - 3 ***"
*** TASK - 3 ***
rps@rps-virtual-machine: $ pwd
/home/rps
rps@rps-virtual-machine: $ cd
rps@rps-virtual-machine: $ cd ..
rps@rps-virtual-machine: /home$ pwd
/home
rps@rps-virtual-machine: /home$ cd ..
rps@rps-virtual-machine: $ pwd
/
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $ cd
rps@rps-virtual-machine: $ cd ~
rps@rps-virtual-machine: $ pwd
/home/rps
```

3. Absolute Path Commands:

- a. cd: Change to the home directory.
- b. mkdir mydir: Create a directory named "mydir".
- c. pwd: Print the current working directory.
- d. cd /Users/invoke: Change to the /Users/invoke directory.
- e. pwd: Print the current working directory.
- f. cd /Users: Change to the /Users directory.
- g. pwd: Print the current working directory.
- h. cd /: Change to the root directory.

- i. `pwd`: Print the current working directory.
- j. `cd /Users/invite`: Change to the `/Users/invite` directory.
- k. `cd ~/mydir`: Change to the `mydir` directory in the home directory.



```
rps@rps-virtual-machine:~$ cd
rps@rps-virtual-machine:~$ mkdir mydir
rps@rps-virtual-machine:~$ pwd
/home/rps
rps@rps-virtual-machine:~$ cd /Users/invite
bash: cd: /Users/invite: No such file or directory
rps@rps-virtual-machine:~$ cd mydir
rps@rps-virtual-machine:~/mydir$ pwd
/home/rps/mydir
rps@rps-virtual-machine:~/mydir$ cd /mydir
bash: cd: /mydir: No such file or directory
rps@rps-virtual-machine:~/mydir$ cd /
rps@rps-virtual-machine:/$ pwd
/
rps@rps-virtual-machine:/$ cd ~/mydir
rps@rps-virtual-machine:~/mydir$ pwd
/home/rps/mydir
rps@rps-virtual-machine:~/mydir$ cd -
/home/rps
rps@rps-virtual-machine:~$ mkdir invite | cd invite/
bash: cd: invite/: No such file or directory
rps@rps-virtual-machine:~$
```

Task - 4

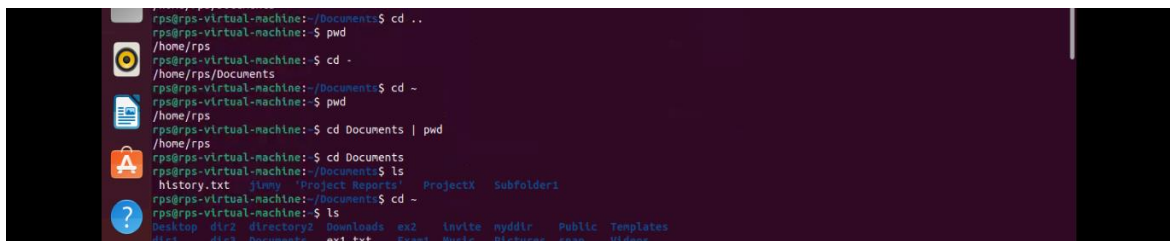
A. Navigation:

- 1. **cd (change directory):** Moves you between directories.
- a. **Exercise:** Navigate to your home directory (`cd ~`), then explore subdirectories like Documents (`cd Documents`). Use `pwd` (print working directory) to confirm your location. Try going back a directory with `cd ..`
- pwd (print working directory):** Shows your current directory path.



```
rps@rps-virtual-machine:~$ cd
rps@rps-virtual-machine:~$ cd ~
rps@rps-virtual-machine:~$ cd Documents
rps@rps-virtual-machine:~/Documents$ pwd
/home/rps/Documents
rps@rps-virtual-machine:~/Documents$ cd ..
rps@rps-virtual-machine:~$ pwd
/home/rps
```

- b. **Exercise:** After navigating using `cd`, use `pwd` to verify the path.
- ls (list):** Lists files and directories in the current directory.



