Operating System & Linux Lab
Program Lists
(CSE)

List of the programs to be done in your OS-Lab file.

Program 1: Explain the following commands: clear, whether, who, date, ls, cd, rmdir, mkdir , pwd.
Program 2: Explain the following commands: chmod, umask, df, du, touch, vi, cp, mv etc.

Program 3: Write a Shell-program to backup a given directory to another directory.
Program 4: Write a Shell-program to perform (+, -, *, /) operator on the variables take by read command.
Program 5: Write a shell-program to print a table of a specified number take by command line argument method. (like 2*1=2 …….2*10=20)
Program 6: Write a shell-program to print a gross salary of an employee (if BS(basic salary) < 1500 then DA= 20% of BS; HRA= 30% of BS else sal >=1500 DA= 2000 and HRA=40% of BS)
Program 7: Write a shell-program to print whether the number is prime or not
Program 8: Write a shell-program to make nested directories
Program 9: Write a shell-program to list out all the files and directories separately.
Program 10: Write a c program to count nos of line, space and character in a file using c function.
Program 11: Write a c program to count nos of line, space and character in a file by make system calls.
Program 12: Write a c program for First come first serve scheduling algorithm and calculate average waiting time and turn around time.
Program 13: Write a c program for Non-preemptive SJF scheduling algorithm and calculate average waiting time and turn around time.
Program 14: Write a c program for preemptive SJF scheduling algorithm and calculate average waiting time and turn around time.
Program 15: Write a c program for Round Robin scheduling algorithm and calculate average waiting time and turn around time.
Program 16: Write a c program for Priority scheduling algorithm and calculate average waiting time and turn around time.

Program 17: Write a c program to find the summation upto given no using pthread.
Program 18: Write a c program for producer and consumer problem using pthread.
Program 19: Write a c program for readers and writer problem using pthread.

Program 20:Write a c program for Banker's algorithm and find safe sequence also justify whether the system is in safe state or not after granting same request to process.
(for your help you may have following options in your program)

a) **Read maximum resources**
b) **Read no of processes and their max and allocation matrix**
c) **Compute and Print the need matrix**
d) **Is system safe? If yes print the safe sequence**
e) **Take a request from a particular process for resources and compute that request may be granted immediately or not?**

Program 21: Write a c program for deadlock detection and recovery.
(Read resource type, no of processes, allocation, request and available matrix then follow deadlock detection algorithm)

Program 22: Assume that a system has a 32-bit virtual address with a 4kb page size. Write a c program that is passed a virtual address (in decimal) on the command line and have it output the page number and offset for the given address. As an example, your program would run as follows.

./a.out 19986 32 4KB

Your program would output:-
The address 19986 contains:
Page Number = 4
Offset = 3602

Program 23: Write a program that implements the FIFO, LRU and Optimal page-replacement algorithms. First, generate a random page-reference string where page numbers range from 0 to 9. Apply the random page-reference string to each algorithm and record the number of page faults incurred by each algorithm. Implement the replacement algorithms so that the number of page frames can vary from 1 to 7. Assume that demand paging is used.