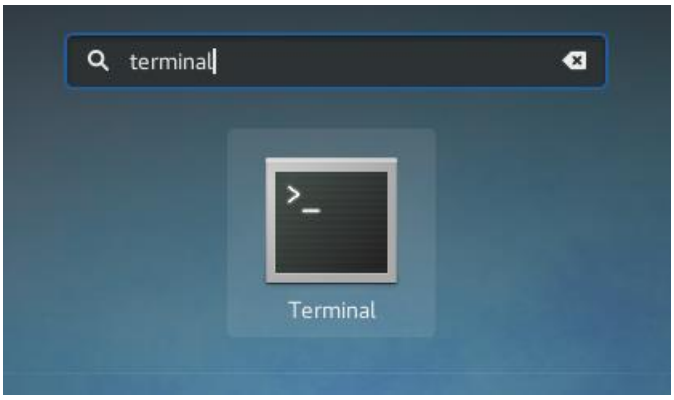
# Lab - Explore Linux Part II - Basic File and Directory Operations

In this lab, you will be introduced to some of the basics of file manipulation. You will create files and directories. You will copy and move files. You will use wildcards to specify multiple files. You will create symbolic links. You will delete files and directories. These are very common Steps for any user of a Linux operating system.

### Step 14

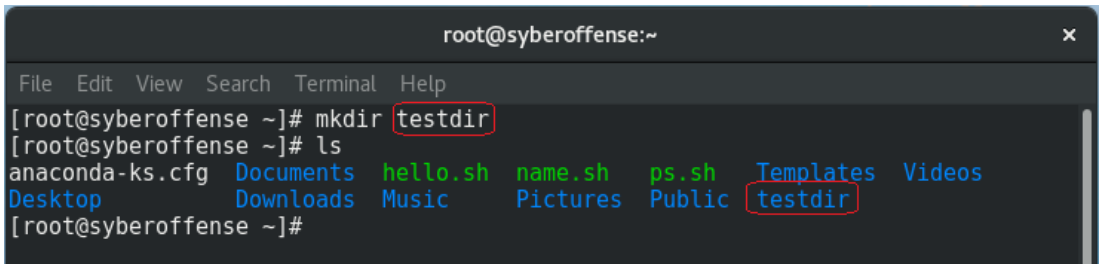
Open a terminal window by clicking on the Activities launcher and in the search bar, typing terminal. You will be logged in as **root** in root's home directory.




### Step 15

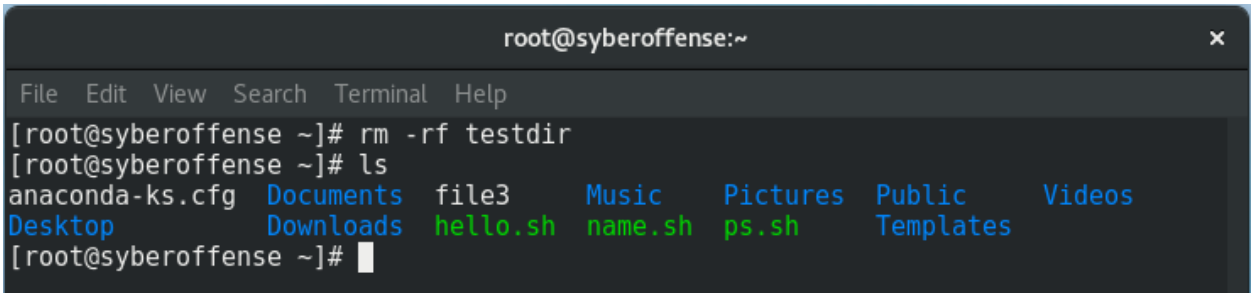
The `mkdir` command is used to make new directories. List the contents of the directory. Use the `mkdir` command to create a new directory called **testdir**. List the contents of the directory again, to verify that **testdir** was created.

## Answer




Note: If the directories will not display at the root level, it's most likely a permissions user. Type `sudo -su` to view the contents of the root directory, you need to be the super user.

