

Institute of Computer Technology
B. Tech Computer Science and Engineering
Subject: BOSS (2CSE204)

PRACTICAL-2

AIM: - To learn Managing files from the command line in Linux.

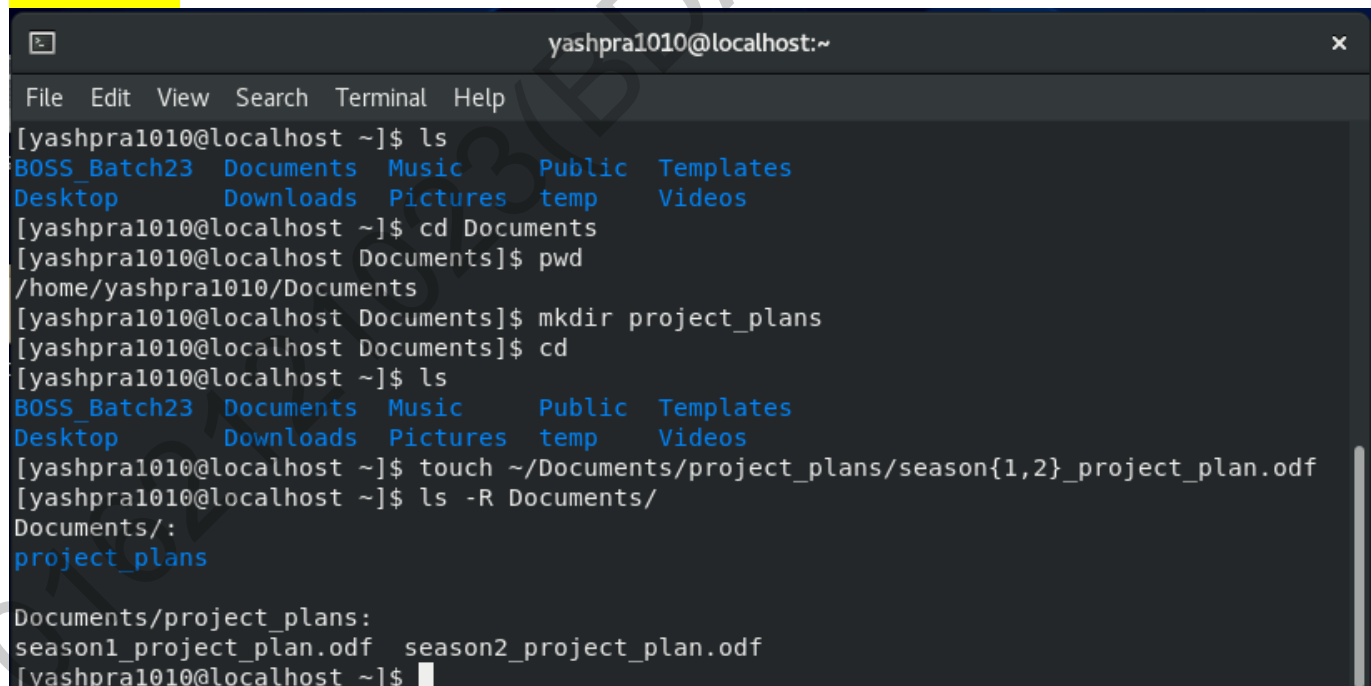
Commands:

- **mkdir directory** – creates a directory
- **cp file new-file** – copies the file
- **cp -r directory new- directory** – copies directories and its contents
- **mv file new-file** – move or rename file or directory
- **rm file** – remove a file
- **rm -r directory** – removes directory and its files
- **rmdir directory** – removes only empty directories

Exercise:

1. Before you create project files, use the **mkdir** command with brace expansion to create empty project planning documents in the **/home/gnu/Documents/project_plans** directory. (Hint: if **~/Documents** does not exist, the **-p** option for the **mkdir** command will create it.) Create two empty files in the **~/Documents/project_plans** directory: **season1_project_plan.odf** and **season2_project_plan.odf**.

