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ECE5030 - Scripting Languages for VLSI Design Automation

M.Tech VLSI Design

School of Electronics Engineering

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Lab Task 01

Linux Basics

Aim: Analyze the Basic Linux command in Terminal.

Program/ Code:

Commands can be run by themselves, or you can pass in additional arguments to make them do different things. Typical command syntax can look something like this:

```
command [-argument] [-argument] [--argument] [file]
```

The following Code commands are executed in Terminal window.

```
$pwd
```

```
$cd
```

```
$mkdir dirxyz
```

```
$mkdir dir1 dir2 dir3
```

```
$rmdir
```

```
$history
```

```
$history 5
```

```
$history 10
```

```
$cat >Filename
```

```
$cat Filename
```

```
$cp Source_file Destination_path
```

```
$rm Filename
```

```
$mv Filename Destination_path
```

```
$ls
```

```
$ls -l
```

```
$ls -lt
```

```
$ls -R
```

```
$ls -ltR
```

The detailed explanation of commands as follows :

1. \$pwd

pwd stands for Print Working Directory. The command displays the path of present working directory or shows the current location in the directory tree. In the Figure 1.1 we observe \$pwd returns the path of present working directory.

2. \$mkdir

mkdir stands for make directory. The command creates new directory.

\$mkdir Scripting ----- Creates Directory called Scripting.

\$mkdir ABC EFG XYZ ----- Creates multiple Directory at once.

In the Figure 1.1 we observe the directories Scripting, PERL, Python, TCL and Ruby created by using \$mkdir command.

3. \$cd

cd stands for change directory. The command helps user to move from current directory to a new one.

In the Figure 1.1 we observe use of Absolute path and Relative path.

4. \$rmdir

rmdir stands for remove directory. The command removes the specific directory.

In the Figure 1.1 we observe \$rmdir Ruby command removes Ruby directory.

5. \$ls

The command lists the contents of the directory. In the Figure 1.1,1.2,1.3 and 1.4 we observe usage of this command.

(i) **\$ ls -R** This command used to list contents of all directories.

(ii) **\$ ls -lR** This command used to list contents of all the directories in long format.

(iii) **\$ ls -ltR** This command used to list contents of all the directories in long format sorted with the modification time.

(iv) **\$ls -l** This command used to list of all the directories in long format and also tells us total files present .

6. \$history

List of all the commands used.

In the Figure 1.1 we observe \$history 5 shows recent 5 commands used.

In the Figure 1.3 we observe \$history 10 shows recent 10 commands used.

7. \$cat

The \$cat command used to show the content of a file.

In the Figure 1.2 we observe \$cat LAB01 shows the contents stored in LAB01 file.

8. \$cp

The \$cp command copies a file from one location to another.

In the Figure 1.2 we observe the command \$cp LAB01 ./PERL/ results in copying the LAB01 file from Scripting directory to PERL directory.

9. \$mv

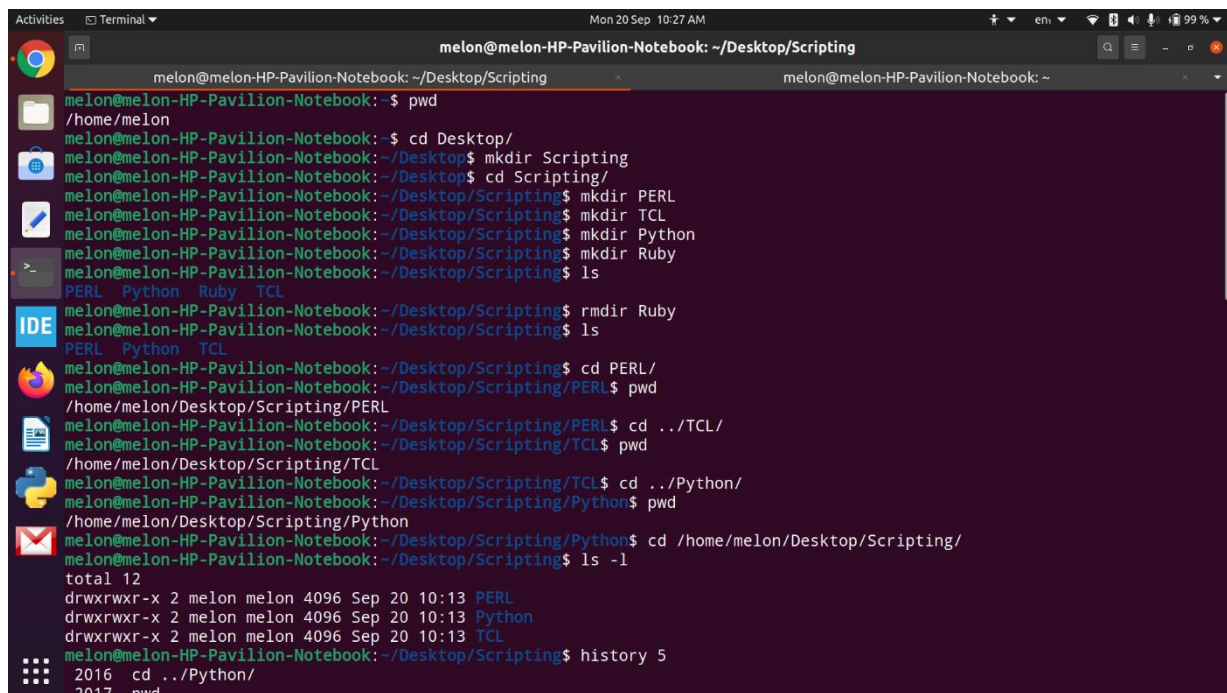
The \$mv command moves a file to a new location or renames it.