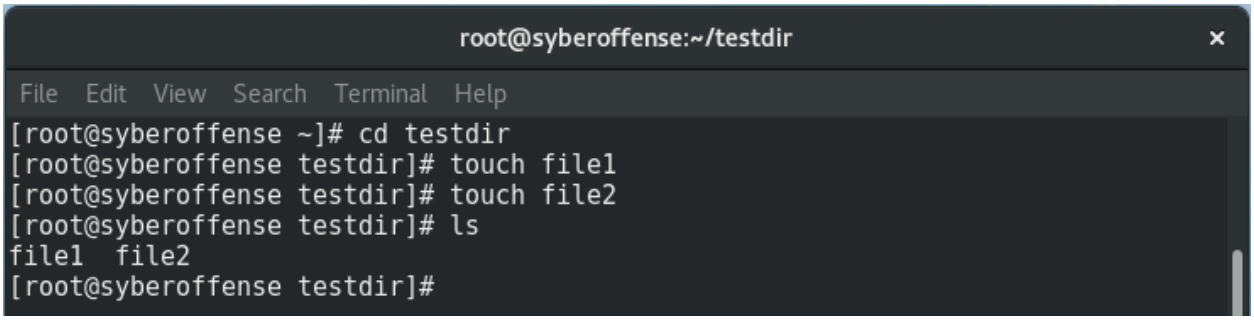
To remove the directory, we just created or any unwanted directory, we can use the `rm -rf` command.




**Step 16**

Empty files can be created with the `touch` command. Change the directory to the new directory **testdir**. Create two new files that are named **file1** and **file2**. Use the `ls` command to verify that they were created.

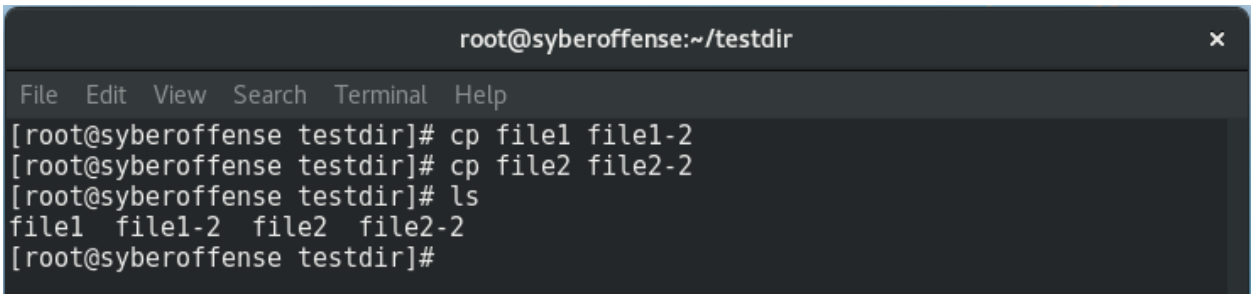
## Answer




**Step 17**

The `cp` command is used to copy files. Make a copy of **file1** that is called **file1-2**. Make a copy of **file2** that is named **file2-2**. Use the `ls` command to verify that there are now four files, as expected.

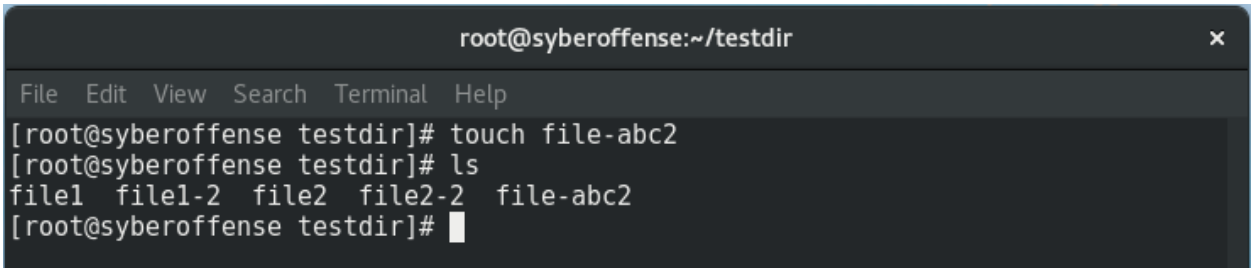
## Answer




**Step 18**

Create a fifth file that is named **file-abc2**. Again, use the `ls` command to verify that it is created.

