WEEK 7 – LAB 7 - UE15CS305 – Introduction to Operating System (IOS) Laboratory Problem Statement

Problem Statement: 1

Write a program to implement Banker's algorithm for mutual exclusion problem.

Write a program that implements Banker's Algorithm for deadlock avoidance. Your program should indicate whether the given state is "safe state" and show the "safe sequence". The sample input and output of the program is given below:

// Bankers algorithm for Deadlocks.

Bankers Program Output

Enter the number of processes in a system: 5
Enter the number of resources in a system: 3

Enter the number of instances of resource R1 10
Enter the number of instances of resource R2 5
Enter the number of instances of resource R3 7

Enter the Allocation Matrix

0 1 0
2 0 0
3 0 2
2 1 1
0 0 2

Enter the Maximum Matrix

7	5	3
3	2	2
9	0	2
2	2	2
4	3	3

Process P1

Allocated 0 maximum 7 need 7

Allocated 1 maximum 5 need 4

Allocated 0 maximum 3 need 3

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Process P2

Allocated 2 maximum 3 need 1

Allocated 0 maximum 2 need 2

Allocated 0 maximum 2 need 2

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Process P3

Allocated 3 maximum 9 need 6

Allocated 0 maximum 0 need 0

Allocated 2 maximum 2 need 0

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Process P4

Allocated 2 maximum 2 need 0

Allocated 1 maximum 2 need 1

Allocated 1 maximum 2 need 1

Process P5

Allocated 0 maximum 4 need 4

Allocated 0 maximum 3 need 3

Allocated 2 maximum 3 need 1

AvailabilityR1 3 R2 3 R3 2

Safe Sequence

P2 AvailabilityR1 5 R2 3 R3 2

P4 AvailabilityR1 7 R2 4 R3 3

P5 AvailabilityR1 7 R2 4 R3 5

P1 AvailabilityR1 7 R2 5 R3 5

P3 AvailabilityR1 10 R2 5 R3 7