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LAB REPORT

Department of : Information & Communication Technology

Lab Report No : 05

Lab Report On : **Connecting a database (MySQL) with linux**

Course Title : Operating Systems Lab

Course Code : ICT - 3110

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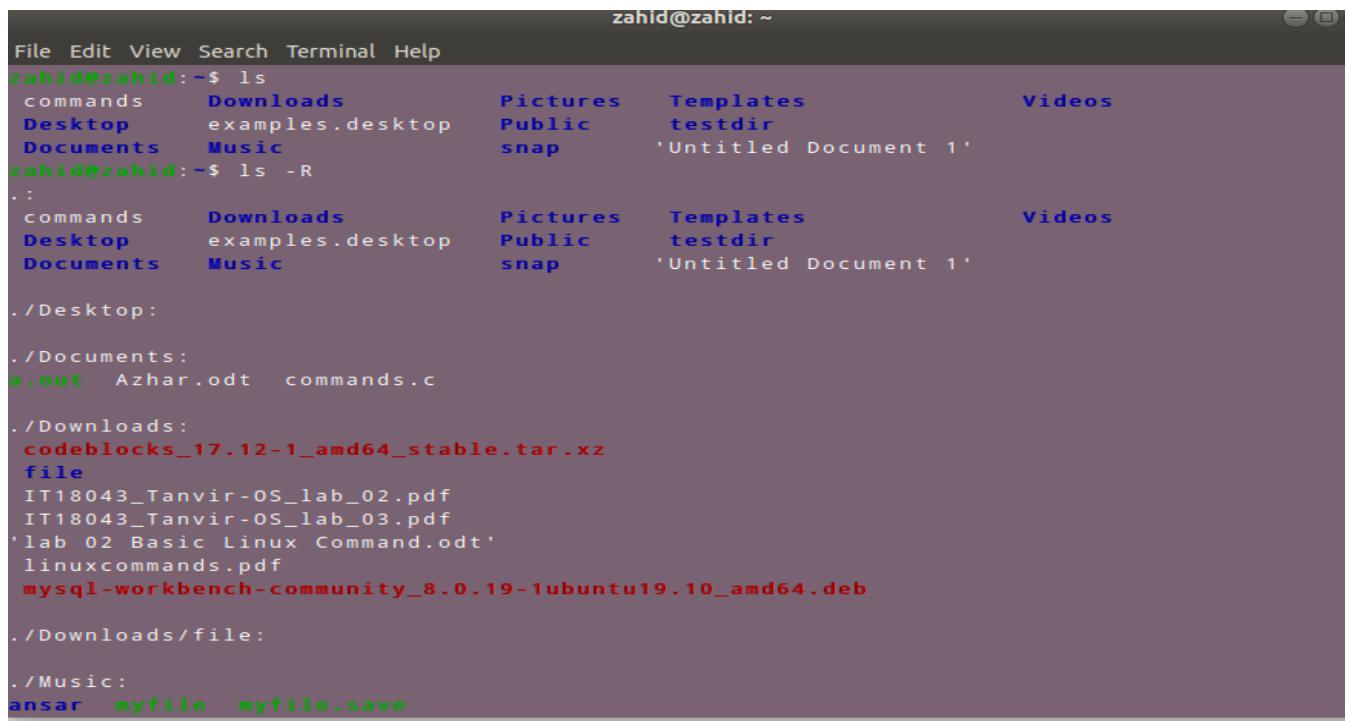
Objectives:

- i. File operation
- ii. File permission

File Operation : To use the Linux terminal like a pro, we'll need to know the basics of managing files and navigating directories. Different file operation is given below...

1. ls – List Files

The ls command lists the files in a directory. By default, ls lists files in the current directory.



