Group B

Experiment No. 3

Title :

Aim : To study shell scripting program

Theory :

Shell Programming :

The outermost layer in program shell is another term for user interface OS and application. Sometimes provides an alternative shell to move interaction with the program series.

e.g. If the (Shell) Application is usually command driven, the shell might be menu driven system that translate the users selection into appropriate commands.

Sometimes ruled command shell, a shell is command to processor interface the command processor is the program that execute the command. After verifying that the command are valid, the shell send them to another part of command processor o be executed.

Unix system after choices between severe different shell, the most popular being c-shell, the bonus shell and the shell. Each offers a somewhat different command language.

Even though there are various graphical interfaces available for Linux, the shell a neat tool. You can automate a lot of task with it. It is really good for system administration task. You can vary quickly by out if your ideas which make it very usefully to simple prototyping.

Relatively simple task where efficiency is less important than uses of configuration, maintenance, probability. Shell command and control structures are having 3 categories of commands which can be used in shell scripts. UNIX commands although a shell script can have use of any UNIX commands. Here, a number of commands which are often used by others. These commands are generally being described as commands for bill and test manipulation.

Command Syntax	Purpose
Echo “some text”	Write some text
LS	List file
WC-1 file	Count lines in file
WC-W file	Count words in file
WC-W file	Count number of characters
C-P-Source file Dest file	Copy source file to dest file

mv old name new name	Rename the file name
rm.file	Delete file
grep pattern	Secure for strings in a file e.g : grep search string file hex, get data out of fixed width column of text e.g : get character store write file text to std out (sch)
cut file.txt file some file	describe what type of file some file is prompt user has input and write it into variable sort line in file txt e.g : add 2 and 3
experiment [expressive]	experiment e.g : search by name file name file name print this command has many possibilities print some lines from beginning of file.
Tail file	Print some lines from and of file most of time work is used to extract file form text line.
Awk	The default field seperates can txt file/awk.f<print $,":$}. Here we use command(,) as field separator and print list and 3rd column of file txt has line likes Adam Bose,34,india teeny milles,22,WA. This will produce Adam Bose, India.

#Linux commands(Common):-

These commands are used in the shell script. If you want to get help of selected data command you can write an help output of above command is quite by that file can not or single screen output can be seen page wise.

For this purpose	Use this command syntax	Example
1. Print working	Pwd	$pwd
2. To create text file Note : Press and hold CRT keys, press D to stop N file [ctrn+n]	<ad>[file name]	$at>my file type your text when done press D.
3. O move or rename file directory.	mv filter {file ny}	F mv scales
4. To remove file	rm-r file	$ rm my file
5. Remove all file I given directory, use it	rm- rf{did name}	$wc my life file

carefully 6. Count line word characters of given lines 7. To use to compose files	wc {file name} diff {file c}{file n}	$wc my file My file add

#Command related to process :-

1. Ls : Ls is a command to list system in a directory. A process is a program (command by user)to perform some job. To find how many file we have, all system. We give command like $,s,R,we,l. This command will take a long time to search all file on system. We have seen these commands on background.
   $ls1-R LWC-l
   Pipes:
   A pipe is a way to convert output of one program to input of another without any temporary file.
   A pipe is nothing but a temporary storage place where output of one command is stored and passed as input for 2nd command.

#Introduction to shell programming :

Shell program is a series of Linux command ,Shells script is just like batch file and output, the on screen is useful to relate one our time and to automate some task.

#Variables in Linux :-

Sometimes to process our data, it must be kept in compiler RAM memory. Memory divider into small location and each location holds unique number of memory.

1. System variable:-
   (related and maintained by Linux). This type of variable is defined in capital.
2. User defined variables (UDR) :-
   Created and maintained by user.

#Relational operator in shell for comparison :-

Mathematical operation	Meaning	Mathematical	M shell for test	For expression with command
1. Eq.	Is equal to	5=-6	Is test 5=6, if txt 5 negative	If expression [5 eq 6]
2. Nc	Is not equal to	5-=6	If txt 5 is negative	If expression [5 nc 6]
3. –il	Is less than	5<6	If txt 5 is 6	T expression [5 –i/6] [-5-/c-6]
4. –le	Less than or equal to	5<=6	If txt 5	T expression [5-gt-6]
5. –gt	Is greater than	5>6	If txt 5>6	If expression [5-ge-6]
6. -ge	Is greater or equal to	5>=6	If txt 5 greater than 6	

This first line (**#!/bin/bash or #!/bin/sh**) has a name. It is known as '**she-bang**'(**shabang**). This derives from the concatenation of the tokens *sharp* (#) and *bang* (!). It is also called as **sh-bang**, **hashbang**, **poundbang** or **hash-pling**. In computing, a she-bang is the character sequence consisting of the characters number sign and exclamation mark (#!) at the beginning of a script.

/bin/bash is the most common shell used as default shell for user login of the linux system. The shell's name is an acronym for **Bourne-again shell**. Bash can execute the vast majority of scripts and thus is widely used because it has more features, is well developed and better syntax

In Unix-like operating systems, the **chmod** command is used to change the access mode of a file. The name is an abbreviation of change mode.

755 means **full permissions for the owner and read and execute permission for others**

Chmod + x also works

1. + means add this permission to the other permissions that the file already has.
2. = means ignore all permissions, set them exactly as I provide.
    - So all of the "read, write, execute, sticky bit, suid and guid" will be ignored and only the ones provided will be set.
3. read = 4, write = 2, execute = 1
    - Here is the binary logic behind it (if you're interested):
    - Symbolic: r-- -w- --x | 421
    - Binary: 100 010 001 | -------
    - Decimal: 4 2 1 | 000 = 0
    - | 001 = 1
    - Symbolic: rwx r-x r-x | 010 = 2
    - Binary: 111 101 101 | 011 = 3
    - Decimal: 7 5 5 | 100 = 4
    - / / / | 101 = 5
    - Owner ---/ / / | 110 = 6
    - Group ------/ / | 111 = 7
    - Others ---------/ | Binary to Octal chart

Using +x you are telling to add (+) the executable bit (x) to the owner, group and others.

- it's equal to ugo+x or u+x,g+x,o+x
- When you don't specify which one of the owner, group or others is your target, in case of x it will considers all of them. And as @Rinzwind pointed out, it's based on umask value, it adds the bit to the ones umask allows. remember if you specify the target like o+r then umask doesn't have any effect anymore.
- It doesn't touch the other mods (permissions).
- You could also use u+x to only add executable bit to the owner.

Using 755 you are specifying:

- 7 --> u=rwx (4+2+1 for owner)
- 5 --> g=rx (4+1 for group)
- 5 --> o=rx (4+1 for others)

So chmod 755 is like: chmod u=rwx,g=rx,o=rx or chmod u=rwx,go=rx.

Flow chart / Algorithm