BCSE – III – 1st Semester – 2018

Assignment Sheet – III

Operating Systems Laboratory

1. Write a program that implements the following Readers-Writers Problem using proper synchronization mechanism.

   "A database is shared among some processes, a few of which have the right to write. Any one writer process can be active at a time while simultaneous reading may take place. Reading must be disabled when writing is going to take place. However a writer has priority over waiting readers."

2. Considering the following scenario, accommodate the processes P_j (150 bytes), P_j (100 bytes) and P_k (150 bytes) respectively (arriving consecutively) using (i) first fit and (ii) best fit strategy.

Name	Size (bytes)	Starting memory address
P_0	500	200
P_1	400	1000
P_2	250	1600
P_3	800	2000

   Assume that each memory location is capable of holding only 1 byte and the first location in memory is 0001 and the last address in memory is 9999.

   Your output should show the following:

   The entire memory map including the location and size of each process and hole: i. After P_0 to P_3 are accommodated, ii. After P_i is accommodated, iii. After P_j is accommodated and iv. After P_k is accommodated

3. Write a program to simulate Least Recently Used (LRU) page replacement algorithm for the following page reference string: 9, 10, 11, 7, 12, 8, 7, 6, 12, 5, 4, 3, 10, 11, 12, 4, 5, 6, 9, 4, 5.

   Consider (i) 4 frames and (ii) 5 frames. Compare the results.

Last date of submission: For all groups: November 12, 2018