A screenshot of a Linux terminal window titled "zahid@zahid: ~". The window shows the output of the ls command. It lists several directories and files, including Downloads, Pictures, Templates, Videos, Desktop, Documents, Music, and snap. The output is color-coded, with directory names in green and file names in blue. The terminal also shows the user's path (~) and previous commands entered.

```
File Edit View Search Terminal Help
zahid@zahid:~$ ls
commands      Downloads      Pictures      Templates      Videos
Desktop       examples.desktop  Public        testdir
Documents     Music          snap         'Untitled Document 1'
zahid@zahid:~$ ls -R
.:
commands      Downloads      Pictures      Templates      Videos
Desktop       examples.desktop  Public        testdir
Documents     Music          snap         'Untitled Document 1'

./Desktop:
a.out  Azhar.odt  commands.c

./Downloads:
codeblocks_17.12-1_amd64_stable.tar.xz
file
IT18043_Tanvir-OS_lab_02.pdf
IT18043_Tanvir-OS_lab_03.pdf
'lab 02 Basic Linux Command.odt'
linuxcommands.pdf
mysql-workbench-community_8.0.19-1ubuntu19.10_amd64.deb

./Downloads/file:

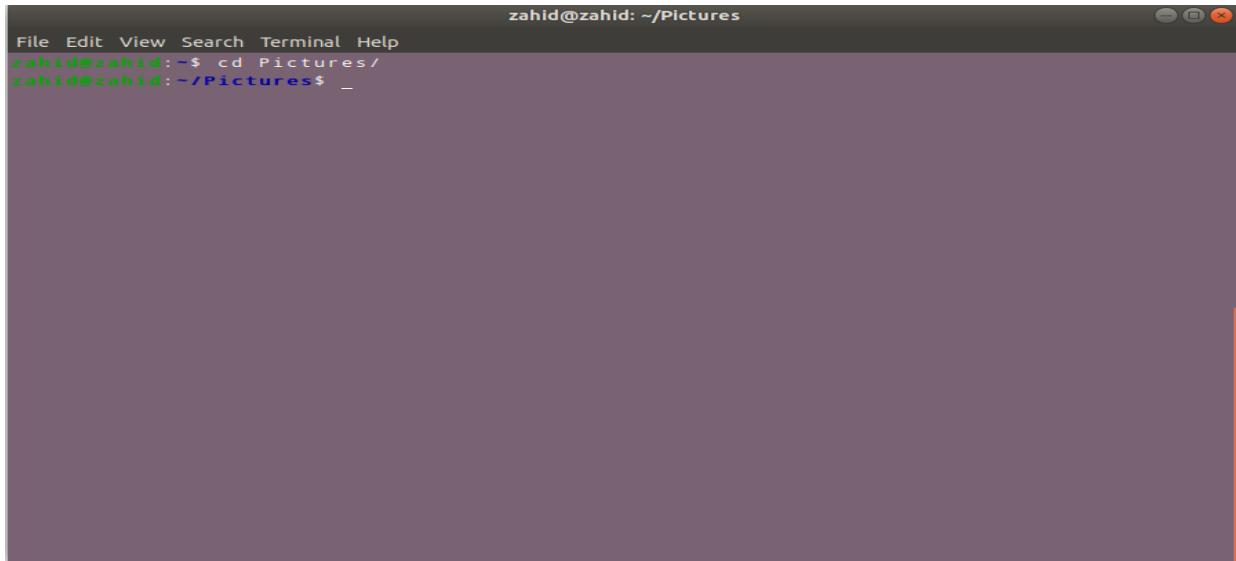
./Music:
ansar  myfile  myfile.save
```