SOLUTION:



```
yashpra1010@localhost:~  
File Edit View Search Terminal Help  
[yashpra1010@localhost ~]$ ls  
BOSS_Batch23 Documents Music Public Templates  
Desktop Downloads Pictures temp Videos  
[yashpra1010@localhost ~]$ cd Documents  
[yashpra1010@localhost Documents]$ pwd  
/home/yashpra1010/Documents  
[yashpra1010@localhost Documents]$ mkdir project_plans  
[yashpra1010@localhost Documents]$ cd  
[yashpra1010@localhost ~]$ ls  
BOSS_Batch23 Documents Music Public Templates  
Desktop Downloads Pictures temp Videos  
[yashpra1010@localhost ~]$ touch ~/Documents/project_plans/season{1,2}_project_plan.odf  
[yashpra1010@localhost ~]$ ls -R Documents/  
Documents/  
project_plans  
Documents/project_plans:  
season1_project_plan.odf season2_project_plan.odf  
[yashpra1010@localhost ~]$
```

2. Create sets of empty practice files to use. Create a total of 12 files with names **tv_seasonX_episodeY.ogg**. Replace **X** with the season number and **Y** with that season's episode, for two seasons of six episodes each.

SOLUTION:

```

yashpra1010@localhost:~
File Edit View Search Terminal Help
[yashpra1010@localhost ~]$ touch tv_season{1,2}_episode{1..6}.ogg
[yashpra1010@localhost ~]$ ls
BOSS_Batch23  Templates                                tv_season2_episode2.ogg
Desktop       tv_season1_episode1.ogg                 tv_season2_episode3.ogg
Documents     tv_season1_episode2.ogg                 tv_season2_episode4.ogg
Downloads     tv_season1_episode3.ogg                 tv_season2_episode5.ogg
Music         tv_season1_episode4.ogg                 tv_season2_episode6.ogg
Pictures      tv_season1_episode5.ogg                 Videos
Public        tv_season1_episode6.ogg
temp         tv_season2_episode1.ogg
[yashpra1010@localhost ~]$

```

3. As the author of a successful series of mystery novels, your next bestseller's chapters are being edited for publishing. Create a total of eight files with names `mystery_chapterX.odf`. Replace X with the numbers 1 through 8.

SOLUTION:

```

yashpra1010@localhost:~
File Edit View Search Terminal Help
[yashpra1010@localhost ~]$ touch mystery_chapter{1..8}.odf
[yashpra1010@localhost ~]$ ls
BOSS_Batch23  mystery_chapter1.odf  mystery_chapter6.odf  temp
Desktop       mystery_chapter2.odf  mystery_chapter7.odf  Templates
Documents     mystery_chapter3.odf  mystery_chapter8.odf  Videos
Downloads     mystery_chapter4.odf  Pictures
Music         mystery_chapter5.odf  Public
[yashpra1010@localhost ~]$

```

4. Use a single command to create two subdirectories named `season1` and `season2` under the `Videos` directory, to organize the TV episodes.

SOLUTION:

```

yashpra1010@localhost:~
File Edit View Search Terminal Help
[yashpra1010@localhost ~]$ cd Videos
[yashpra1010@localhost Videos]$ mkdir season{1,2}
[yashpra1010@localhost Videos]$ cd
[yashpra1010@localhost ~]$ ls -R Videos
Videos:
season1  season2

Videos/season1:
Videos/season2:
[yashpra1010@localhost ~]$

```

5. Move the appropriate TV episodes into the season subdirectories. Use only two commands, specifying destinations using relative syntax.