In the Figure 1.3 we observe the command \$mv LAB01 ./TCL/ results in moving LAB01 file from Scripting to TCL directory. The LAB01 file gets deleted in Scripting directory.

10. \$rm

The \$rm command Delete a file.

Output Screenshots:



```
melon@melon-HP-Pavilion-Notebook: ~/Desktop/Scripting
melon@melon-HP-Pavilion-Notebook:~$ pwd
/home/melon
melon@melon-HP-Pavilion-Notebook:~$ cd Desktop/
melon@melon-HP-Pavilion-Notebook:~/Desktop$ mkdir Scripting
melon@melon-HP-Pavilion-Notebook:~/Desktop$ cd Scripting/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ mkdir PERL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ mkdir TCL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ mkdir Python
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ mkdir Ruby
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls
PERL Python Ruby TCL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ rmdir Ruby
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls
PERL Python TCL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cd PERL/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/PERL$ pwd
/home/melon/Desktop/Scripting/PERL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/PERL$ cd ../TCL/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/TCL$ pwd
/home/melon/Desktop/Scripting/TCL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/TCL$ cd ../Python/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/Python$ pwd
/home/melon/Desktop/Scripting/Python
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/Python$ cd /home/melon/Desktop/Scripting/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls -l
total 12
drwxrwxr-x 2 melon melon 4096 Sep 20 10:13 PERL
drwxrwxr-x 2 melon melon 4096 Sep 20 10:13 Python
drwxrwxr-x 2 melon melon 4096 Sep 20 10:13 TCL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ history 5
2016 cd ../Python/
2017 pwd
```

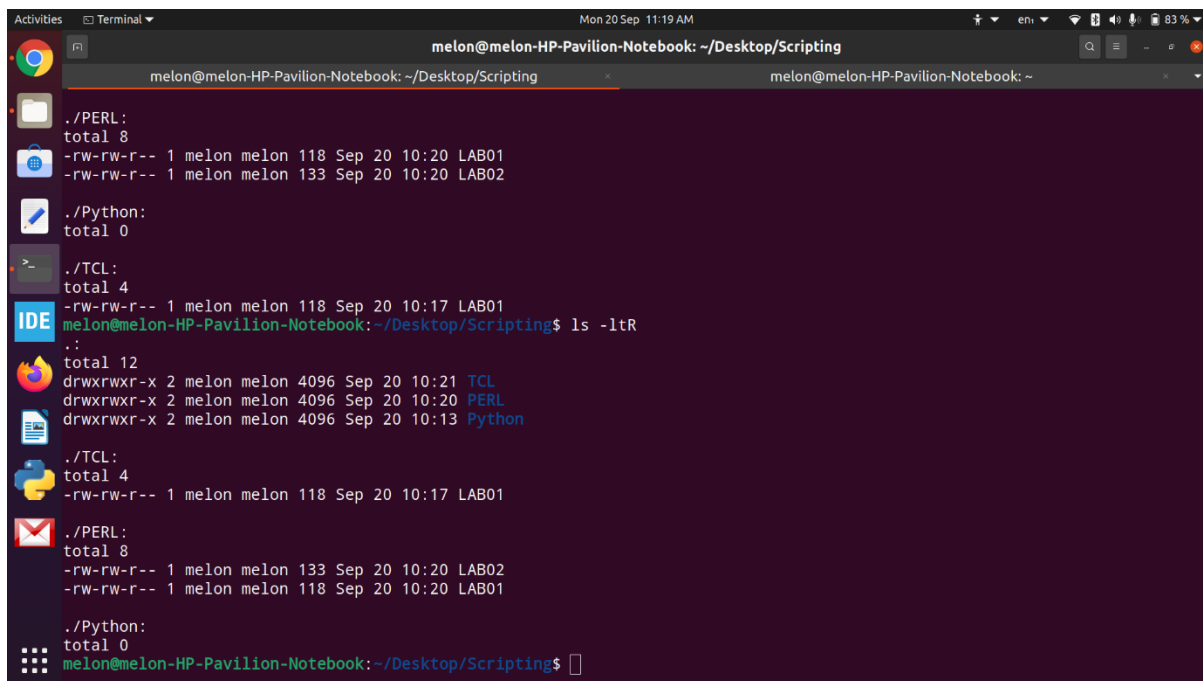
Figure 1.1 Screenshot of \$pwd, \$cd, \$mkdir, \$rmdir \$history and \$ls command usage.

```
2016 cd ../Python/
2017 pwd
2018 cd /home/melon/Desktop/Scripting/
2019 ls -l
2020 history 5
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cd /home/melon/Desktop/Scripting/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cat LAB01 LAB02
cat: LAB01: No such file or directory
cat: LAB02: No such file or directory
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cat >LAB01
In the Scripting LAB class was held on 13-Sep-2021.
Mam taught us to install Oracle Virtual box and Ubuntu 20.4(LTS).
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cat >LAB02
In this class we were thought to execute the list of task.
We shared the screen for evaluation.
We were told to make report on this.
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cat LAB01
In the Scripting LAB class was held on 13-Sep-2021.
Mam taught us to install Oracle Virtual box and Ubuntu 20.4(LTS).
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cat LAB02
In this class we were thought to execute the list of task.
We shared the screen for evaluation.
We were told to make report on this.
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cp LAB01 ./PERL/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cp LAB02 ./PERL/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cd PERL/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/PERL$ ls
LAB01 LAB02
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/PERL$ cd ..
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ rm LAB02
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls
LAB01 PERL Python TCL
```