2. we can also list files recursively — that is, list all files in directories inside the current directory — with **ls -R**.

```
zahid@zahid:~  
File Edit View Search Terminal Help  
zahid@zahid:~$ ls  
commands      Downloads      Pictures      Templates      Videos  
Desktop       examples.desktop  Public        testdir  
Documents     Music          snap         'Untitled Document 1'  
zahid@zahid:~$ ls -R  
. :  
commands      Downloads      Pictures      Templates      Videos  
Desktop       examples.desktop  Public        testdir  
Documents     Music          snap         'Untitled Document 1'  
. /Desktop:  
. /Documents:  
a.out  Azhar.odt  commands.c  
. /Downloads:  
codeblocks_17.12-1_amd64_stable.tar.xz  
file  
IT18043_Tanvir-OS_lab_02.pdf  
IT18043_Tanvir-OS_lab_03.pdf  
'lab 02 Basic Linux Command.odt'  
linuxcommands.pdf  
mysql-workbench-community_8.0.19-1ubuntu19.10_amd64.deb  
. /Downloads/file:  
. /Music:  
ansar  myfile  myfile.save
```

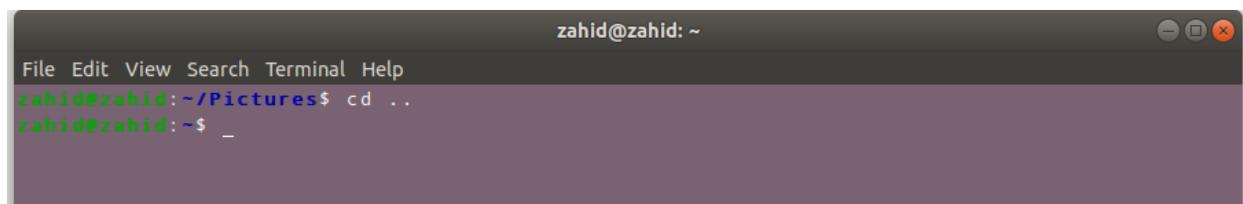
3. **cd** – Change Directory

The cd command changes to another directory. For example, cd Desktop will take you to your Desktop directory if you're starting from your home directory.



A screenshot of a terminal window titled "zahid@zahid: ~/Pictures". The window has a dark grey header bar with white text. Below it is a large, solid brown rectangular area representing the terminal's content. At the top left of the brown area, there is some very small, illegible text. The terminal shows the following command sequence:
File Edit View Search Terminal Help
zahid@zahid: ~\$ cd Pictures/
zahid@zahid: ~/Pictures\$ _

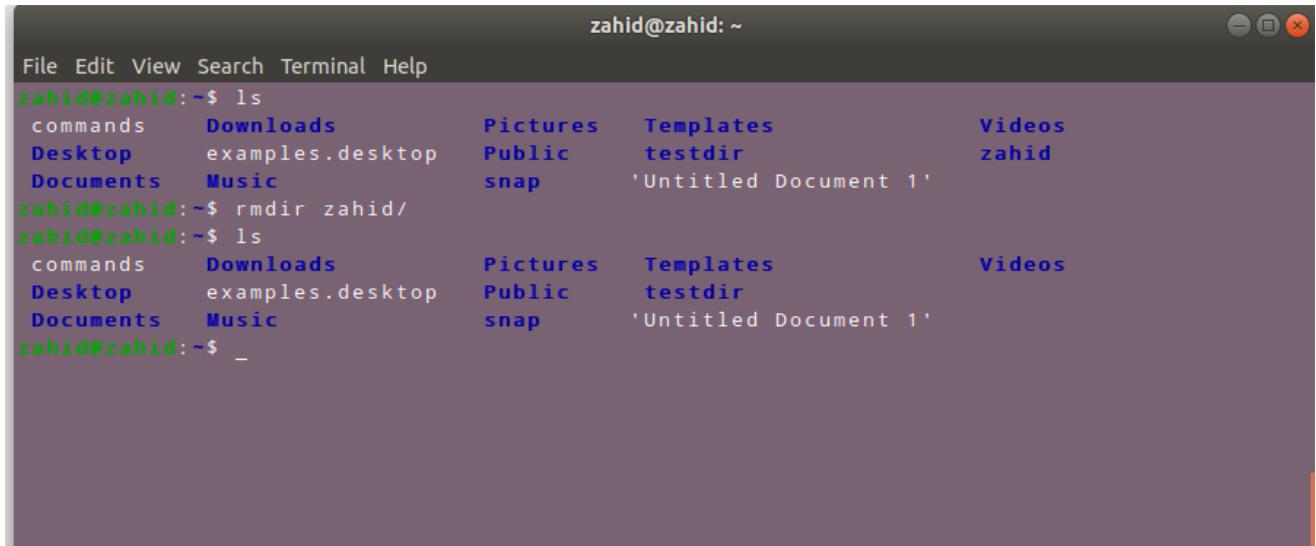
4. **cd ..** will take you up a directory.



