

CS408ES: OPERATING SYSTEMS LAB

B.Tech. II Year II Sem.

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Course Objectives:

- To write programs in Linux environment using system calls.
- To implement the scheduling algorithms.
- To implement page replacement algorithms
- To implement file allocation methods.
- To understand and implement ipc mechanism using named and unnamed pipes.
- To develop solutions for synchronization problems using semaphores.

Course Outcomes:

- Ability to develop application programs using system calls in Unix.
- Ability to implement interprocess communication between two processes.
- Ability to design and solve synchronization problems.
- Ability to simulate and implement operating system concepts such as scheduling, deadlock management, file management, and memory management.

Use Linux operating system and GNU C compiler.

List of Programs:

1. Write C programs to simulate the following CPU scheduling algorithms:
a) Round Robin b) SJF
2. Write C programs to simulate the following CPU scheduling algorithms:
a) FCFS b) Priority
3. Write C programs to simulate the following File organization techniques:
a) Single level directory b) Two level c) Hierarchical
4. Write C programs to simulate the following File allocation methods:
a) Contiguous b) Linked c) Indexed
5. Write a C program to copy the contents of one file to another using system calls.
6. Write a C program to simulate Bankers Algorithm for Dead Lock Avoidance
7. Write a C program to simulate Bankers Algorithm for Dead Lock Prevention
8. Write C programs to simulate the following page replacement algorithms:
a) FIFO b) LRU c) LFU
9. Write C programs to simulate the following techniques of memory management:
a) Paging b) Segmentation
10. Write a C program to implement the ls | sort command. (Use unnamed Pipe)
11. Write a C program to solve the Dining- Philosopher problem using semaphores.
12. Write C programs to implement ipc between two unrelated processes using named pipe.

REFERENCE BOOKS:

1. An Introduction to Operating Systems, P.C.P Bhatt, 2nd edition, PHI.
2. Unix System Programming Using C++, Terrence Chan, PHI/Pearson.
3. Modern Operating Systems, Andrew S Tanenbaum, 3rd Edition, PHI