SOLUTION:

```
yashpra1010@localhost:~  
File Edit View Search Terminal Help  
[yashpra1010@localhost ~]$ ls -R Videos/  
Videos/:  
season1 season2  
  
Videos/season1:  
  
Videos/season2:  
[yashpra1010@localhost ~]$ mv tv_season1* Videos/season1  
[yashpra1010@localhost ~]$ mv tv_season2* Videos/season2  
[yashpra1010@localhost ~]$ ls -R Videos/  
Videos/:  
season1 season2  
  
Videos/season1:  
tv_season1_episode1.ogg tv_season1_episode3.ogg tv_season1_episode5.ogg  
tv_season1_episode2.ogg tv_season1_episode4.ogg tv_season1_episode6.ogg  
  
Videos/season2:  
tv_season2_episode1.ogg tv_season2_episode3.ogg tv_season2_episode5.ogg  
tv_season2_episode2.ogg tv_season2_episode4.ogg tv_season2_episode6.ogg  
[yashpra1010@localhost ~]$
```

6. Create a 2-level directory hierarchy with a single command to organize the mystery book chapters. Create my_bestseller under the Documents directory, and chapters under the new my_bestseller directory.

SOLUTION:

```
yashpra1010@localhost:~  
File Edit View Search Terminal Help  
[yashpra1010@localhost ~]$ mkdir -p Documents/my_bestseller/chapters  
[yashpra1010@localhost ~]$ ls -R Documents  
Documents:  
my_bestseller project_plans  
  
Documents/my_bestseller:  
chapters  
  
Documents/my_bestseller/chapters:  
  
Documents/project_plans:  
season1_project_plan.odf season2_project_plan.odf  
[yashpra1010@localhost ~]$
```

7. Create three more subdirectories directly under the my_bestseller directory using a single command. Name these subdirectories editor, changes, and vacation. The -p option (create parents) is not needed because the my_bestseller parent directory already exists.

SOLUTION:

```
yashpra1010@localhost:~  
File Edit View Search Terminal Help  
[yashpra1010@localhost ~]$ mkdir ~/Documents/my_bestseller/{editor,vacation,changes}  
[yashpra1010@localhost ~]$ ls -R Documents  
Documents:  
my_bestseller project_plans  
  
Documents/my_bestseller:  
changes chapters editor vacation  
  
Documents/my_bestseller/changes:  
  
Documents/my_bestseller/chapters:  
  
Documents/my_bestseller/editor:  
  
Documents/my_bestseller/vacation:  
  
Documents/project_plans:  
season1_project_plan.odf season2_project_plan.odf  
[yashpra1010@localhost ~]$
```

8. Change to the chapters directory. Using the tilde (~) home directory shortcut to specify the source files, move all book chapters to the chapters directory, which is now your current directory. What is the simplest syntax to specify the destination directory?

SOLUTION:

```
yashpra1010@localhost:~/Documents/my_bestseller/chapters
File Edit View Search Terminal Help
[yashpra1010@localhost chapters]$ mv ~/mystery_chapter* .
[yashpra1010@localhost chapters]$ ls
mystery_chapter1.odf  mystery_chapter4.odf  mystery_chapter7.odf
mystery_chapter2.odf  mystery_chapter5.odf  mystery_chapter8.odf
mystery_chapter3.odf  mystery_chapter6.odf
[yashpra1010@localhost chapters]$
```

9. You sent the first two chapters to the editor for review. Move only those two chapters to the editor directory to avoid modifying them during the review. Starting from the chapters subdirectory, use brace expansion with a range to specify the chapter file names to move and a relative path for the destination directory.

SOLUTION:

```
yashpra1010@localhost:~/Documents/my_bestseller/chapters
File Edit View Search Terminal Help
[yashpra1010@localhost chapters]$ mv mystery_chapter{1,2}.odf ~/Documents/my_
bestseller/editor
[yashpra1010@localhost chapters]$ ls -R ~/Documents/my_bestseller/editor/
/home/yashpra1010/Documents/my_bestseller/editor/:
mystery_chapter1.odf  mystery_chapter2.odf
[yashpra1010@localhost chapters]$
```

10. While on vacation you intend to write chapters 7 and 8. Use a single command to move the files from the chapters directory to the vacation directory. Specify the chapter file names using brace expansion with a list of strings.

