SHRI VILEPARLE KELAVANI MANDAL'S
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)

A.Y.: 2023-24 **Class: S.Y.B.Tech** **Sub:** System Fundamentals

System Fundamentals Experiment List

Explore the internal commands of Linux and Write shell scripts to do the following:

1. **Display top 10 processes in descending order**
2. **Display processes with highest memory usage.**
3. **Display current logged in user and logname.**
4. **Display current shell, home directory, operating system type, current path setting, current working directory.**
5. **Display OS version, release number, kernel version.**
6. **Write a command to display the first 15 columns from each line in the file**
7. **cut specified columns from a file and display them**
8. **Sort given file ignoring upper and lower case**
9. **Displays only directories in current working directory.**
10. **copying files from one place to another,**
11. **moving files from one place to another.**
12. **Removing specific directory with various options**
13. **list the numbers of users currently login in the system and then sort it.**
14. **Merge two files into one file**
15. **changes the access mode of one file**
16. **display the last ten lines of the file.**
17. **to locate files in a directory and in a subdirectory.**
18. **This displays the contents of all files having a name starting with ap followed by any number of characters.**
19. **Rename any file aaa to aaa.aa1, where aa1 is the user login name.**

Illustrate the use of sort, grep, awk, etc.

20. **Write a command to search the word 'picture' in the file and if found, the lines containing it would be displayed on the screen.**
21. **Write a command to search for all occurrences of 'Rebecca' as well as 'rebecca' in file and display the lines which contain one of these words.**
22. **Write a command to search all four-letter words whose first letter is a 'b' and last letter, a 'k'.**
23. **Write a command to see only those lines which do not contain the search patterns**
24. **Implement Booth's multiplication algorithm.**
25. **Implement Restoring division algorithm.**
26. **Implement Non-Restoring division algorithm.**
27. **Implement fully associative memory mapped cache organization.**
28. **Implement various LRU cache/page replacement policy**

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29. **Implement various optimal cache/page replacement policy**
30. **Implement various FIFO cache/page replacement policy**
31. **Implement FCFS CPU scheduling algorithm.**
32. **Implement SJF CPU scheduling algorithm.**
33. **Implement Non Prremptive Priority CPU scheduling algorithm.**
34. **Implement Prremptive Priority CPU scheduling algorithm.**
35. **Implement SRTF CPU scheduling algorithm.**
36. **Implement Round Robin CPU scheduling algorithm.**
37. **Implement Best Fit Memory allocation policy.**
38. **Implement First Fit Memory allocation policy.**
39. **Implement Worst Fit Memory allocation policy.**
40. **Implement Producer -Consumer problem with Semaphore.**
41. **Implement order scheduling in supply chain using Banker's Algorithm**
42. **Implement FIFO Disk Scheduling Algorithms.**
43. **Implement SSTF Disk Scheduling Algorithms.**
44. **Implement SCAN Disk Scheduling Algorithms.**
45. **Implement C-SCAN Disk Scheduling Algorithms.**
46. **Implement Look Disk Scheduling Algorithms.**
47. **Implement Look Disk Scheduling Algorithms.**

Implement Multithreading to create child processes using fork() system call.

48. **Program where parent process sorts array elements in descending order and child process sorts array elements in ascending order.**
49. **Program where parent process Counts number of vowels in the given sentence and child process will count number of words in the same sentence. The above programs should use UNIX calls like fork, exec and wait. And also show the orphan and zombie states**
50. **Write Shell script to copy files from one folder to another**
51. **Write Shell script Count number of words, characters and lines.**
52. **Write Shell script To describe files in different format.**
53. **Write Shell script to find factorial of given number using bash script**
54. **Display first 10 natural numbers using bash script**
55. **Display Fibonacci series using bash script**
56. **Find given number is prime or nor using bash script**
57. **Write shell script to finding biggest of three numbers**
58. **Write shell script to reversing a number**
59. **Write shell script find Sum of individual digits (1234 -> 1+2+3+4=10)**