A screenshot of a terminal window titled "zahid@zahid: ~". The window has a dark grey header bar with white text. Below it is a large, solid brown rectangular area representing the terminal's content. The terminal shows the following command sequence:
File Edit View Search Terminal Help
zahid@zahid: ~/Pictures\$ cd ..
zahid@zahid: ~\$ _

5.rmdir – Remove Directories

The rmdir command removes an empty directory. rmdir directory would delete the directory named “directory” in the current directory.

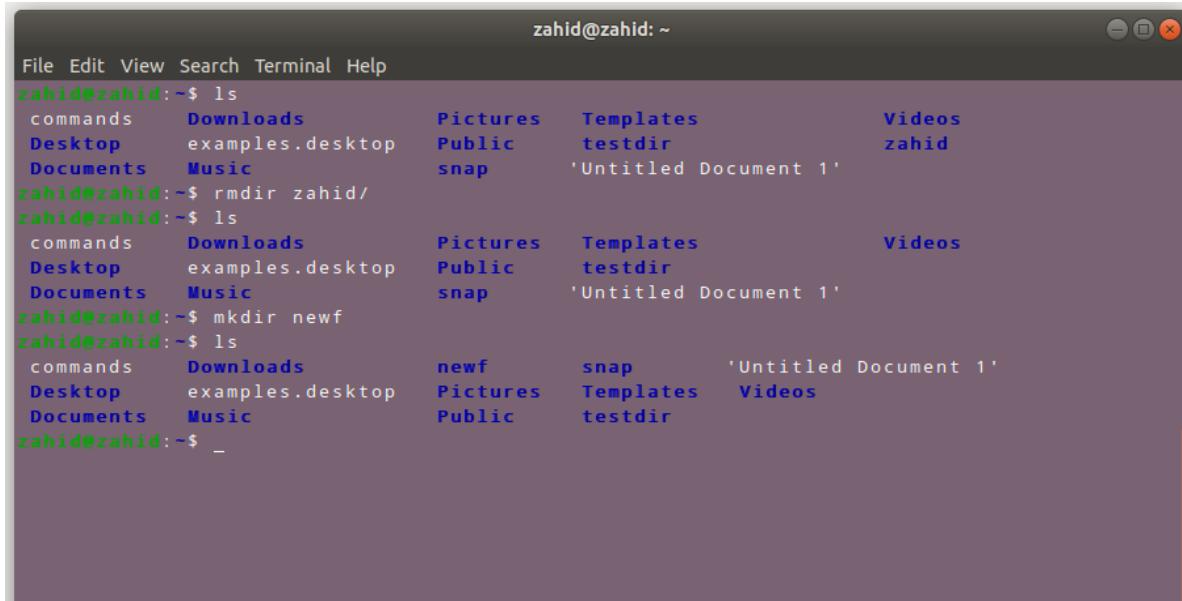


A screenshot of a terminal window titled "zahid@zahid: ~". The window has a dark theme with light-colored text. The terminal shows the following session:

```
File Edit View Search Terminal Help
zahid@zahid:~$ ls
commands    Downloads      Pictures   Templates      Videos
Desktop     examples.desktop Public    testdir
Documents   Music         snap       'Untitled Document 1'
zahid@zahid:~$ rmdir zahid/
zahid@zahid:~$ ls
commands    Downloads      Pictures   Templates      Videos
Desktop     examples.desktop Public    testdir
Documents   Music         snap       'Untitled Document 1'
zahid@zahid:~$ _
```

6) **mkdir** – Make Directories

The **mkdir** command makes a new directory. **mkdir** example will make a directory with the name “example” in the current directory.