SOLUTION:

```
yashpra1010@localhost:~/Documents/my_bestseller/chapters
File Edit View Search Terminal Help
[yashpra1010@localhost chapters]$ mv mystery_chapter{7,8}.odf ~/Documents/my_
bestseller/vacation
[yashpra1010@localhost chapters]$ ls -R ~/Documents/my_bestseller/vacation/
/home/yashpra1010/Documents/my_bestseller/vacation/:
mystery_chapter7.odf  mystery_chapter8.odf
[yashpra1010@localhost chapters]$
```

11. Change your working directory to ~/Videos/season2, and then copy the first episode of the season to the vacation directory.

SOLUTION:

```

yashpra1010@localhost:~/Videos/season2
File Edit View Search Terminal Help
[yashpra1010@localhost season2]$ cp tv_season2_episode1.ogg ~/Documents/my_bestseller/vacation/
[yashpra1010@localhost season2]$ ls -R ~/Documents/my_bestseller/vacation/
/home/yashpra1010/Documents/my_bestseller/vacation/:
mystery_chapter7.odf mystery_chapter8.odf tv_season2_episode1.ogg
[yashpra1010@localhost season2]$

```

12. Use a single cd command to change from your working directory to the ~/Documents/ my_bestseller/vacation directory. List its files. Use the previous working directory argument to return to the season2 directory. (This will succeed if the last directory change with the cd command was accomplished with one command rather than several cd commands.) From the season2 directory, copy the episode 2 file into the vacation directory. Use the shortcut again to return to the vacation directory.

SOLUTION:

```

yashpra1010@localhost:~/Documents/my_bestseller/vacation
File Edit View Search Terminal Help
[yashpra1010@localhost season2]$ cd ~/Documents/my_bestseller/vacation/
[yashpra1010@localhost vacation]$ ls
mystery_chapter7.odf mystery_chapter8.odf tv_season2_episode1.ogg
[yashpra1010@localhost vacation]$ cd -
/home/yashpra1010/Videos/season2
[yashpra1010@localhost season2]$ cp tv_season2_episode2.ogg ~/Documents/my_bestseller/vacation/
[yashpra1010@localhost season2]$ cd -
/home/yashpra1010/Documents/my_bestseller/vacation
[yashpra1010@localhost vacation]$ ls
mystery_chapter7.odf tv_season2_episode1.ogg
mystery_chapter8.odf tv_season2_episode2.ogg
[yashpra1010@localhost vacation]$

```

13. The authors of chapters 5 and 6 want to experiment with possible changes. Copy both files from the ~/Documents/my_bestseller/chapters directory to the ~/Documents/my_bestseller/changes directory to prevent these changes from modifying original files. Navigate to the ~/Documents/my_bestseller directory. Use square-bracket pattern matching to specify which chapter numbers to match in the filename argument of the cp command.

SOLUTION:


```
[yashpra1010@localhost my_bestseller]$ cp chapters/mystery_chapter{5,6}.odf changes/
[yashpra1010@localhost my_bestseller]$ ls -R
.:
changes chapters editor vacation

./changes:
mystery_chapter5.odf  mystery_chapter6.odf

./chapters:
mystery_chapter3.odf  mystery_chapter5.odf
mystery_chapter4.odf  mystery_chapter6.odf

./editor:
mystery_chapter1.odf  mystery_chapter2.odf

./vacation:
mystery_chapter7.odf  tv_season2_episode1.ogg
mystery_chapter8.odf  tv_season2_episode2.ogg
[yashpra1010@localhost my_bestseller]$ ls
changes chapters editor vacation
[yashpra1010@localhost my_bestseller]$ ls changes/*[5,6]*
changes/mystery_chapter5.odf  changes/mystery_chapter6.odf
[yashpra1010@localhost my_bestseller]$
```

14. Change your current directory to the changes directory. Use the date +%F command with command substitution to copy mystery_chapter5.odf to a new file which includes the full date. The name should have the form mystery_chapter5_YYYY-MM-DD.odf. Make another copy of mystery_chapter5.odf, appending the current time stamp (as the number of seconds since the epoch, 1970-01-01 00:00 UTC) to ensure a unique file name. Use command substitution with the date +%s command to accomplish this.

