Responsibilities of Team Members

Aditya Sharma – Process Management & Scheduling

Designed and implemented Process Control Blocks (PCBs) and process data structures.
Implemented scheduling algorithms:
- First Come First Serve (FCFS)
- Shortest Job First (SJF)
- Round Robin (RR)
- Priority Scheduling

Developed functions for process creation, execution, and termination simulation.
Calculated and displayed metrics such as waiting time, turnaround time, and CPU utilization.

Adarsh Nayan Chaube – Memory Management

Implemented memory allocation strategies:
- First Fit
- Best Fit
- Worst Fit
- Next Fit

Developed functions for allocation, deallocation, and compaction of memory.
Simulated and displayed memory partition usage (free and occupied).
Worked on optional advanced features such as paging and segmentation.

Yash Rana – Synchronization & Deadlock Handling

Implemented synchronization mechanisms using semaphores.
Simulated classical synchronization problems:
- Producer–Consumer
- Dining Philosophers
- Readers–Writers

Designed and implemented Banker’s Algorithm for deadlock avoidance.
Added deadlock detection and recovery functionality.

Jaskeerat Singh – File System & Custom Shell Interface

Developed a mini file system with core operations:
- File creation
- File deletion
- File reading
- File writing

Implemented file allocation methods:
- Contiguous Allocation
- Linked Allocation
- Indexed Allocation

Built supporting functions for managing and displaying file metadata and storage structure.