```
rps@rps-virtual-machine:~/Documents$ cd ..
rps@rps-virtual-machine:~$ pwd
/home/rps
rps@rps-virtual-machine:~$ cd -
/home/rps/Documents
rps@rps-virtual-machine:~/Documents$ cd -
rps@rps-virtual-machine:~$ pwd
/home/rps
rps@rps-virtual-machine:~$ cd Documents | pwd
/home/rps
rps@rps-virtual-machine:~$ cd Documents
rps@rps-virtual-machine:~/Documents$ ls
history.txt  jwmy  'Project Reports'  ProjectX  Subfolders
rps@rps-virtual-machine:~/Documents$ cd -
rps@rps-virtual-machine:~$ ls
Desktop  dir2  directory2  Downloads  ex2  invite  mydir  Public  Templates
dir1     dir3  Documents  ex1.txt   Exam1  Music  Pictures  snap   Videos
```

- c. **Exercise:** Use `ls` in your home directory and note the listed items. Try `ls -l` (long format) for detailed information like permissions, owner, and size.


```
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $ ls -l
total 72
drwxr-xr-x 3 rps rps 4096 Jul 16 21:21 Desktop
drwxrwxr-x 2 rps rps 4096 Jul 17 09:31 dir1
drwxrwxr-x 2 rps rps 4096 Jul 16 15:43 dir2
drwxrwxr-x 2 rps rps 4096 Jul 16 15:29 dir3
drwxrwxr-x 2 rps rps 4096 Jul 16 15:27 directory2
drwxr-xr-x 6 rps rps 4096 Jul 16 21:28 Documents
drwxr-xr-x 3 rps rps 4096 Jul 17 09:27 Downloads
-rw-rw-r-- 1 rps rps 184 Jul 17 09:43 ex1.txt
drwxrwxr-x 2 rps rps 4096 Jul 16 12:35 ex2
drwxrwxr-x 3 rps rps 4096 Jul 17 09:29 Exam1
drwxrwxr-x 2 rps rps 4096 Jul 17 10:41 Invite
```

B. File and Directory Management:

1. mkdir (make directory): Creates a new directory.

- a. **Exercise:** Create a new directory called "Projects" (mkdir Projects). Use ls to confirm its existence.

rmdir (remove directory): Deletes an empty directory.

```
rps@rps-virtual-machine: $ mkdir Projects
rps@rps-virtual-machine: $ ls
Desktop  dir2  directory2  Downloads  ex2  Invite  myddir  Projects  snap  Videos
dir1    dir3  Documents  ex1.txt    Exam1  Music  Pictures  Public  Templates
rps@rps-virtual-machine: $ cd Projects
rps@rps-virtual-machine: ~/Projects $ pwd
/home/rps/Projects
rps@rps-virtual-machine: ~/Projects $ cd ..
rps@rps-virtual-machine: $ rmdir dir3
rps@rps-virtual-machine: $ ls
Desktop  dir2  directory2  Downloads  ex2  Invite  myddir  Projects  snap  Videos
dir1    dir3  Documents  ex1.txt    Exam1  Music  Pictures  Public  Templates
rps@rps-virtual-machine: $
```

- b. **Exercise:** Make a directory named "temp" (mkdir temp). Delete it after verifying its existence with ls (rmdir temp).

touch (create file): Creates an empty file.

```
rps@rps-virtual-machine: $ mkdir temp
rps@rps-virtual-machine: $ ls
Desktop  dir2  directory2  Downloads  ex2  Invite  myddir  Projects  snap  Videos
dir1    dir3  Documents  ex1.txt    Exam1  Music  Pictures  Public  Templates
rps@rps-virtual-machine: $ rmdir temp
rps@rps-virtual-machine: $ ls
Desktop  dir2  directory2  Downloads  ex2  Invite  myddir  Projects  snap  Videos
dir1    dir3  Documents  ex1.txt    Exam1  Music  Pictures  Public  Templates
rps@rps-virtual-machine: $
```

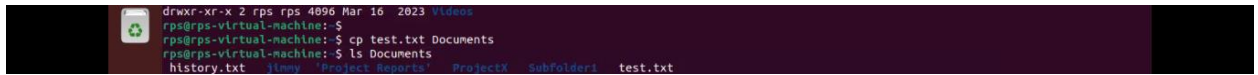
- c. **Exercise:** Create a file called "test.txt" (touch test.txt). Use ls to see it listed.

cp (copy): Copies a file or directory to another location.