Figure 1.2 Screenshot of \$cat, \$cp and \$rm command usage.

```
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/PERL$ cd ..
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ rm LAB02
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls
LAB01 PERL Python TCL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ mv LAB01 ./TCL/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ cd TCL/
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/TCL$ ls
LAB01
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting/TCL$ cd ..
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls -lt
total 12
drwxrwxr-x 2 melon melon 4096 Sep 20 10:20 PERL
drwxrwxr-x 2 melon melon 4096 Sep 20 10:13 Python
drwxrwxr-x 2 melon melon 4096 Sep 20 10:21 TCL
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls -lt
total 12
drwxrwxr-x 2 melon melon 4096 Sep 20 10:21 TCL
drwxrwxr-x 2 melon melon 4096 Sep 20 10:20 PERL
drwxrwxr-x 2 melon melon 4096 Sep 20 10:13 Python
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ history 10
2031 cd ..
2032 rm LAB02
2033 ls
2034 mv LAB01 ./TCL/
2035 cd TCL/
2036 ls
2037 cd ..
2038 ls -l
2039 ls -lt
2040 history 10
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$
```

Figure 1.3 Screenshot of \$mv, \$rm, \$ls -lt and history command usage.



A terminal window on a Linux system showing the output of the `ls -ltR` command. The terminal displays a recursive listing of the `~/Desktop/Scripting` directory. It shows subdirectories `./PERL:`, `./Python:`, and `./TCL:` with their respective file counts and permissions. The main directory listing shows files `LAB01` and `LAB02` with permissions `-rw-rw-r--`, owner `melon`, group `melon`, size `118` and `133` bytes, and timestamps `Sep 20 10:20`. The terminal also shows the output of the `ls -ltR` command, which lists files `PERL`, `Python`, and `TCL` with permissions `drwxrwxr-x`, owner `melon`, group `melon`, size `4096` bytes, and timestamps `Sep 20 10:21`, `Sep 20 10:20`, and `Sep 20 10:13`.

```
melon@melon-HP-Pavilion-Notebook: ~/Desktop/Scripting
./PERL:
total 8
-rw-rw-r-- 1 melon melon 118 Sep 20 10:20 LAB01
-rw-rw-r-- 1 melon melon 133 Sep 20 10:20 LAB02

./Python:
total 0

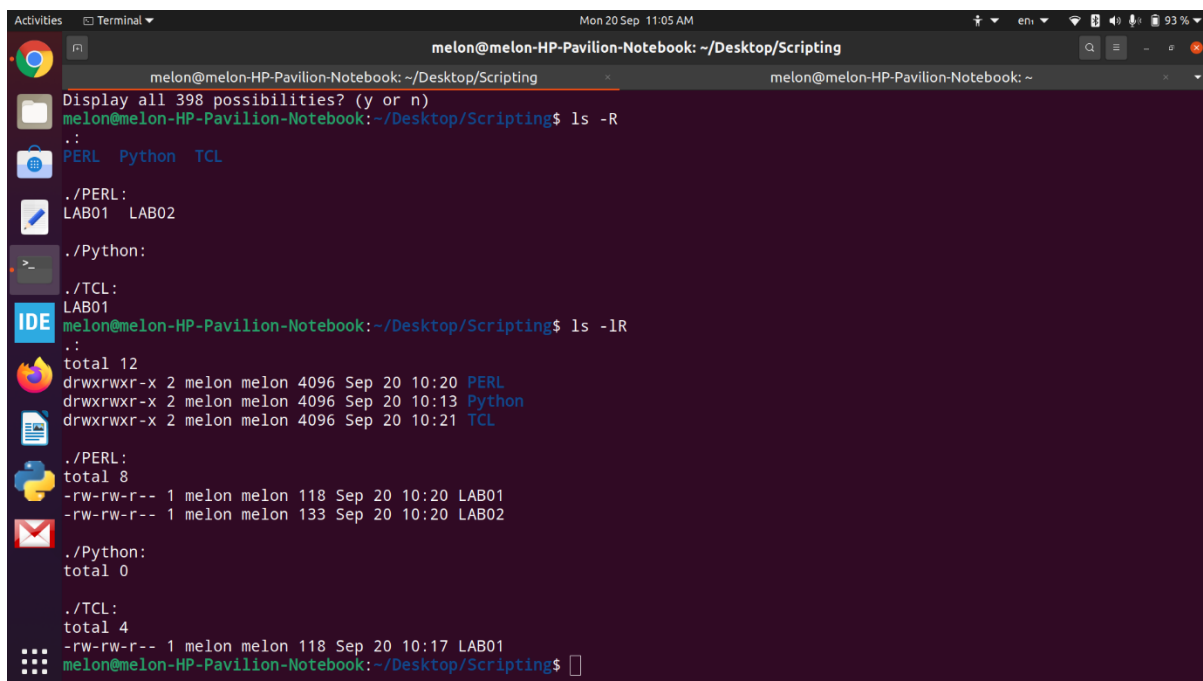
./TCL:
total 4