A screenshot of a terminal window titled "zahid@zahid: ~". The window has a standard Linux-style title bar with icons for minimize, maximize, and close. The terminal menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The command line shows the user's session:

```
zahid@zahid:~$ ls
commands    Downloads      Pictures   Templates      Videos
Desktop     examples.desktop Public     testdir
Documents   Music          snap       'Untitled Document 1'
zahid@zahid:~$ rmdir zahid/
zahid@zahid:~$ ls
commands    Downloads      Pictures   Templates      Videos
Desktop     examples.desktop Public     testdir
Documents   Music          snap       'Untitled Document 1'
zahid@zahid:~$ mkdir newf
zahid@zahid:~$ ls
commands    Downloads      newf       snap       'Untitled Document 1'
Desktop     examples.desktop Pictures   Templates      Videos
Documents   Music          Public     testdir
zahid@zahid:~$
```

File Permissions:

There are 3 types of permissions:

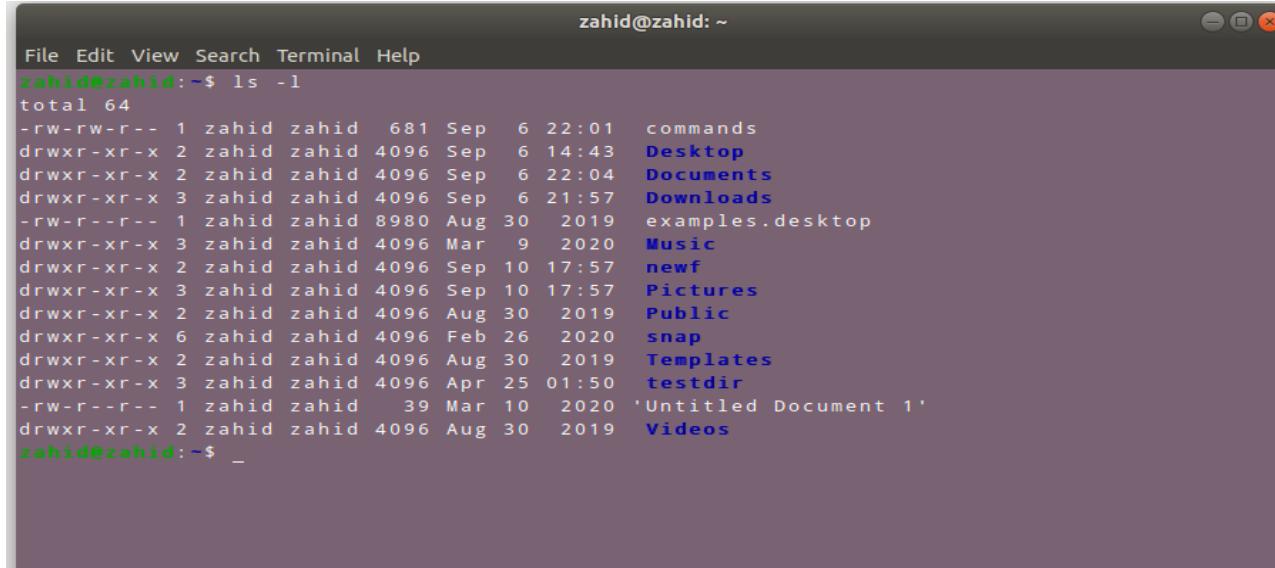
- 1) Read
- 2) Write
- 3) Execute permission

Read (r): this gives permission to merely open a file or folder and view its contents.

Write (w): this gives permission to overwrite, append-to or delete a file or folder.

Execute (x): this gives permission to "run" a file. For example to run a script or a program.