```
rps@rps-virtual-machine: $ touch test.txt
rps@rps-virtual-machine: $ ls
Desktop  dir2  directory2  Downloads  ex2  Invite  myddir  Projects  snap  test.txt  Videos
dir1    dir3  Documents  ex1.txt    Exam1  Music  Pictures  Public  Templates
rps@rps-virtual-machine: $ ls -l
total 72
drwxr-xr-x 3 rps rps 4096 Jul 16 21:21 Desktop
drwxrwxr-x 2 rps rps 4096 Jul 17 09:31 dir1
drwxrwxr-x 2 rps rps 4096 Jul 16 15:43 dir2
drwxrwxr-x 2 rps rps 4096 Jul 16 15:27 directory2
drwxr-xr-x 6 rps rps 4096 Jul 16 21:28 Documents
drwxr-xr-x 3 rps rps 4096 Jul 17 09:27 Downloads
-rw-rw-r-- 1 rps rps 184 Jul 17 09:43 ex1.txt
drwxrwxr-x 2 rps rps 4096 Jul 16 12:35 ex2
drwxrwxr-x 3 rps rps 4096 Jul 17 09:29 Exam1
drwxrwxr-x 2 rps rps 4096 Jul 17 10:41 Invite
drwxr-xr-x 2 rps rps 4096 Mar 16 2023 Music
drwxrwxr-x 2 rps rps 4096 Jul 17 10:38 myddir
drwxr-xr-x 2 rps rps 4096 Mar 16 2023 Pictures
drwxrwxr-x 2 rps rps 4096 Jul 17 11:39 Projects
drwxr-xr-x 2 rps rps 4096 Mar 16 2023 Public
drwx----- 5 rps rps 4096 Mar 9 22:39 snap
drwxr-xr-x 2 rps rps 4096 Mar 16 2023 Templates
-rw-rw-r-- 1 rps rps 0 Jul 17 11:41 test.txt
drwxr-xr-x 2 rps rps 4096 Mar 16 2023 Videos
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $ cp test.txt Documents
rps@rps-virtual-machine: $ ls Documents
history.txt  image  Project Report1  ProjectX  SubFolder1  test.txt
```

- d. **Exercise:** Copy "test.txt" to your Documents directory (cp test.txt Documents). Verify the copy with ls Documents.

mv (move/rename): Moves or renames a file or directory.



```
drwxr-xr-x 2 rps rps 4096 Mar 16 2023 Videos
rps@rps-virtual-machine: $
rps@rps-virtual-machine: $ cp test.txt Documents
rps@rps-virtual-machine: $ ls Documents
history.txt  Jimmy  'Project Reports'  ProjectX  Subfolders  test.txt
```

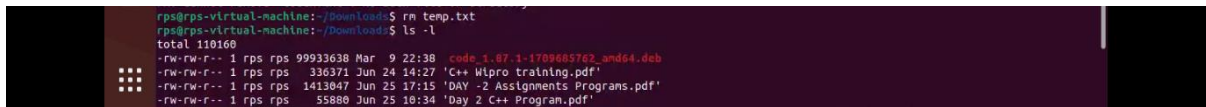
- e. **Exercise:** Rename "test.txt" to "data.txt" (mv test.txt data.txt). Use ls to confirm the change. You can also move files to a different directory (e.g., mv data.txt Documents).

rm (remove): Deletes files or directories (use with caution!).



```
rps@rps-virtual-machine: ~/Downloads$ mv data.txt Documents
rps@rps-virtual-machine: ~/Downloads$ rm his1.txt
rps@rps-virtual-machine: ~/Downloads$
rps@rps-virtual-machine: ~/Downloads$ rm temp.txt
rm: cannot remove 'temp.txt': No such file or directory
```

- g. **Exercise:** Important: Only use this after creating a test file (e.g., touch temp.txt). Delete "temp.txt" with rm temp.txt. Never use rm -rf without understanding the risks!



