Chandubhai S. Patel Institute of Technology-Changa

Department of Information Technology

Subject Name: Operating System Fundamentals Semester : 5
Subject Code: IT343 Academic Year: June-Dec 2018

Practical List

Instructions:

I. Student should maintain soft copy of all the programs performed during lab sessions.
II. Files must be printed in ISO file format.

No.	Practical Aim	Hrs.
1.	Implement the basic and advanced Linux commands. a. Linux File System Overview. b. Linux Utility Commands. • General Commands: telnet, login ,man , logname, uname, who, who am I , tty, date, cal ,echo ,expr ,bc • File Commands : mkdir, cd ,cd ..,pwd, rm ,cp ,mv ,cat ,touch, ls , ln • Filter Commands: head ,tail ,cut ,paste,sort ,unique ,tr ,grep ,cmp c. Manage Access control for the Users and Group • Chmod ,chown ,umask , ls –l , addgroup ,adduer, passwd ,inode d. Special commands arch, dmesg, uptime, id, last, finger, top, w, time sleep, history e. Study the basic environment variables: PATH, USER,HOME,SHELL Create your own environment variable.	08
2.	Shell Scripts. a. Write a script called hello which outputs the following: • your username • the time and date • who is logged on • Also output a line of asterices (*********) after each section. b. Put the command hello into your .login file so that the script is executed every time that you log on. c. Write a shell program to simulate a simple calculator. d. Write a script that will count the number of files in each of your Subdirectories. e. Write a shell script to combine any three text files into a single file (append them in the order as they appear in the arguments) and display the word count. f. Write a shell program to count the following in a text file. • Number of vowels in a given text file. • Number of blank spaces. • Number of characters.	08

	• Number of symbols. • Number of lines g. Write a shell program to find the largest integer among the three integers given as arguments. h. Write the shell program which produces a report from the output of ls – l in the following form: • Only regular files, directories and symbolic links are printed. • The file type and permissions are removed. • A / character is appended to each directory name and the word DIR is printed at the beginning of the line. • A @ character is appended to each symbolic link name and the word LINK is printed at the beginning of the line. • At the end of the listing, the number of directories, symbolic links, regular files and the total size of regular files should be reported. i. Write a shell script that searches for a single word pattern recursively in the current directory and displays the no. of times it occurred. j. Write a shell program to sort a given file which consists of a list of numbers, in ascending order. k. A shell script, which is an interactive file – handling program with the following options: copy, remove, rename, link and exit. Once the user enters a choice, ask for the necessary information (like names of files, paths, etc.) and then carry out the necessary operation l. Shell scripts that maintain a log file, consisting of log in and logout times of the user. m. Write a shell script that calculates shell script run time.	
3.	Write a C program to list for every file in a directory, its inode number and file name.	02
4.	Write a C program to create a child process and allow the parent to display "parent" and the child to display "child" on the screen	02
5.	Write a C program to implement grep system call.	02
6.	Write a C program to implement inter process communication (IPC) using Semaphore.	02
7.	Deadlock: a. Write a program that will surely go into the deadlock. b. Write a program for implementing Banker's algorithm.	04
8.	Write a program to solve dining philosophers' problem.	02