## Answer

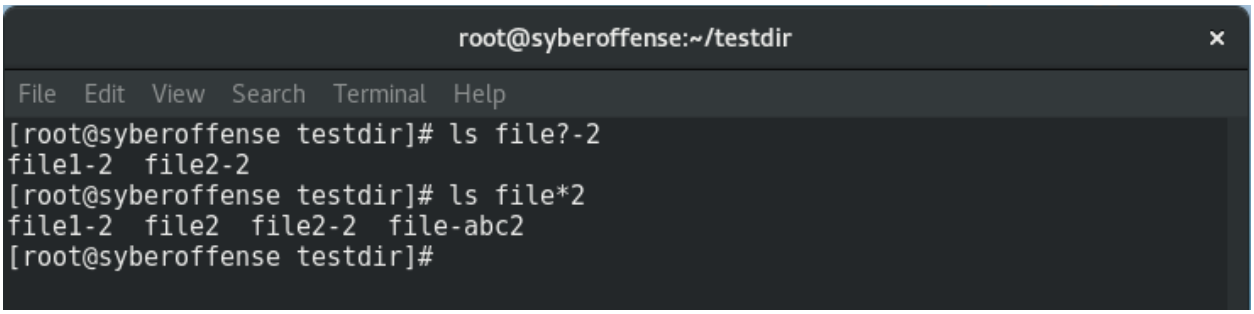



### Step 19

Wildcards are used to match multiple filenames. The ? is a wildcard for any single character. The * is a wildcard for any number (including 0) of any character. Use the ? wildcard to list the files with names that start with, file, then have a single character, then end with -2. Use the * wildcard to list all filenames that start with file and end with 2 and any set of characters between.

Note: You can use the clear command to clear the screen and get a fresh prompt.

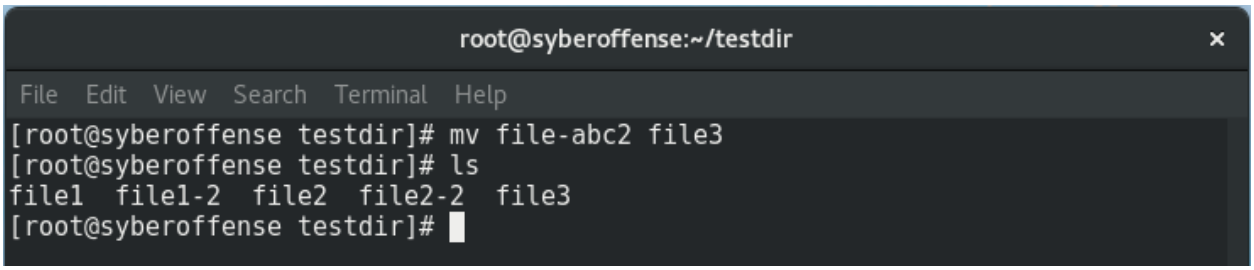
## Answer




### Step 20

Files can be moved with the `mv` command. The files can simply be moved to a new name, or they can be moved to a new directory. First, use the `mv` command to rename **file-abc2** to **file3**. Use the `ls` command to verify the results.