```
rps@rps-virtual-machine: ~/Downloads$ rm temp.txt
rps@rps-virtual-machine: ~/Downloads$ ls -l
total 110160
-rw-rw-r-- 1 rps rps 99933638 Mar  9 22:38 code_1.07_1-1709605762_umd64.deb
-rw-rw-r-- 1 rps rps 336371 Jun 24 14:27 'C++ Wipro training.pdf'
-rw-rw-r-- 1 rps rps 1413047 Jun 25 17:15 'DAY -2 Assignments Programs.pdf'
-rw-rw-r-- 1 rps rps 55880 Jun 25 18:34 'Day 2 C++ Program.pdf'
```

3. File Viewing and Permissions:

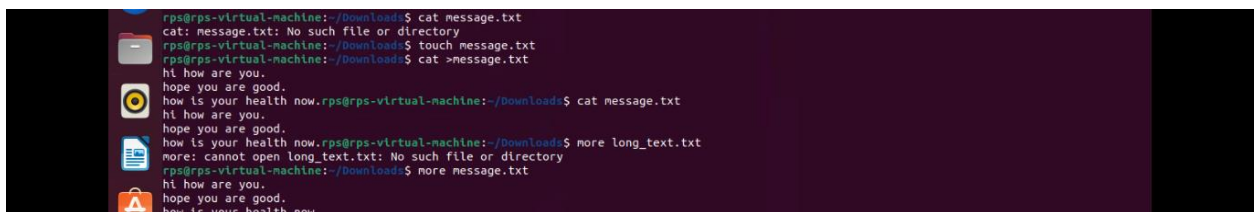
1. **cat (concatenate): Displays the contents of a text file.**



```
rps@rps-virtual-machine: ~/Downloads$ cat message.txt
cat: message.txt: No such file or directory
```

- a. **Exercise:** Create a text file named "message.txt" with some content (e.g., using a text editor). Then, use cat message.txt to view its contents.

more (pager): Displays a file's contents one screen at a time (useful for long files).



```
rps@rps-virtual-machine: ~/Downloads$ cat message.txt
cat: message.txt: No such file or directory
rps@rps-virtual-machine: ~/Downloads$ touch message.txt
rps@rps-virtual-machine: ~/Downloads$ cat >message.txt
ht how are you.
hope you are good.
how is your health now.rps@rps-virtual-machine: ~/Downloads$ cat message.txt
ht how are you.
hope you are good.
how is your health now.rps@rps-virtual-machine: ~/Downloads$ more long_text.txt
more: cannot open long_text.txt: No such file or directory
rps@rps-virtual-machine: ~/Downloads$ more message.txt
ht how are you.
hope you are good.
how is your health now.
```

- less (pager):** Similar to more, but allows you to move backward in the file.

```

rps@rps-virtual-machine: ~/Downloads$ cat message.txt
hl how are you.
hope you are good.
how is your health now.
rps@rps-virtual-machine: ~/Downloads$ more long_text.txt
more: cannot open long_text.txt: No such file or directory
rps@rps-virtual-machine: ~/Downloads$ more message.txt
hl how are you.
hope you are good.
how is your health now.
rps@rps-virtual-machine: ~/Downloads$ less message.txt
rps@rps-virtual-machine: ~/Downloads$ echo 3
3
rps@rps-virtual-machine: ~/Downloads$ echo 3; command not found

```

- chmod (change mode):** Modifies file permissions (owner, group, others) for read, write, and execute access.

```

rps@rps-virtual-machine:~/Downloads$ nano chmod
rps@rps-virtual-machine:~/Downloads$ echo "d"
d
rps@rps-virtual-machine:~/Downloads$ nano ls

```

- ## Getting Help and Information:

The image displays two screenshots of a terminal window on a Linux system, showing the manual page for the `chmod` command.

Top Screenshot: The terminal shows the prompt `rps@rps-virtual-machine: ~`. The user has entered `man ls` and `man chmod`, which has opened the manual page for `chmod`.

Bottom Screenshot: The terminal shows the full manual page for `chmod`. The page is titled `CHMOD(1)` and includes the following sections:

- NAME:** `chmod` - change file mode bits
- SYNOPSIS:**