So, how can we put this all into context? Let's have a look at the contents of a typical folder. I used the command `ls -l` to bring up this list:

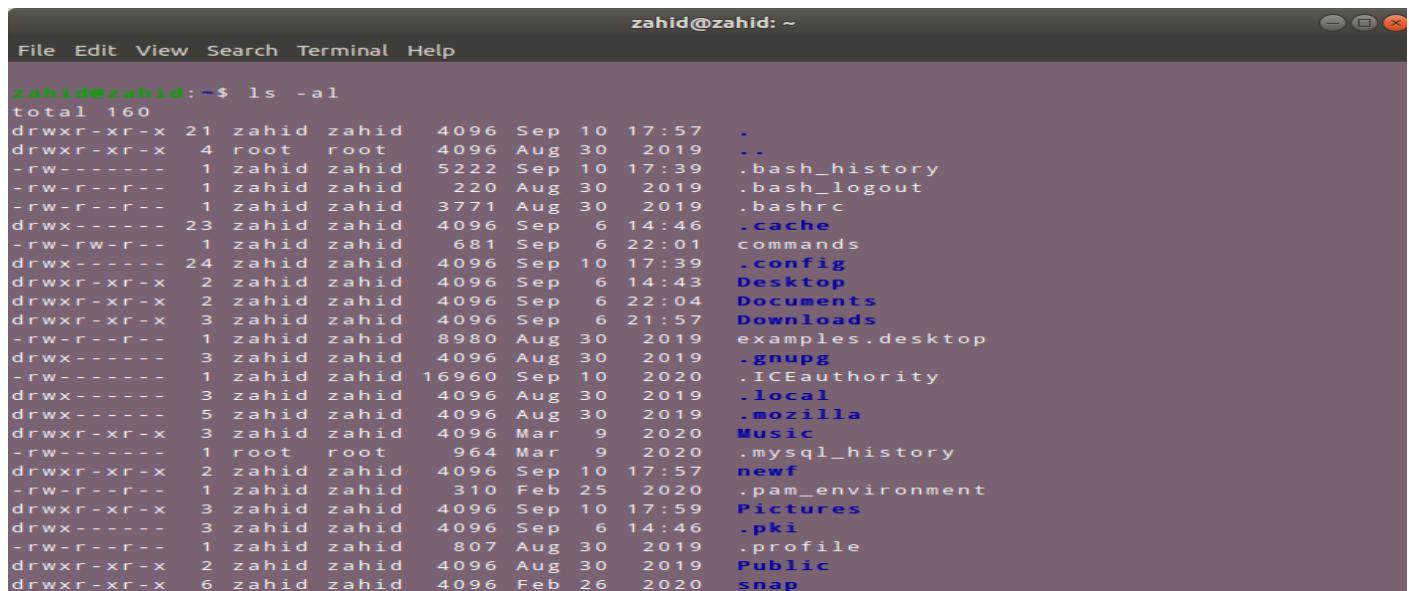


The screenshot shows a terminal window titled "zahid@zahid: ~". The window contains the output of the command `ls -l`. The output lists 64 files and directories in a long-form listing format. The files are color-coded in blue, which typically indicates they are symbolic links or regular files. The output includes columns for permissions, owner, group, size, date modified, and file name. Some directory names are highlighted in blue, such as Desktop, Documents, Downloads, Music, Pictures, Public, snap, Templates, and Videos.

```
zahid@zahid:~$ ls -l
total 64
-rw-rw-r-- 1 zahid zahid  681 Sep  6 22:01 commands
drwxr-xr-x 2 zahid zahid 4096 Sep  6 14:43 Desktop
drwxr-xr-x 2 zahid zahid 4096 Sep  6 22:04 Documents
drwxr-xr-x 3 zahid zahid 4096 Sep  6 21:57 Downloads
-rw-r--r-- 1 zahid zahid 8980 Aug 30 2019 examples.desktop
drwxr-xr-x 3 zahid zahid 4096 Mar  9 2020 Music
drwxr-xr-x 2 zahid zahid 4096 Sep 10 17:57 newf
drwxr-xr-x 3 zahid zahid 4096 Sep 10 17:57 Pictures
drwxr-xr-x 2 zahid zahid 4096 Aug 30 2019 Public
drwxr-xr-x 6 zahid zahid 4096 Feb 26 2020 snap
drwxr-xr-x 2 zahid zahid 4096 Aug 30 2019 Templates
drwxr-xr-x 3 zahid zahid 4096 Apr 25 01:50 testdir
-rw-r--r-- 1 zahid zahid    39 Mar 10 2020 'Untitled Document 1'
drwxr-xr-x 2 zahid zahid 4096 Aug 30 2019 Videos
zahid@zahid:~$ _
```

