CEGEP VANIER COLLEGE
CENTRE FOR CONTINUING EDUCATION
Introduction to Linux
420-995-VA

Teacher: S.Chebbine **Lab 3** **Mar 02, 2015**

Lab 3: Introduction to File Processing

1. **Review Lab 1 and Lab 2:**

a) Using Linux Open SUSE Command Line, type the following commands:
cal, more, less, cat, man, who, whatis, pwd, passwd
mkdir, cd, ls, rmdir, cp, rm, chmod
mv, clear

b) Using Linux Open SUSE Command Line, type the following commands:
vi *name of the file*

2. Create and Submit a Word file ***Lab3LinuxYourName.doc*** which contains a good sample of output screenshots for every Linux Command. For this purpose, students should capture the screen display and use Paint to cut/past and submit the appropriate windows (and not the entire screen display) displaying the output for each command.

3. **File Processing: There is two types of file Structures:**
   - Variable-length record
   - Fixed-length record

Use (*vi*) editor to add the following records into two text files to be named respectively *student1* and *student2*.

Review2 : vi

File Edit View Scrc

```
1       Graham
2       Sanchez
3       White
4       Phelp
5       Lewis
6       James
```

Student1

Review2 : vi

File Edit View Sc

```
Bill    JR      4
Jim     EX      3
Peter   EX      3
David   JR      1
Sheila  SR      2
Thomas  JR      1
```

Student2

a) Combining Files
Combine *student1* and *student2* into a new file named *student* as shown in Figure 2.
Type the command: **paste student1 student2 > student**

Review2 : vi

File Edit View Scrollback Bookmarks Settings Help

```
1       Graham  Bill    JR      4
2       Sanchez Jim     EX      3
3       White   Peter   EX      3
4       Phelp   David   JR      1
5       Lewis   Sheila  SR      2
6       James   Thomas  JR      1
```

Figure 2: Student

What is the difference between the following commands (**paste** and **cat**).
paste student1 student2 > student
cat student1 student2 > student

b) Extracting Fields using the cut commands

Type the following command (**cut -f3 student**) to display the output shown in Figure 3:

```
samir@linux-ces1:~/Review/Review2> cut -f3 student
Bill
Jim
Peter
David
Sheila
Thomas
samir@linux-ces1:~/Review/Review2>
```

Figure 3

```
1       Bill    JR
2       Jim     EX
3       Peter   EX
4       David   JR
5       Sheila  SR
6       Thomas  JR
samir@linux-ces1:~/Review/Review2>
```

Figure 4

Use the same command *cut*, along with the appropriate option, to display the output shown in Figure 4.

c) Sorting Files: sort the file *student* on the fifth field; redirect the output to a given file.

d) Creating **Script** File (equivalent to *batch* files in Windows)
Using *vi*, create shell script file to be named *studentscript*, which includes the following commands:
cut -f3 student > studenttest1
cut –f4 student > studenttest2
paste studenttest1 studenttest2 > studentdata
sort studentdata
After the execution of the script file, you should get the following output shown in Figure 5.

```
samir@linux-ces1:~/Review/Review2./studentscript
Bill    JR
David   JR
Jim     EX
Peter   EX
Sheila  SR
Thomas  JR
samir@linux-ces1:~/Review/Review2> ls
data   song2    student1  studentdata    studenttest1  studentVersionS
song1  student  student2  studentscript  studenttest2
```

Run the studentscript

Figure 5

e) Using the join Command on two files
Use (*vi*) editor to add the following faculty's records into a text file to be named *faculty*.

```
File  Edit  View  Scrollback  Bo
1       Robertson       Myra
2       Smith           Neal
3       Arlec           Lisa
4       Fillipo         Paul
~
```

faculty

```
1 4 Phelp David JR Robertson Myra
1 6 James Thomas JR Robertson Myra
2 5 Lewis Sheila SR Smith  Neal
3 2 Sanchez Jim EX Arlec  Lisa
3 3 White Peter EX Arlec  Lisa
4 1 Graham Bill JR Fillipo  Paul
samir@linux-ces1:~/Review/Review2>
```

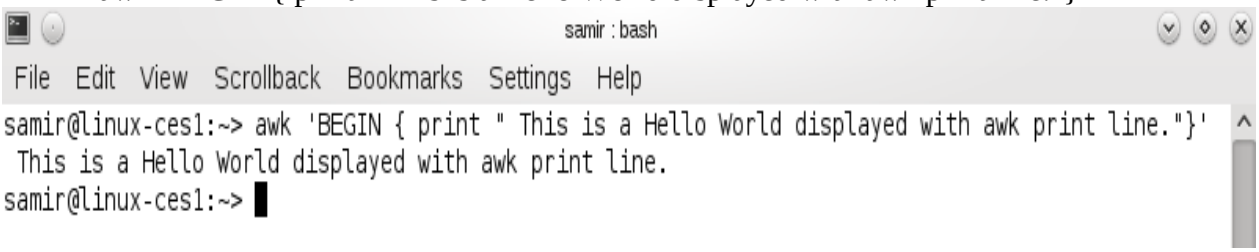
Figure 6: Join student faculty

Execute Join command in order to output all student records along with their corresponding faculty (Figure 6). Note that the fifth column of *student* file matches the first column of *faculty* file.

f) **Introduction to Awk Program**: Manipulate data files (fields and records) very efficiently, use variables, use arithmetic/logical operators, loops, and output data into a given format.

Three ways to execute **awk**:

- awk 'BEGIN { print " This is a Hello World displayed with awk print line."}'



- awk '{ printf " %-8s\t %s\n", $2, $4}' student

```
samir@linux-ces1:~/Review/Review2> awk '{ printf " %-8s\t %s\n", $2, $4}' student
 Graham          JR
 Sanchez         EX
 White           EX
 Phelp           JR
 Lewis           SR
 James           JR
samir@linux-ces1:~/Review/Review2>
```

- Using *vi*, write the **awk** program into text file to be named *studrep* as shown in Figure 7.

```
awk 'BEGIN {
       {print "\t\t Student at Vanier\n"}
       {"date" | getline d}
       {printf "\t %s\n", d}
       {print "Student LName\t\t\t Student FName\n"}
       {print "================================================\n"}
      }
      { printf " %-8s\t\t\t %s\n", $2, $3}' student
~
```

sh studrep

Figure 7

In order to execute *studrep*, type in the command line **sh studrep**. You get the output shown in Figure 8.

```
samir@linux-ces1:~/Review/Review3> sh studrep
                  Student at Vanier

          Tue Sep 27 22:02:5_ EDT 2011
Student LName                    Student FName

================================================

 Graham                          Bill
 Sanchez                         Jim
 White                           Peter
 Phelp                           David
 Lewis                           Sheila
 James                           Thomas
```

Figure 8

4. Complete the Hands-On Projects of:

- Hands-On Projects 4-10, 4-12 in page 193-196 respectively.