```
chmod [OPTION]... MODE[,MODE]... FILE...
chmod [OPTION]... OCTAL-MODE FILE...
chmod [OPTION]... --reference=REFILE FILE...
```
- DESCRIPTION:**

This manual page documents the GNU version of `chmod`. `chmod` changes the file mode bits of each given file according to `mode`, which can be either a symbolic representation of changes to make, or an octal number representing the bit pattern for the new mode bits.

The format of a symbolic mode is [`ugo`...][`[-+]`[`perms`...]...], where `perms` is either zero or more letters from the set `rwXst`, or a single letter from the set `ugo`. Multiple symbolic modes can be given, separated by commas.

A combination of the letters `ugo` controls which users' access to the file will be changed: the user who owns it (`u`), other users in the file's group (`g`), other users not in the file's group (`o`), or all users (`a`). If none of these are given, the effect is as if (`a`) were given, but bits that are set in the `umask` are not affected.

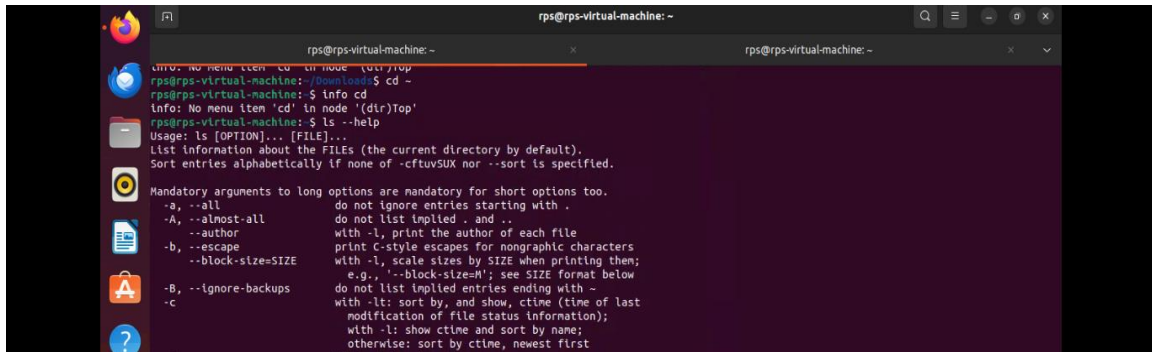
The operator `+` causes the selected file mode bits to be added to the existing file mode bits of each file; `-` causes them to be removed; and `=` causes them to be added and causes unmentioned bits to be removed except that a directory's unmentioned set user and group ID bits are not affected.

- info (information): Another source of documentation for some commands, often more user-friendly than man.

```
rps@rps-virtual-machine:~$ info cd
info: No menu item 'cd' in node '(dir)Top'
```

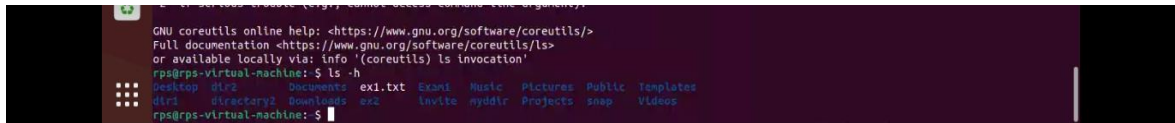
- f. **Exercise:** Try `info ls` or `info cd` if available on your system.

--help or -h (help flag): Provides a brief overview of a command's usage.



```
rps@rps-virtual-machine: ~  
rps@rps-virtual-machine: ~$ info cd  
info: No menu item 'cd' in node '(dir)Top'  
rps@rps-virtual-machine: ~$ ls --help  
Usage: ls [OPTION]... [FILE]...  
List information about the FILES (the current directory by default).  
Sort entries alphabetically if none of -ctuvSUX nor --sort is specified.  
  