SOLUTION:

```
[yashpra1010@localhost my_bestseller]$ cd changes/
[yashpra1010@localhost changes]$ date +%F
2021-03-31
[yashpra1010@localhost changes]$ ls
mystery_chapter5.odf  mystery_chapter6.odf
[yashpra1010@localhost changes]$ cp mystery_chapter5.odf mystery_chapter5_$(date +%F).odf
[yashpra1010@localhost changes]$ ls
mystery_chapter5_2021-03-31.odf  mystery_chapter5.odf  mystery_chapter6.odf
[yashpra1010@localhost changes]$ date +%s
1617161080
[yashpra1010@localhost changes]$ cp mystery_chapter5.odf mystery_chapter5_$(date +%s).odf
[yashpra1010@localhost changes]$ ls
mystery_chapter5_1617161186.odf  mystery_chapter5.odf
mystery_chapter5_2021-03-31.odf  mystery_chapter6.odf
[yashpra1010@localhost changes]$
```

15. After further review, you decide that the plot changes are not necessary. Delete the changes directory. If necessary, navigate to the changes directory and delete all the files within the directory. You cannot delete a directory while it is the current working directory. Change to the parent directory of the changes directory. Try to delete the empty directory using the rm command without the -r recursive option. This attempt should fail. Finally, use the rmdir command to delete the empty directory, which will succeed.

SOLUTION:

```
[yashpra1010@localhost changes]$ ls
mystery_chapter5_1617161186.odf  mystery_chapter5.odf
mystery_chapter5_2021-03-31.odf  mystery_chapter6.odf
[yashpra1010@localhost changes]$ cd ..
[yashpra1010@localhost my_bestseller]$ rm -r changes
[yashpra1010@localhost my_bestseller]$ ls
chapters  editor  vacation
[yashpra1010@localhost my_bestseller]$
```

16. When the vacation is over, the vacation directory is no longer needed. Delete it using the rm command with the recursive option. When finished, return to the student user's home directory.

SOLUTION:

```
[yashpra1010@localhost my_bestseller]$ ls
chapters  editor  vacation
[yashpra1010@localhost my_bestseller]$ rm -r vacation/
[yashpra1010@localhost my_bestseller]$ ls
chapters  editor
[yashpra1010@localhost my_bestseller]$ cd ~
[yashpra1010@localhost ~]$
```

17. Create a hard link to the ~/Documents/project_plans/season2_project_plan.odf file named ~/Documents/backups/season2_project_plan.odf.back. A hard link will protect against accidental deletion of the original file and will keep the backup file updated as changes are made to the original.

SOLUTION:

```
[yashpra1010@localhost ~]$ ls -R Documents/project_plans/
Documents/project_plans/:
season1_project_plan.odf  season2_project_plan.odf
[yashpra1010@localhost ~]$ mkdir Documents/backups
[yashpra1010@localhost ~]$ ln Documents/project_plans/season2_project_plan.odf Documents/backups/season2_project_plan.odf.back
[yashpra1010@localhost ~]$ ls -R Documents/
Documents/:
backups  my_bestseller  project_plans

Documents/backups:
season2_project_plan.odf.back

Documents/my_bestseller:
chapters  editor

Documents/my_bestseller/chapters:
mystery_chapter3.odf  mystery_chapter4.odf  mystery_chapter5.odf  mystery_chapter6.odf

Documents/my_bestseller/editor:
mystery_chapter1.odf  mystery_chapter2.odf

Documents/project_plans:
season1_project_plan.odf  season2_project_plan.odf
[yashpra1010@localhost ~]$
```