## Answer

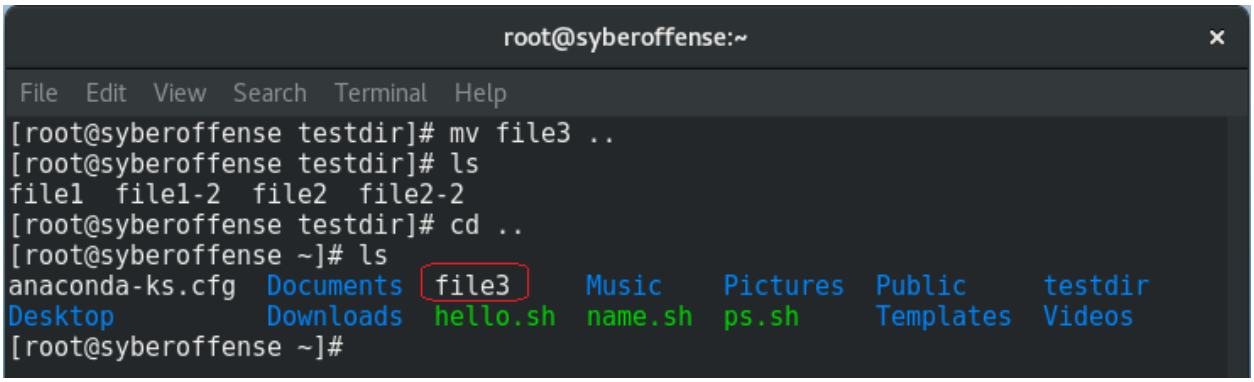



**Step 21**

*Use the `clear` command to clear the screen

Now move the file that is named **file3** to the current working directory's parent directory. Use the `ls` command to verify that the file is no longer present in **testdir**. Change back to the root home directory and use the `ls` command to verify that **file3** is now in this directory.

