Assignment Questions

LAB ASSIGNMENT 7

1. Simulate the Producer Consumer code discussed in the class.

2. Extend the producer consumer simulation in Q1 to sync access of critical data using Peterson's algorithm.

3. Dictionary Problem: Let the producer set up a dictionary of at least 20 words with three attributes (Word, Primary meaning, Secondary meaning) and let the consumer search for the word and retrieve its respective primary and secondary meaning. Note: This can be implemented using either Mutex locks or Peterson's algorithm.

Non-Mandatory (Extra credits):
4. Extend Q3 to avoid duplication of dictionary entries and implement an efficient binary search on the consumer side in a multithreaded fashion.

5. Trace and understand the working of synchronization algorithms like Dijkstra, Dekker's algorithm

LAB ASSIGNMENT 8

(A) Implement the Dining Philosophers and Reader Writer Problem of Synchronization (test drive the codes discussed in the class).

(B) Choose any 2 of the following problems whose details are available in the Downy Book on Semaphores (attached) and implement semaphores based solutions to the same.

(1)Santa Claus Problem
(2) H2O Problem
(3) Baboon Crossing Problem
(4) Dining Hall Problem
(5) Senate Bus Problem