we can also do this via the command-line. Go to a directory that has files in it and type the following command to view all files in a list:

ls -al



```
zahid@zahid: ~
File Edit View Search Terminal Help
zahid@zahid: ~$ ls -al
total 160
drwxr-xr-x  21 zahid zahid  4096 Sep  10 17:57 .
drwxr-xr-x   4 root  root  4096 Aug  30 2019 ..
-rw-----  1 zahid zahid 5222 Sep  10 17:39 .bash_history
-rw-r--r--  1 zahid zahid 220  Aug  30 2019 .bash_logout
-rw-r--r--  1 zahid zahid 3771 Aug  30 2019 .bashrc
drwx----- 23 zahid zahid 4096 Sep  6 14:46 .cache
-rw-rw-r--  1 zahid zahid 681  Sep  6 22:01 commands
drwx----- 24 zahid zahid 4096 Sep  10 17:39 .config
drwxr-xr-x  2 zahid zahid 4096 Sep  6 14:43 Desktop
drwxr-xr-x  2 zahid zahid 4096 Sep  6 22:04 Documents
drwxr-xr-x  3 zahid zahid 4096 Sep  6 21:57 Downloads
-rw-r--r--  1 zahid zahid 8980 Aug  30 2019 examples.desktop
drwx----- 3 zahid zahid 4096 Aug  30 2019 .gnupg
-rw----- 1 zahid zahid 16960 Sep  10 2020 .ICEauthority
drwx----- 3 zahid zahid 4096 Aug  30 2019 .local
drwx----- 5 zahid zahid 4096 Aug  30 2019 .mozilla
drwxr-xr-x  3 zahid zahid 4096 Mar  9 2020 Music
-rw----- 1 root  root  964 Mar  9 2020 .mysql_history
drwxr-xr-x  2 zahid zahid 4096 Sep  10 17:57 newf
-rw-r--r--  1 zahid zahid 310  Feb  25 2020 .pam_environment
drwxr-xr-x  3 zahid zahid 4096 Sep  10 17:59 Pictures
drwx----- 3 zahid zahid 4096 Sep  6 14:46 .pki
-rw-r--r--  1 zahid zahid 807  Aug  30 2019 .profile
drwxr-xr-x  2 zahid zahid 4096 Aug  30 2019 Public
drwxr-xr-x  6 zahid zahid 4096 Feb  26 2020 snap
```

Next to each file and directory, we'll see a special section that outlines the permissions it has. It looks like this:

-rwx rwx- r-

The r stands for “read,” the w stands for “write,” and the x stands for “execute.” Directories will be start with a “d” instead of a “-“. You’ll also notice that there are 10 spaces which hold value. You can ignore the first, and then there are 3 sets of 3. The first set is for the owner, the second set is for the group, and the last set is for the world.

To change a file or directory's permissions, let's look at the basic form of the chmod command.

chmod [class][operator][permission] file

chmod [ugo][+ or -] [rwx] file

u: This is for the owner.

g: This is for the group.

o: This is for all others.

a: This will change permissions for all of the above.

+: The plus sign will add the permissions which follow.

-: The minus sign will remove the permissions which follow.

r: Allows read access.

w: Allows write access.

x: Allows execution.