1. BASIC UNIX COMMANDS

AIM

(a) To study the basics of UNIX

(b) To study the basic UNIX commands and various UNIX editors such as vi, ed, ex and EMACS

THEORY

UNIX

It is a multi-user operating system. Developed at AT & T Bell Industries, USA in 1969. Ken Thomson along with Dennis Ritchie developed it from MULTICS (Multiplexed Information and Computing Service) OS. By 1980, UNIX had been completely rewritten using C language.

LINUX

It is similar to UNIX, which is created by Linus Torvalds. All UNIX commands works in Linux. Linux is a open source software. The main feature of Linux is coexisting with other OS such as windows and UNIX.

STRUCTURE OF A LINUX SYSTEM

It consists of three parts.

a) UNIX Kernel b) Shells c) Tools and Applications

UNIX KERNEL

Kernel is the core of the UNIX OS. It controlls all tasks, schedule all Processes and carries out all the functions of OS. Decides when one programs tops and another starts.

SHELL

Shell is the command interpreter in the UNIX OS. It accepts command from the user and analyses and interprets them

BASIC UNIX COMMANDS

a) date - used to check the date and time

Syn: $date

Format	Purpose	Example	Result
+%m	To display only month	$date +%m	06
+%h	To display month name	$date +%h	June
+%d	To display day of month	$date +%d	01
+%y	To display last two digits of years.	$date +%y	09
+%H	To display hours	$date +%H	10
+%M	To display minutes	$date +%M	45
+%S	To display seconds	$date +%S	55

b) cal - used to display the calender

Syn: $cal 2 2009

c) echo - used to print the message on the screen
Syn: $ echo "text".

d) ls - used to list the files. Your files are kept in a directory.
Syn: $ ls ls -s

All files (include files with prefix)
ls -l Lodetai (provide file statistics)
ls -t order by creation time.
ls -u Sort by acess time (or show when last acessed together with -l)
ls -s order by size
ls -r Reverse order
ls -f Mark directories with /, executable with *, symbolic links with @, local sockets with =, named pipes (FIFOs) with.
ls -s Show file size
ls -h "Human Readable", show file size in kilo Bytes & Mega Bytes (h can be used together with -l or)
ls [a-m]* List all the files whose name begin with alphabets from 'a' to 'm'.
ls [a]* List all the files whose name begins with 'a' or 'A'.
Eg: $ ls > my list output of 'ls' command is stored to disk file named 'my list'.

e) lp - used to take printouts.
Syn: $ lp filename

f) man - used to provide manual help on every UNIX commands.

Syn: $ man unix command.
$ man cat.

g) who & whoami - it displays data about all users who have logged into the system currently. The next command displays about current user only.

Syn: $ who $ whoami.

h) uptime - tells you how long the computer has been running since its last reboot or power-off.

Syn: $ uptime.

i) uname - it displays the system information such as hardware platform, system name and processor, OS type

Syn: $ uname -a.

j) hostname - displays and set system host name.

Syn: $ hostname.

k) bc - stands for 'best calculator'

$ bc	$ bc	$ bc	$ bc
10/2*3	scale = 1	ibase = 2	sqrt(196)
15	2.25+1	obase = 16	14 quit
	3.35	11010011	
$ bc	quit	89275	
for(i=1; i<3; i=i+1)I		1010	$ bc -l
1		A	scale = 2
2		quit	s(3.14)
3 quit			0

FILE MANIPULATION COMMANDS

a) cat - this create, view and concatenate files.
Creation : Syn : $ cat > filename
viewing : Syn : $ cat filename
Add text to an existing file : Syn : $ cat >> filename
Concatenate : Syn : $ cat file1 file2 > file3
$ cat file1 file2 >> file3 (no over writing of file3)

b) grep - used to search a particular word or pattern related to that word from the file.
Syn : $ grep search word filename
Eg : $ grep anu student.

c) rm - deletes a file from the file system
Syn : $ rm filename.

d) touch - used to create a blank file
Syn : $ touch file names.

e) cp - copies the files or directories
Syn : $ cp source file destination file
Eg : $ cp student stud.

f) mv - to rename the file or directory.
Syn : $ mv old file new file
Eg : $ mv -i student Student list (-i prompt when overwrite).

g) cut - it cuts or pickup a given number of character or fields of the file.
Syn : $ cut <option> <filename>
Eg : $ cut -c filename

$ cut - c1-10 emp
$ cut - f 3,6 emp
$ cut -f 3-6 emp
- c cutting columns
- f cutting fields

h) head - displays 10 lines from the head (top) of a given file.
Syn : $ head filename
Eg : $ head student
To display the top two lines : syn : $ head - 2 student

i) tail - displays last 10 lines of the file.
Syn : $ tail filename.
Eg : $ tail student
To display the bottom two lines ;
Syn : $ tail - 2 student

j) chmod - used to change the permissions of a file or directory.
Syn : $ chmod category operation permission file
where, category - is the user type, operation - is used to assign or remove permission, permission - is the type of permission, File - are used to assign or remove permission all.

Examples :
$ chmod u - wx student
Removes write and execute permission for users
$ ch modu + rw, g + rw student
Assigns read and write permission for users and groups

$ chmodg = rwx student
Assigns absolute permission for groups of all read, write and execute permissions.

k) wc - it counts the number of lines, words, character in a specified file (s) with the options as -l, -w, -c

category	Operation	Permission
u - users	+ assign	r - read
g - group	- remove	w - write
o - others	= assign absolutely	x - execute

Syn: $ wc - l filename
$ wc - w filename
$ wc - c filename

UNIX EDITORS

CONCEPT

Editor is a program that allows user to see a portions a file on the screen and modify characters and lines by simply typing at the current position. UNIX supports variety of Editors. They are:

ed ex vi

EMACS

Vi- vi is stands for "visual". vi is the most important and powerful editor. vi is a full screen editor that allows user to view and edit entire

document at the same time. vi editor was written in the University of California, at Berkley by Bill Joy, who is one of the co-founder of Sun Microsystems.

FEATURES OF VI :

It is easy to learn and has more powerful features. It works great speed and is case sensitive. vi has powerful undo functions and has 3 modes :

1. Command mode
2. Insert mode
3. Escape or esc mode

In command mode, no text is displayed on the screen. In insert mode, it permits user to edit insert or replace text. In escape mode, it displays commands at command line. Moving the cursor with the help of h, e, k, j, I, ek.

EMACS EDITOR

MOTION COMMANDS

M -> Move to end of a file
M - < Move to beginning of file
C - v Move forward a screen M - v Move backward a screen C - n Move to next line.
C - p Move to previous line.
C - a Move to the beginning of the line.

C-e Move to the end of the line
C-f Move forward a character
C-b Move backward a character
M-f Move forward a word
M-b Move backward a word.

DELETION COMMANDS

DEL delete the previous character C-d
delete the current character M-DEL
delete the previous word.
M-d delete the next word
C-x DEL deletes the previous sentence
M-K delete the rest of the current sentence.
C-K deletes the rest of the current line
C-xu undo the lasted it change.

SEARCH AND REPLACE IN EMACS:

y change the occurence of the pattern
n Don't change the occurence, but look for the other q Don't change. Leave query replace completely
! change this occurence and all others in the file