Mandatory arguments to long options are mandatory for short options too.  
-a, --all do not ignore entries starting with .  
-A, --almost-all do not list implied . and ..  
--author with -l, print the author of each file  
-b, --escape print C-style escapes for nongraphic characters  
--block-size=SIZE with -l, scale sizes by SIZE when printing them;  
e.g., --block-size=M; see SIZE format below  
-B, --ignore-backups do not list implied entries ending with ~  
-c with -lt: sort by, and show, ctime (time of last  
modification of file status information);  
with -l: show ctime and sort by name;  
otherwise: sort by ctime, newest first
```

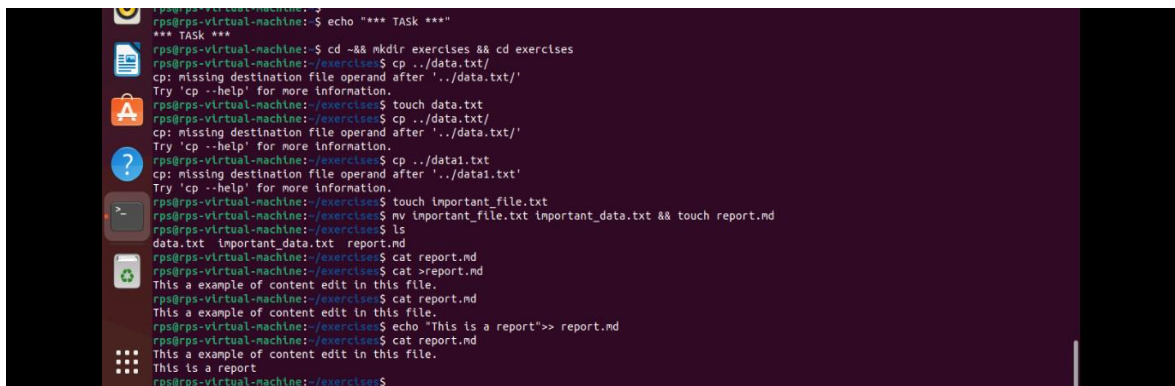
- g. **Exercise:** Use `ls --help` or `ls -h` to see the basic usage options for `ls`.



```
rps@rps-virtual-machine: ~$ ls --help  
GNU coreutils online help: <https://www.gnu.org/software/coreutils/>  
Full documentation <https://www.gnu.org/software/coreutils/ls>  
or available locally via: info '(coreutils) ls invocation'  
rps@rps-virtual-machine: ~$ ls -h  
Desktop  DIRS  Documents  ex1.txt  Exams  Music  Pictures  Public  Templates  
dirs  directory2  Downloads  ex2  invites  myddir  Projects  snap  Videos  
rps@rps-virtual-machine: ~$
```

4. Navigation and File Manipulation:

- cd ~ && mkdir exercises && cd exercises:** Navigate to your home directory, create a new directory named "exercises," and then move into it.
- cp ../data.txt . (assuming "data.txt" exists in the parent directory):** Copy a file named "data.txt" from the parent directory into your current "exercises" directory.
- mv important_file.txt important_data.txt && touch report.md:** Rename a file named "important_file.txt" to "important_data.txt" and create a new Markdown file named "report.md" within the "exercises" directory.
- cat report.md (assuming the file is empty):** View the contents (which should be empty) of the "report.md" file using `cat`.
- echo "This is a report" >> report.md:** Append a line of text "This is a report" to the "report.md"...*Execution of entire code is below*



```
rps@rps-virtual-machine: ~$ echo "*** TASK ***"  
*** TASK ***  
rps@rps-virtual-machine: ~$ cd -&& mkdir exercises && cd exercises  
rps@rps-virtual-machine: ~/exercises$ cp ../data.txt/  
cp: missing destination file operand after '../data.txt/'  
Try 'cp --help' for more information.  
rps@rps-virtual-machine: ~/exercises$ cp data.txt  
rps@rps-virtual-machine: ~/exercises$ cp ../data.txt/  
cp: missing destination file operand after '../data.txt/'  
Try 'cp --help' for more information.  
rps@rps-virtual-machine: ~/exercises$ cp ../data1.txt  
cp: missing destination file operand after '../data1.txt/'  
Try 'cp --help' for more information.  
rps@rps-virtual-machine: ~/exercises$ touch important_file.txt  
rps@rps-virtual-machine: ~/exercises$ mv important_file.txt important_data.txt && touch report.md  
rps@rps-virtual-machine: ~/exercises$ ls  
data.txt  important_data.txt  report.md  
rps@rps-virtual-machine: ~/exercises$ cat report.md  
This is a report  
rps@rps-virtual-machine: ~/exercises$ cat >report.md  
This is a report  
rps@rps-virtual-machine: ~/exercises$ cat report.md  
This is a report  
rps@rps-virtual-machine: ~/exercises$ echo "This is a report">> report.md  
rps@rps-virtual-machine: ~/exercises$ cat report.md  
This is a report  
rps@rps-virtual-machine: ~/exercises$
```

Task 4: C++ in Ubuntu v.m .

1. Hello World Program in Linux:

