CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY
FACULTY OF TECHNOLOGY & ENGINEERING
Devang Patel Institute of Advance Technology and Research
Department of Information Technology

Subject Name: Operating System **Semester :** V
Subject Code: CE354/CS350/IT343 **Academic year:** 2021-22

Practical Index

<table>
<tr><th>Sr. No.</th><th>Aim of the Practical</th><th>Date</th><th>Page</th><th>Sign</th></tr>
<tr><td>1.</td><td>Study Practical:
A. LINUX Architecture
B. Types of OS- Linux, Flavors of LINUX UNIX, MAC, Window etc.
C. Difference Between Lollipop and Marshmallow Operating System Version</td><td></td><td></td><td></td></tr>
<tr><td>2.</td><td>Study of Unix Architecture and the following Unix commands with option:
<table>
<tr><td>User Access:</td><td>login, logout, passwd, exit</td></tr>
<tr><td>Help:</td><td>man, help</td></tr>
<tr><td>Directory:</td><td>mkdir, rmdir, cd, pwd, ls, mv</td></tr>
<tr><td>Editor:</td><td>vi, gedit, ed, sed</td></tr>
<tr><td>File Handling / Text Processing:</td><td>cp, mv, rm, sort, cat, pg, lp, pr, file, find, more, cmp, diff, comm, head, tail, cut, grep, touch, tr, uniq</td></tr>
<tr><td>Security and Protection:</td><td>chmod, chown, chgrp, newgrp</td></tr>
<tr><td>Information:</td><td>learn, man, who, date, cal, tty, calendar, time, bc, whoami, which, hostname, history, wc</td></tr>
<tr><td>System Administrator:</td><td>su or root, date, fsck, init 2, wall, shut down, mkfs, mount, unmount, dump, restor, tar, adduser, rmuser</td></tr>
<tr><td>Terminal:</td><td>echo, printf, clear</td></tr>
<tr><td>Process:</td><td>ps, kill, exec</td></tr>
<tr><td colspan="2">I/O Redirection (<, >, >>), Pipe (|), *, gcc</td></tr>
</table></td><td></td><td></td><td></td></tr>
<tr><td>3.</td><td>1. Write a script called hello which outputs the following:
• your username
• the time and date
• who is logged on
• Also output a line of asterisks (**********) after each section.
2. Write a shell script which calculates nth Fibonacci number where n will be provided as input when prompted.
3. Write a shell script which takes one number from user and finds factorial of a Given number.</td><td></td><td></td><td></td></tr>
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4.	Program maintenance using make utility A. Write a program that is spread over two files. B. Use following Makefile for program maintenance. To use make utility, use make Command.			
5.	Write programs using the following system calls of UNIX operating system: fork, exec, getpid, exit, wait, stat, readdir, opendir. A. Write a program to execute fork() and find out the process id by getpid() system call. B. Write a program to execute following system call fork(), execl(), getpid(), exit(), wait() for a process. C. Write a program to find out status of named file (program of working stat() system cal			
6.	Write a C program in LINUX to implement Process scheduling algorithms and compare. A. First Come First Serve (FCFS) Scheduling B. Shortest-Job-First (SJF) Scheduling C. Priority Scheduling (Non-preemption) after completion extend on Preemption. D. Round Robin(RR) Scheduling			
7.	Process control system calls: A. The demonstration of fork() B. execve() and wait() system calls along with zombie and orphan states.			
8.	Thread management using pthread library. Write a simple program to understand it.			
9.	Write a C program in LINUX to implement inter process communication (IPC) Using Semaphore.			
10.	Simulate Following Page Replacement Algorithms. A. First In First Out Algorithm B. Least Recently Used Algorithm C. Optimal Algorithm			
11.	Thread synchronization using counting semaphores and mutual exclusion using mutex.			
12.	Write a C program in LINUX to implement Bankers algorithm for Deadlock Avoidance.			
13.	Write a C program in LINUX to perform Memory allocation algorithms and Calculate Internal and External Fragmentation. (First Fit, Best Fit, Worst Fit).			

Additional Practical(s):

1. To implement of Dinning Philoshopr problem

A. Dinning Phiolosphor

B. Reader-Writer

2. To implement Disk-Scheduling Algorithm(s).
3. H2O Building Problem
4. Dining Savages Problem
5. Sleeping Barber Problem