



MAWLANA BHASHANI SCIENCE AND TECHNOLOGY UNIVERSITY

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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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Session : 2017-18

Year: 3rd Semester : 1st

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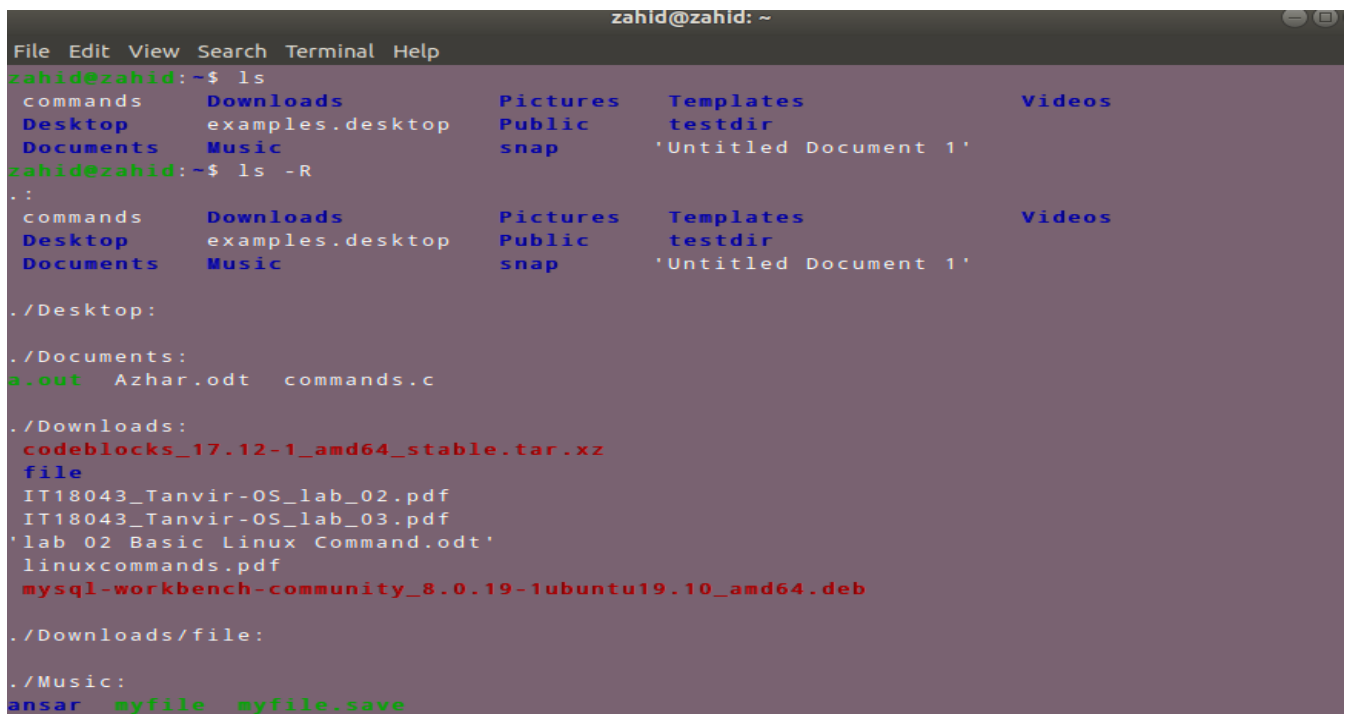
Objectives:

- 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.



```
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
```

