Lab 1 : Working with Linux

July 31, 2018

Objective :

- Lab 1 is intended to provide an introduction to Linux. The lab consists of performing basic system operations such as file management, text editing, permission management. The objective of this lab is to make students familiar with the Linux command-line environment and develop the skills of shell scripting. This lab serves as a platform for the subsequent labs related to system calls, process management, file management and memory management.

Recommended Systems/Software Requirements:

- Any flavour of Linux

References:

1. *Unix concepts and applications*, Fourth Edition, Sumitabha Das, TMH.
2. *Unix and shell Programming*, B.A. Forouzan & R.F. Giberg, Thomson.
3. *Beginning shell scripting*, E. Foster, Johnson & other, Wile Y- India

Experiment 1 : Basic Unix commands

1. Study of Unix/Linux general purpose utility command list : *man, who,cat, cd, cp, ps, ls, mv,rm, mkdir, rmdir, echo, more, date, time, kill, history, chmod, chown, finger, pwd, cal, logout, shutdown* commands
2. Login to the system and do the following:
   (a) Use the appropriate command to determine your login shell
   (b) Use the */etc/passwd* file to verify the result of previous step
   (c) Use the *who* command and redirect the result to a file called **myfile1**. Use the *more* command to see the contents of **myfile1**.
   (d) Use the *date* and *who* commands in sequence (in one line) such that the output of date will display on the screen and the output of who will be redirected to a file called **myfile2**. Use the *more* command to check the contents of **myfile2**
   (e) Write a *sed* command that deletes the first character in each line in a file.

(f) Write a *sed* command that deletes the character before the last character in each line in a file.

(g) Write a *sed* command that swaps the first and second words in each line in a file.

3. (a) pipe your **/etc/passwd** file to *awk*, and print out the **home** directory of each user.

   (b) Develop an interactive *grep* script that asks for a word and a file name and then tells how many lines contain that word.

Experiment 2 : Shell Scripting

1. Write a shell script program to display list of user currently logged in.
2. Write a (i) shell script program an (ii) *C* program to display "HELLO WORLD"
   - Compare the running time of both the programs using *time* command
3. (a) Write a shell script that takes a command –line argument and reports on whether it is directory, a file, or something else.

   (b) Write a shell script that accepts one or more file name as arguments and converts all of them to uppercase, provided they exist in the current directory.

   (c) Write a shell script that determines the period for which a specified user is working on the system.
4. (a) Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers.

   (b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.
5. Write a shell Script program to check whether the given number is even or odd
6. Write a shell script Program to search whether element is present is in the list or not
7. Write a shell script which receives two file names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.
8. Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file
9. Write a shell script to perform the following string operations:

   (a) To extract a sub-string from a given string

   (b) To find the length of a given string
10. Write a shell script program to display the process attributes
11. Write a shell script to change the ownership of processes