Lab Assignment 3

Process Synchronization

Max Marks: 10

What you will learn:

1. The Semaphore system call family: semget, semop, semctl
2. Implementing P() and V() using semaphore system call
3. Implementation of process synchronization using semaphores

Assignment Details:

Write a solution to the benchmark synchronization problem of producers and consumers as described below.

Shared memory: 1 bounded buffer data structure implemented as shared memory

Startup process: (i) creates bounded buffer
(ii) creates needed semaphores
(iii) and exits

Producer process: do 5 times: produce, sleep for 1 second end do

Consumer process: do 5 times: consume, sleep for 1 second end do

Note: any number of producer and consumer processes can be started after the startup process.

Cleanup process: deletes semaphores, deletes shared memory