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

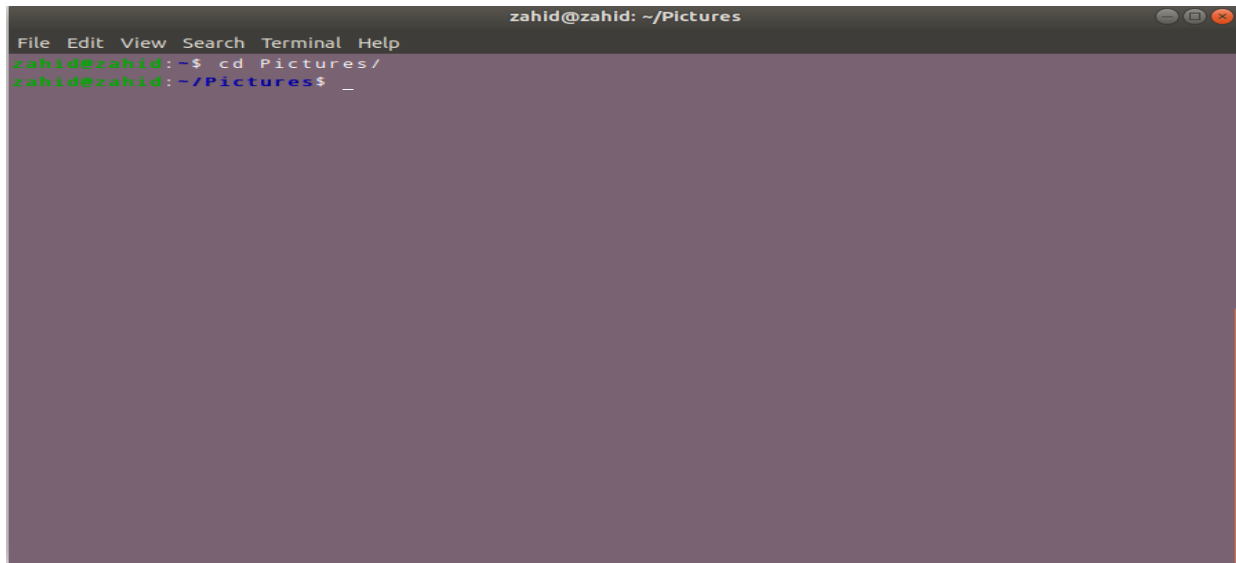
./Downloads:
codeblocks_17.12-1_amd64_stable.tar.xz
file
IT18043_Tanvir-OS_lab_02.pdf
IT18043_Tanvir-OS_lab_03.pdf
'lab 02 Basic Linux Command.odt'
linuxcommands.pdf
mysql-workbench-community_8.0.19-1ubuntu19.10_amd64.deb

./Downloads/file:

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

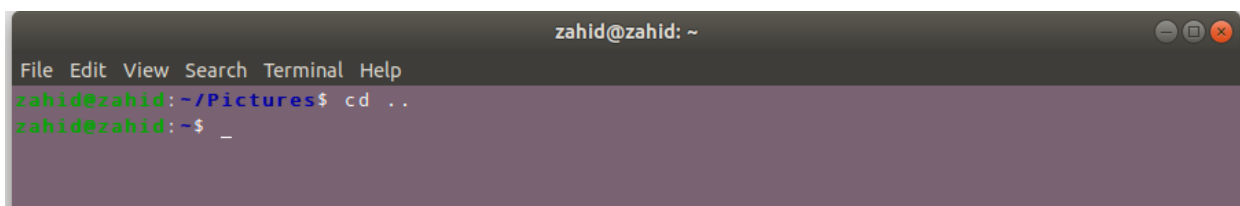
3. **cd** – Change Directory

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 terminal window titled 'zahid@zahid: ~/Pictures' with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is 'zahid@zahid:~\$'. The user enters 'cd Pictures/' and the prompt changes to 'zahid@zahid:~/Pictures\$' followed by a cursor.

```
File Edit View Search Terminal Help
zahid@zahid:~$ cd Pictures/
zahid@zahid:~/Pictures$ _
```

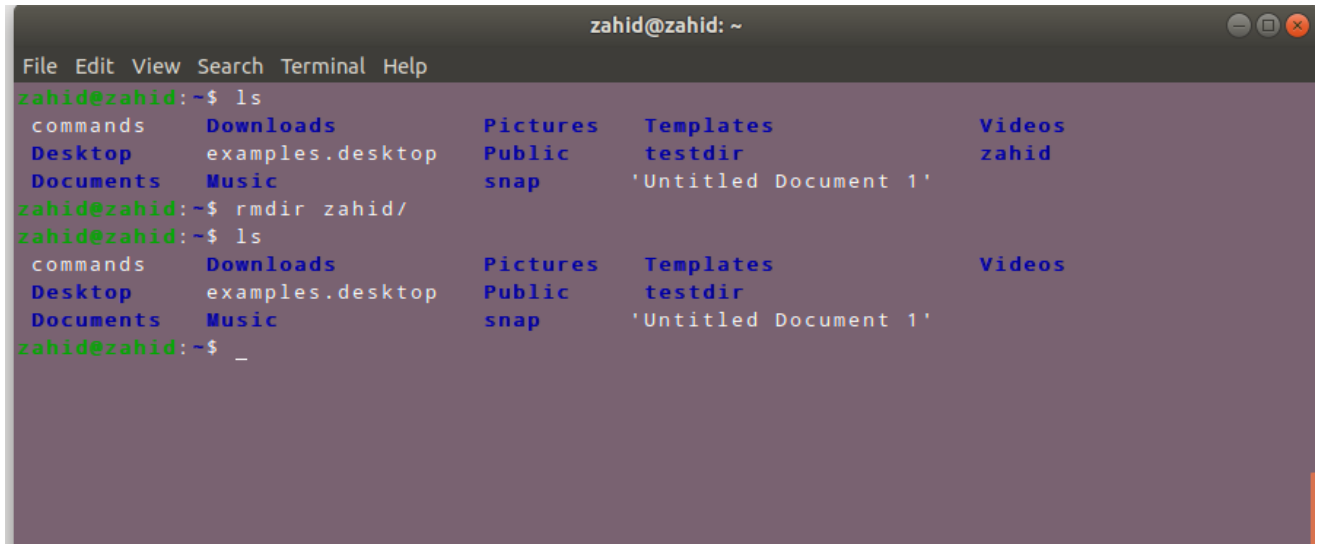
4. **cd ..** will take you up a directory.

