What is critical section problem? Discuss in detail Peterson’s solution to the critical section problem.

What is Mutual exclusion? Explain Peterson’s solution for mutual exclusion problem.

What is semaphore? Explain the two atomic operations through that semaphore can be accessed. Differentiate between counting semaphore and binary semaphore.

Define pipe? What are the two common types of pipes used on both Unix and windows systems and differentiate them?

Explain in detail IPC using Pipes, FIFOs and differentiate them?

Distinguish between logical verses physical address space.

Explain paging hardware with TLB. Using TLB, is the throughput of the processor will be increased? If yes justify your answer?

Discuss about segmentation with an example.

Explain about Virtual Memory Management in detail.

Compare internal and external fragmentation.

What is the need of page replacement? Consider the following page reference string: 1 2 3 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 6. Find the number of page faults with FIFO, Optimal page replacement and LRU with four free frames which are empty initially. Evaluate which algorithm gives the minimum number of page faults.

What is Demand paging? Explain with advantages and disadvantages.

Define thrashing? Explain its causes and write any two solutions to increase CPU utilization in case of thrashing.

Consider the reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 for a memory with three frames. Trace FIFO, optimal, and LRU page replacement algorithms.

Draw and explain the various page table structures?

Draw and Explain File system structure

Explain File Free Space management approaches.

Explain File Accessing methods?

Explain open(),close(),read(),write() system calls.

Write in brief about the logical structures of Directory?

Describe about the different types of File allocation methods?