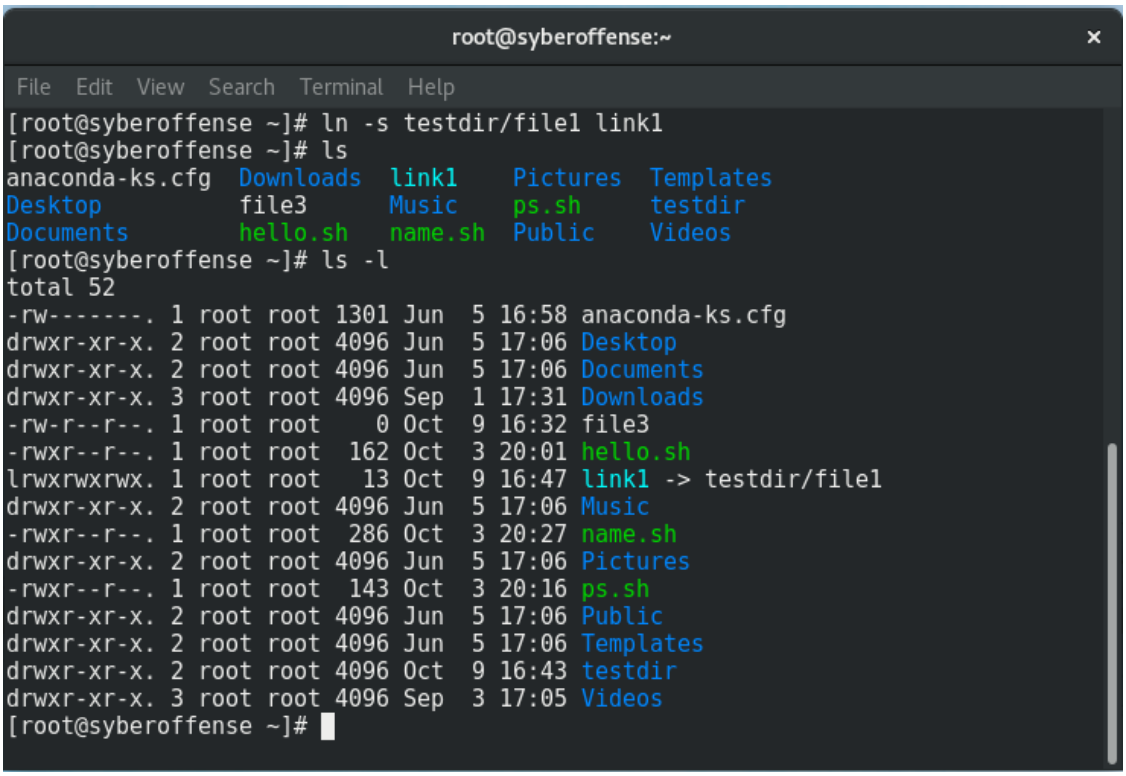
## Answer




**Step 22**

Symbolic links allow a file in remote directories to be referenced in alternate directories. The `ln -s` command is used to create symbolic links. Create a symbolic link for the file that is named **file1** in **testdir** in the current working directory. Use the `ls` command to verify that the link has been created. Use `ls -l` (dash lower-case, L) to verify creation of the link. The `-l` argument will list the directory in long format, where it becomes apparent that **link1** is a symbolic link and not a file.

## Answer

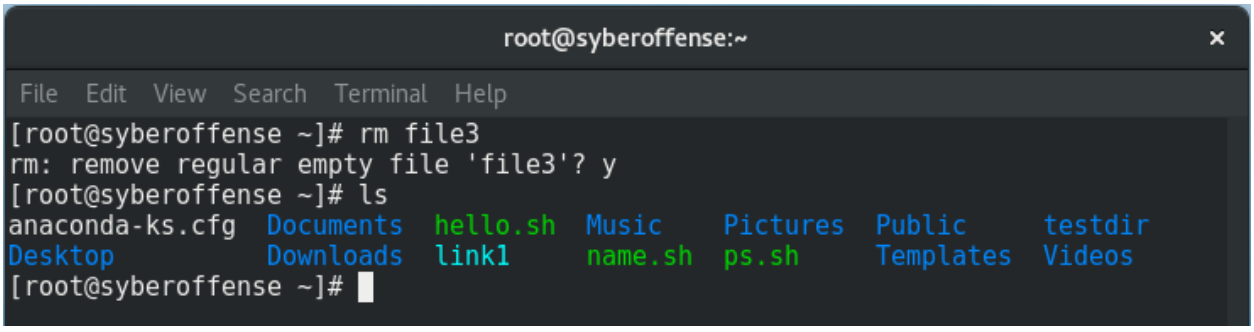



**Step 23**

*Use the `clear` command to clear the screen

The `rm` command is used to remove files. Remove the file that is named **file3**. Use the `ls` command to verify that the file no longer exists.