A terminal window titled 'zahid@zahid: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is 'zahid@zahid:~/Pictures\$'. The user enters 'cd ..' and the prompt changes to 'zahid@zahid:~\$' followed by a cursor.

```
File Edit View Search Terminal Help
zahid@zahid:~/Pictures$ cd ..
zahid@zahid:~$ _
```

5. **rmdir** – Remove Directories

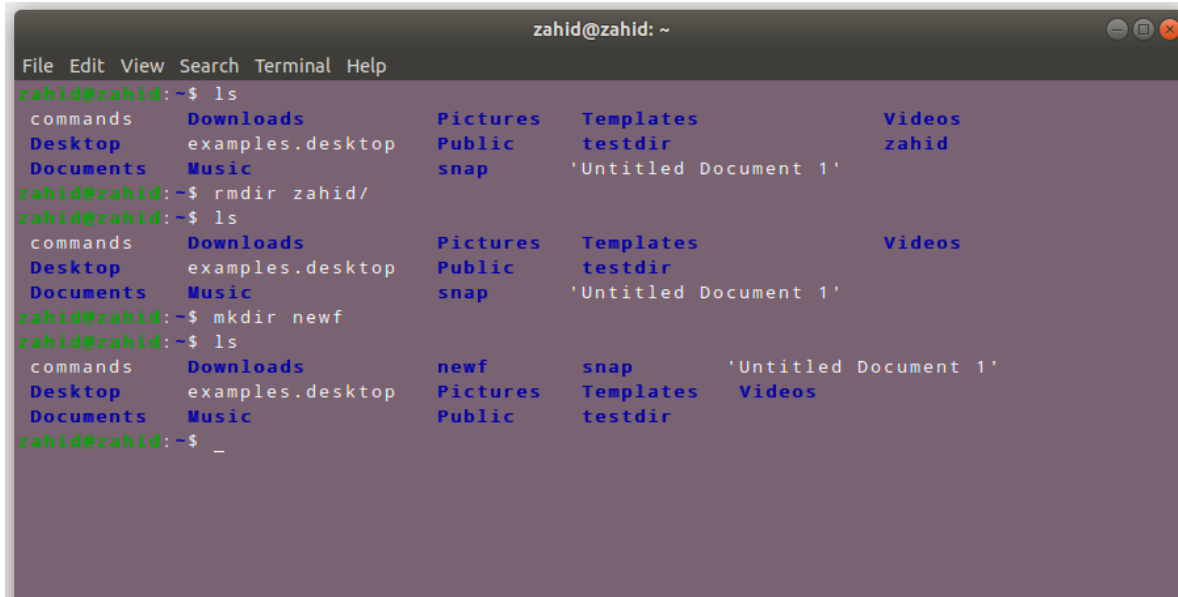
The **rmdir** command removes an empty directory. **rmdir** directory would delete the directory named “directory” in the current directory.



```
zahid@zahid: ~  
File Edit View Search Terminal Help  
zahid@zahid:~$ ls  
commands Downloads Pictures Templates Videos  
Desktop examples.desktop Public testdir zahid  
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 terminal window titled 'zahid@zahid: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows a sequence of commands and their outputs. The first 'ls' command lists the current directory contents. The second 'ls' command is run after removing a directory named 'zahid'. The third 'ls' command is run after creating a new directory named 'newf'.

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

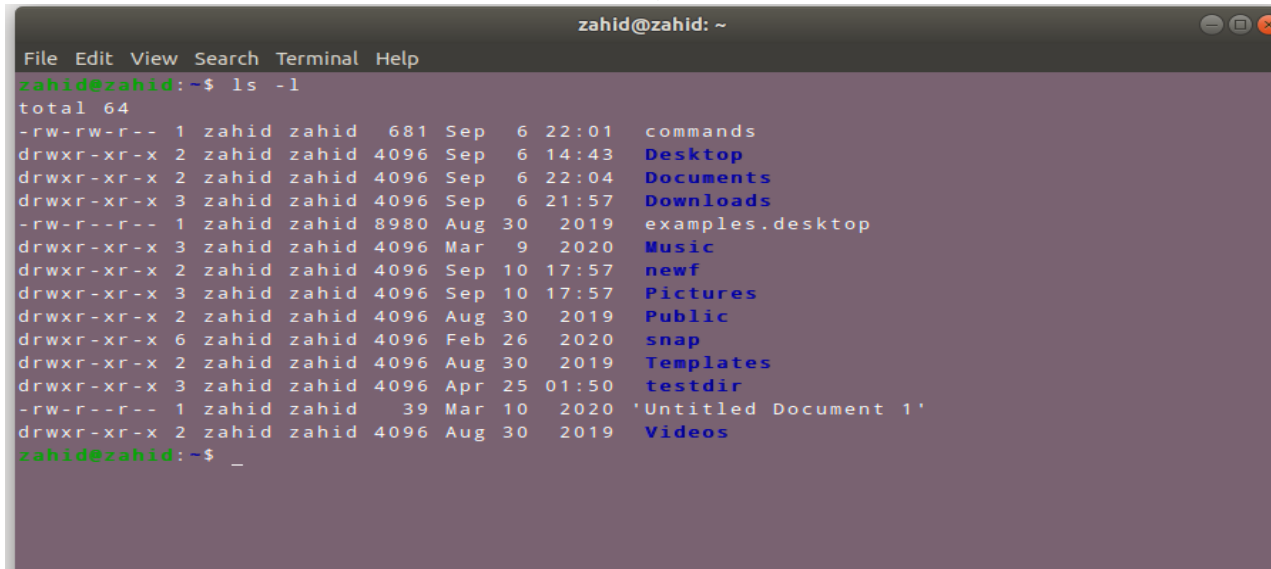
- 1) Read
- 2) Write
- 3) Execute permission

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:

A terminal window titled 'zahid@zahid: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'ls -l' and its output. The output lists files and directories with their permissions, owner, group, size, date, and name. The files are: 'commands', 