

Deadlock Avoidance examples(using Banker's Algorithm)

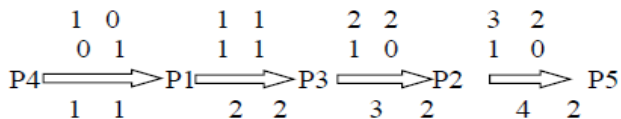
Q26: Suppose we have two resources, A, and B. A has 6 instances and B has 3 instances. Can the system execute the following processes without deadlock occurring?

Process	Allocate		Maximum need	
	A	B	A	B
P1	1	1	2	2
P2	1	0	4	2
P3	1	0	3	2
P4	0	1	1	1
P5	2	1	6	3

Answer

Available: A= 1; B= 0

Process	Need	
	A	B
P1	1	1
P2	3	2
P3	2	2
P4	1	0
P5	4	2



We can execute the processes in the sequence <P4, P1, P3, P2, P5> without deadlock.

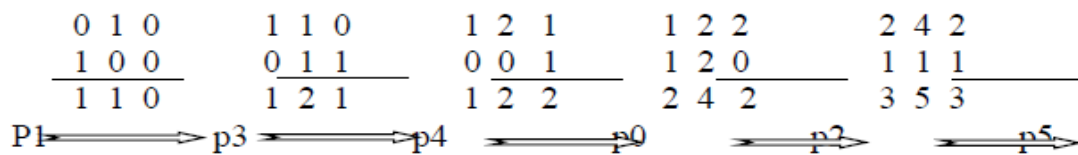
Q27: Consider we have five processes P0, P1, . . . P5 and three resources A, B, and C. Is the executing the following processes in the safe state?

Process	Allocation			Maximum need			Available		
	A	B	C	A	B	C	A	B	C
P0	1	2	0	2	2	2	0	1	0
P1	1	0	0	1	1	0			
P2	1	1	1	1	4	3			
P3	0	1	1	1	1	1			
P4	0	0	1	1	2	2			
P5	1	0	0	1	5	1			

Answer

We find the resources that need for each process

Process	Need		
P0	1	0	2
P1	0	1	0
P2	0	3	2
P3	1	0	0
P4	1	2	1
P5	0	5	1



The process in safe state if they are executed in the sequence <P1, P3, P4, P0, P2, P5>

Q28: Suppose we have five processes and three resources, A, B, and C. A has 2 instances, B has 5 instances and C has 4 instances. Can the system execute the following processes without deadlock occurring, where we have the following?

Process	Maximum need			Allocation		
	A	B	C	A	B	C
P1	1	2	3	0	1	1
P2	2	2	0	0	1	0
P3	0	1	1	0	0	1
P4	3	5	3	1	2	1
P5	1	1	2	1	0	1