**TKM College of Engineering, Kollam**

**Department of Computer Science and Engineering**

B.Tech S4 CSE (KTU)

Operating System Lab

**Lab Cycle**

**List of Experiments**

**CYCLE 1**

**Day 1**

1. (a). Introduction to FOSS and various open source tools.

(b). Study on basic Linux commands. (ls, cd, mkdir, man, info, rm, touch, cp, mv etc..),intermediate commands(echo, cat, nano, vi,sudo etc..)

**Day 2**

**2. (a) Linux Directory Structure**

2. (b). Linux commands for operations such as redirection, pipes, filters, job control, changing ownership / permissions of files/ links/ directory

**Day 3**

3. (a). Study on Simple Shell scripting.

Use and write scripts for

* [Echo Command](https://linuxhint.com/30_bash_script_examples/#t2)
* [Comments](https://linuxhint.com/30_bash_script_examples/#t3)
* [Multi-line comment](https://linuxhint.com/30_bash_script_examples/#t4)
* [While Loop](https://linuxhint.com/30_bash_script_examples/#t5)
* [For Loop](https://linuxhint.com/30_bash_script_examples/#t6)
* [Get User Input](https://linuxhint.com/30_bash_script_examples/#t7)
* [If statement](https://linuxhint.com/30_bash_script_examples/#t8)
* [Case Condition](https://linuxhint.com/30_bash_script_examples/#t12)
* [Get Arguments from Command Line](https://linuxhint.com/30_bash_script_examples/#t13)

**Day 4**

4. Write a shell script to implement a scientific calculator.

5. Write simple shell scripts to display:

* + Currently logged user and his log name
  + Your current shell
  + Your home directory
  + Your operating system type
  + Your current path setting
  + Your current working directory
  + Show currently logged number of users

6. Study on shell scripts to extract and list system configurations. Write simple shell scripts to

display:

* + Your OS and version, release number, kernel version
  + Show all available shells
  + Show mouse settings
  + Show computer CPU information like processor type, speed etc
  + Show memory information
  + Show hard disk information like size of hard-disk, cache memory, model etc
  + File system (Mounted)

**CYCLE 2**

**Day 5**

7. Simulate the following CPU scheduling algorithms to find the turn around time and waiting time.

1. FCFS b.) SJF c) Round Robin (Pre-emptive) d) Priority.

**Day 6**

**8.** Implement the banker’s algorithm for deadlock avoidance.

**Day 7**.

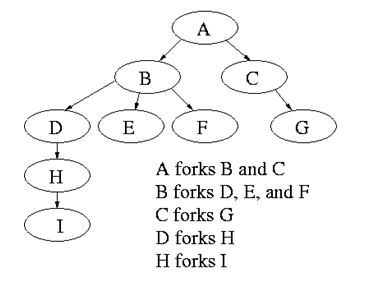
9. Implementation of the Memory Allocation Methods for fixed partition\* a) First Fit b) Worst Fit c) Best Fit

10. Implement page replacement algorithms a) FIFO b) LRU c) LFU

**Day 8.**

11. Familiarization of various system calls in UNIX operating system

1. Program to accept the limiting value ‘n’as input and generate the Fibonacci sequence of n numbers using the child process while the parent process generate the first n prime numbers
2. Generate an N level hierarchy of processes and also display the parent id of process.

**Day 9.** 

12. Implement programs for Inter Process Communication using Shared Memory

**Day 10.**

13. Implement Producer consumer problem using semaphores.

**Day 11.**

14. Write a C program to stimulate the disk scheduling algorithms.

a) FCFS b)SCAN c) C-SCAN.

**Course Outcomes**

CO1. Identify and apply various Linux commands as well as to give administrative controls .

CO2. Develop shell scripts and GUI for specific applications and system configuration needs.

CO3. Illustrate the use of systems calls in Operating Systems

CO4. Implement problems related to inter process communication and synchronization

CO5. Implement modules for Deadlock Detection and Deadlock Avoidance in Operating Systems

CO6. Implement modules for CPU and Disk Scheduling in Operating Systems.

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| **Faculty in charge: Reshma Sheik** | **Class:R4** |

*(DQAC)* *(HOD)*