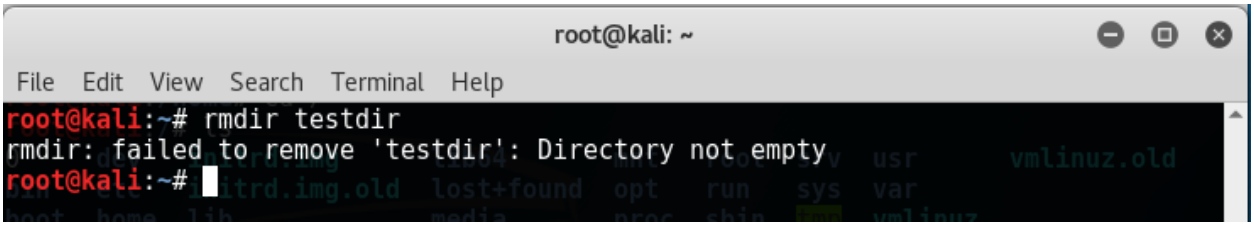
## Answer



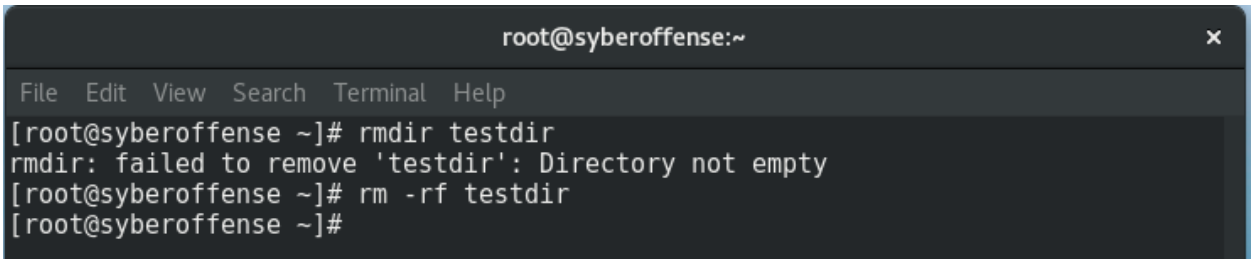

**Step 24**

The `rmdir` command is used to remove directories. Attempts to remove the directory that is named **testdir** will fail.

## Answer



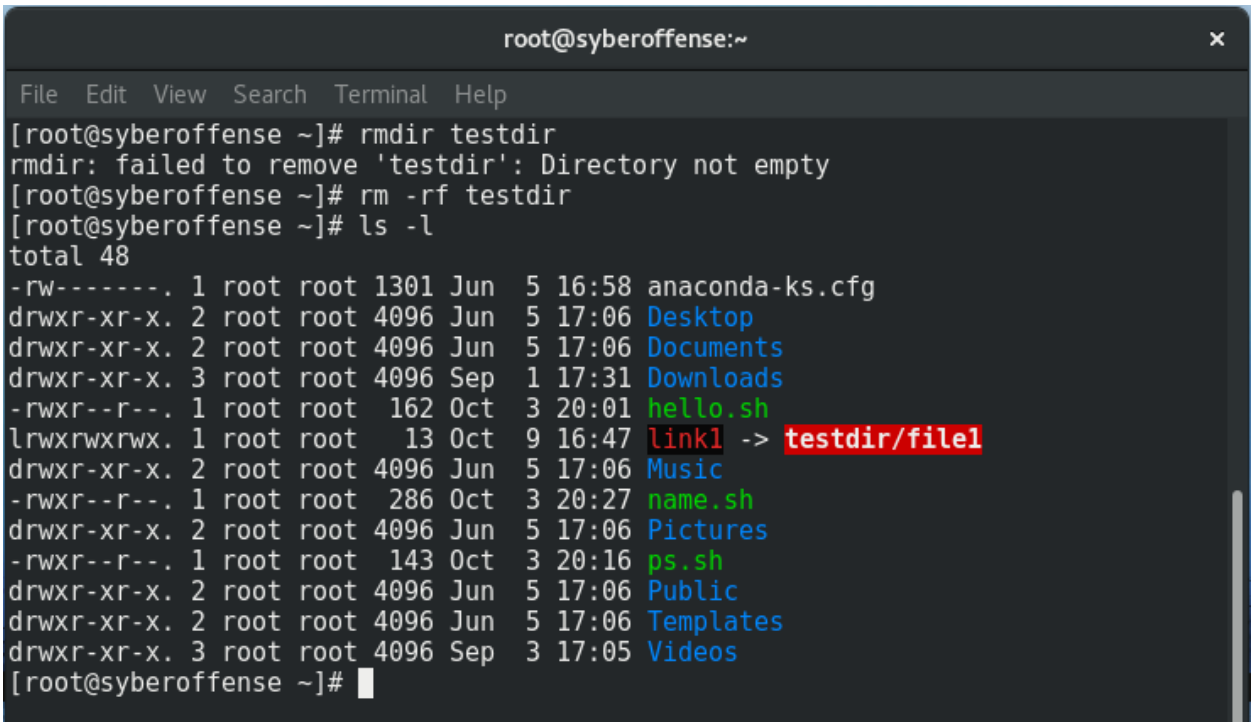

To remove a directory with contents, you can use the `rm -rf` command.