```
rps@rps-virtual-machine:~$ nano hello.cpp
rps@rps-virtual-machine:~$ g++ -o hello hello.cpp
rps@rps-virtual-machine:~$ ./hello
Hello, World!
rps@rps-virtual-machine:~$ sudo apt install g++^C
[sudo] password for rps:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package g++^C
rps@rps-virtual-machine:~$ g++ -E hello.cpp -o hello.i
rps@rps-virtual-machine:~$ g++ -S hello.i -o hello.s
rps@rps-virtual-machine:~$ g++ -c hello.s -o hello.o
rps@rps-virtual-machine:~$ g++ hello.o -o hello_class
rps@rps-virtual-machine:~$ ./hello_class
Hello, World!
```

2. Sum of two numbers in Linux:

```
rps@rps-virtual-machine:~$ nano sum.cpp
rps@rps-virtual-machine:~$ make sum
g++      sum.cpp  -o sum
rps@rps-virtual-machine:~$ ./sum
Enter a number
20
enter another number
35
The sum is ! 55
rps@rps-virtual-machine:~$ sudo apt install g++^C
[sudo] password for rps:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package g++^C
rps@rps-virtual-machine:~$ g++ -E hello.cpp -o hello.i
rps@rps-virtual-machine:~$ sudo apt install g++^C
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package g++^C
rps@rps-virtual-machine:~$ g++ -E sum.cpp -o sum.i
rps@rps-virtual-machine:~$ g++ -S sum.i -o sum.s
rps@rps-virtual-machine:~$ g++ -c sum.s -o sum.o
rps@rps-virtual-machine:~$ g++ sum.o -o sum_class
rps@rps-virtual-machine:~$ ./sum_class
Enter a number
35
enter another number
45
The sum is ! 80
rps@rps-virtual-machine:~$
```


3. Head and Tail part of Sum :

```
rps@rps-virtual-machine:~$ head sum.cpp
#include<iostream>
using namespace std;
int main()
{
    int num1,num2,sum;
    cout<<"Enter a number"<<endl;
    cin>>num1;
    cout<<"enter another number"<<endl;
    cin>>num2;
    sum = num1 + num2;
rps@rps-virtual-machine:~$ tail sum.cpp
cout<<"Enter a number"<<endl;
cin>>num1;
cout<<"enter another number"<<endl;
cin>>num2;
sum = num1 + num2;
cout<<"The sum is ! " << sum <<endl;
return 0;
}
```

4. Permission:

```
rps@rps-virtual-machine:~$ ls
backup      Desktop    even_odd_class  even_odd.s  hello      hello.o      Music      projects    snap        sum.i        test
cars        Documents  even_odd.cpp    exec        hello_class hello.s      nylir      public      sum         sum.o        test2
cppproject  Downloads  even_odd.i      exece       hello.cpp  long_text.txt new_linux  redirect.txt sum_class   sum.s        test3
cppproject1 even_odd   even_odd.o      exercises   hello.i     message.txt  Pictures   sample.txt  sum.cpp     Templates    Videos
rps@rps-virtual-machine:~$ ls -l hello.cpp
-rw-rw-r-- 1 rps rps 94 Jul 17 15:04 hello.cpp
rps@rps-virtual-machine:~$ cp hello.cpp sample.txt
rps@rps-virtual-machine:~$ ls -l sample.txt
-rw-rw-r-- 1 rps rps 94 Jul 17 16:49 sample.txt
rps@rps-virtual-machine:~$ chmod a-r sample.txt
rps@rps-virtual-machine:~$ ls -l sample.txt
--w--w---- 1 rps rps 94 Jul 17 16:49 sample.txt
rps@rps-virtual-machine:~$ less sample.txt
sample.txt: Permission denied
rps@rps-virtual-machine:~$ chmod 644 sample.txt
rps@rps-virtual-machine:~$ ls -l sample.txt
-rw-r--r-- 1 rps rps 94 Jul 17 16:49 sample.txt
rps@rps-virtual-machine:~$ less sample.txt
rps@rps-virtual-machine:~$
```