'Desktop', 'Documents', 'Downloads', 'examples.desktop', 'Music', 'newf', 'Pictures', 'Public', 'snap', 'Templates', 'testdir', 'Untitled Document 1', and 'Videos'. The permissions are: -rw-rw-r-- for 'commands' and 'Untitled Document 1'; drwxr-xr-x for 'Desktop', 'Documents', 'Downloads', 'Music', 'newf', 'Pictures', 'Public', 'snap', 'Templates', 'testdir', and 'Videos'. The owner is 'zahid' and the group is 'zahid' for all files. The sizes are: 681 for 'commands', 4096 for 'Desktop', 'Documents', 'Downloads', 'Music', 'newf', 'Pictures', 'Public', 'snap', 'Templates', 'testdir', and 'Videos', 8980 for 'examples.desktop', and 39 for 'Untitled Document 1'. The dates are: Sep 6 22:01 for 'commands', Sep 6 14:43 for 'Desktop', Sep 6 22:04 for 'Documents', Sep 6 21:57 for 'Downloads', Aug 30 2019 for 'examples.desktop', Mar 9 2020 for 'Music', Sep 10 17:57 for 'newf', Sep 10 17:57 for 'Pictures', Aug 30 2019 for 'Public', Feb 26 2020 for 'snap', Aug 30 2019 for 'Templates', Apr 25 01:50 for 'testdir', Mar 10 2020 for 'Untitled Document 1', and Aug 30 2019 for 'Videos'. The prompt 'zahid@zahid:~\$' is shown at the bottom.

```
File Edit View Search Terminal Help
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-r--r--  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-r--r--  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-r--r--  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 rw- 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 [ugoa][+ 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.