### Step 25

The `rmdir` command can only work on empty directories. Use the `rm` command to delete all the files in the **testdir** directory. Use `ls` to verify that the directory is now empty. Now remove the **testdir** directory using the `rmdir` command. Use the `ls` command to verify that **testdir** has been removed.

## Answer



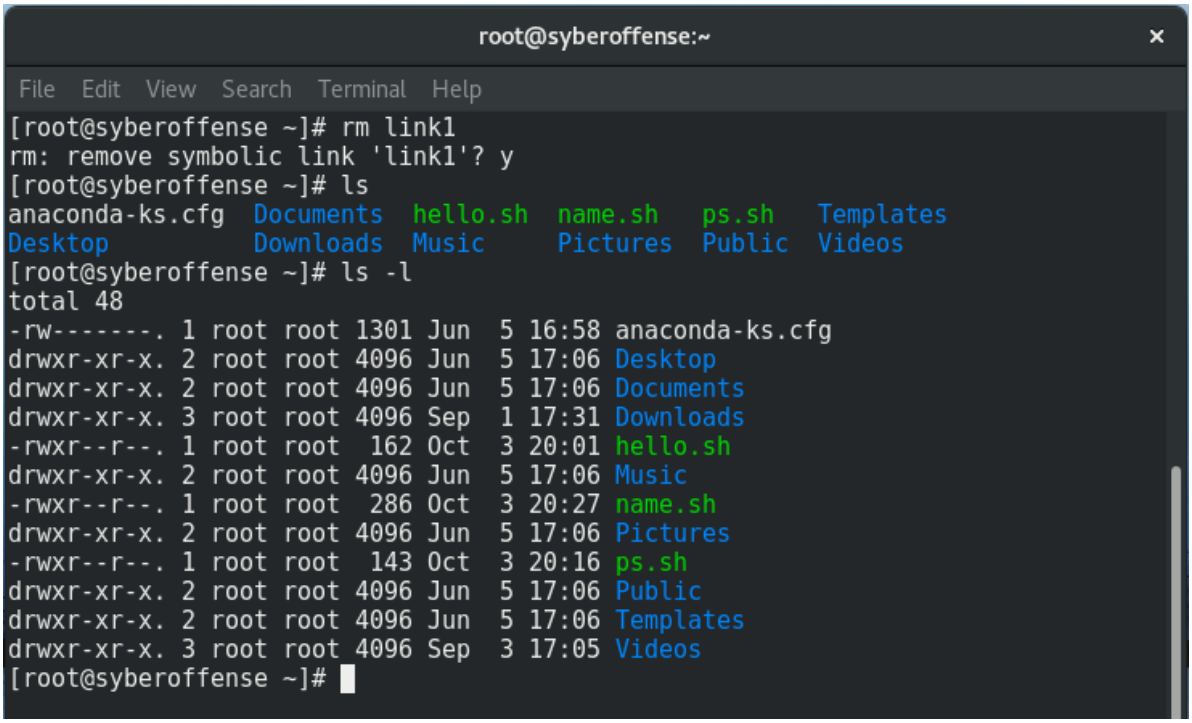

Note the following:

- The directory **testdir** is, indeed, removed.
- The link to **file1** in **testdir** is not removed. It is colored red in the `ls -l` output, indicating that the link is no longer valid.
- An alternative to removing all the files in a directory and then using the `rmdir` command to remove the directory is to remove files recursively. The command `rm -rf testdir` would have removed all the contents of the directory **testdir**, and then removed the directory itself, which works with nested directory structures as well. Care must be used with recursive removes.

### Step 26

Use the `rm` command to remove the now orphaned link that is named **link1**. Use the `ls` command to verify that it has been removed.

## Answer




**Summary**

In this lab, you were introduced to the basics of file and directory operations. These are some of the most fundamental skills every Linux user needs to know. A major take away for this lab should be there is more than one way to complete any Linux task. The great thing about Linux is how well everything is documented and how well the Linux community comes together to provide a solution. Let Google be a job saver!

End of the lab!