-rw-rw-r-- 1 melon melon 118 Sep 20 10:17 LAB01
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls -ltR
.:
total 12
drwxrwxr-x 2 melon melon 4096 Sep 20 10:21 TCL
drwxrwxr-x 2 melon melon 4096 Sep 20 10:20 PERL
drwxrwxr-x 2 melon melon 4096 Sep 20 10:13 Python

./TCL:
total 4
-rw-rw-r-- 1 melon melon 118 Sep 20 10:17 LAB01

./PERL:
total 8
-rw-rw-r-- 1 melon melon 133 Sep 20 10:20 LAB02
-rw-rw-r-- 1 melon melon 118 Sep 20 10:20 LAB01

./Python:
total 0
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$
```

Figure 1.4 Screenshot of Recursive listing (`$ ls -ltR`) command usage.



A terminal window on a Linux system showing the output of the `ls -R` and `ls -lR` commands. The terminal displays a recursive listing of the `~/Desktop/Scripting` directory. It shows subdirectories `./PERL:`, `./Python:`, and `./TCL:` with their respective file counts and permissions. The main directory listing shows files `LAB01` and `LAB02` with permissions `-rw-rw-r--`, owner `melon`, group `melon`, size `118` and `133` bytes, and timestamps `Sep 20 10:20`. The terminal also shows the output of the `ls -R` command, which lists files `PERL`, `Python`, and `TCL` with permissions `drwxrwxr-x`, owner `melon`, group `melon`, size `4096` bytes, and timestamps `Sep 20 10:20`, `Sep 20 10:13`, and `Sep 20 10:21`.

```
melon@melon-HP-Pavilion-Notebook: ~/Desktop/Scripting
Display all 398 possibilities? (y or n)
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls -R
.:
PERL Python TCL

./PERL:
LAB01 LAB02

./Python:

./TCL:
LAB01
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$ ls -lR
.:
total 12
drwxrwxr-x 2 melon melon 4096 Sep 20 10:20 PERL
drwxrwxr-x 2 melon melon 4096 Sep 20 10:13 Python
drwxrwxr-x 2 melon melon 4096 Sep 20 10:21 TCL

./PERL:
total 8
-rw-rw-r-- 1 melon melon 118 Sep 20 10:20 LAB01
-rw-rw-r-- 1 melon melon 133 Sep 20 10:20 LAB02

./Python:
total 0

./TCL:
total 4
-rw-rw-r-- 1 melon melon 118 Sep 20 10:17 LAB01
melon@melon-HP-Pavilion-Notebook:~/Desktop/Scripting$
```

Figure 1.5 Screenshot of Recursive listing (`$ ls -R` and `$ls -lR`) command usage.

Inference:

1. Working in LINUX environment.
2. File Management becomes easy using commands in Terminal window.
3. Handle files, directories and manage processes using CLI (command line interface).