Unit : 2 Process Synchronization

Classical Problem of Synchronization

Following are some of the classical problem faced while process synchronization in systems where cooperating processes are present.

Bounded Buffer Problem

- This problem is generalised in terms of the Producer-Consumer problem.
- Solution to this problem is, creating two counting semaphores "full" and "empty" to keep track of the current number of full and empty buffers respectively.

The Readers Writers Problem

- In this problem there are some processes(called readers) that only read the shared data, and never change it, and there are other processes(called writers) who may change the data in addition to reading or instead of reading it.
- There are various type of the readers-writers problem, most centred on relative priorities of readers and writers

Dining Philosophers Problem

- The dining philosopher's problem involves the allocation of limited resources from a group of processes in a deadlock-free and starvation-free manner.

- There are five philosophers sitting around a table, in which there are five chopsticks kept beside them and a bowl of rice in the centre, When a philosopher wants to eat, he uses two chopsticks - one from their left and one from their right. When a philosopher wants to think, he keeps down both chopsticks at their original place.

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