Deadlock

Each request requires that the system consider the _____, _____, _____ to decide whether the current request can be satisfied or must wait to avoid a future possible deadlock.

a) resources currently available

b) processes that have previously been in the system

c) resources currently allocated to each process

d) future requests and releases of each process

Given a priori information about the _____ number of resources of each type that maybe requested for each process, it is possible to construct an algorithm that ensures that the system will never enter a deadlock state.

a) minimum
b) average
c) maximum
d) approximate

A deadlock avoidance algorithm dynamically examines the _____, to ensure that a circular wait condition can never exist.

a) resource allocation state
b) system storage state
c) operating system
d) resources

A state is safe, if :

a) the system does not crash due to deadlock occurrence

b) the system can allocate resources to each process in some order and still avoid a deadlock

c) the state keeps the system protected and safe

d) All of these

A system is in a safe state only if there exists a :

a) safe allocation
b) safe resource
c) safe sequence
d) All of these

All unsafe states are :

a) deadlocks
b) not deadlocks
c) fatal
d) None of these

A system has 12 magnetic tape drives and 3 processes : P0, P1, and P2. Process P0 requires 10 tape drives, P1 requires 4 and P2 requires 9 tape drives.

Process

P0

P1

P2

Maximum needs (process-wise : P0 through P2 top to bottom)

10

4

9

Currently allocated (process-wise)

5

2

2

- Find out the safe sequence - P1, P0, P2

If no cycle exists in the resource allocation graph :

a) then the system will not be in a safe state

b) then the system will be in a safe state

c) either a or b

d) None of these

The data structures available in the Banker's algorithm are : (choose all that apply)

a) Available
b) Need
c) Allocation
d) Maximum
e) Minimum
f) All of these

The content of the matrix Need is :

a) Allocation – Available
b) Max – Available
c) Max – Allocation
d) Allocation – Max

Which of the following condition is required for deadlock to be possible?

a) mutual exclusion
b) a process may hold allocated resources while awaiting assignment of other resources
c) no resource can be forcibly removed from a process holding it
d) all of the mentioned

A system is in the safe state if

a) the system can allocate resources to each process in some order and still avoid adeadlock
b) there exist a safe sequence
c) both (a) and (b)
d) none of the mentioned

The circular wait condition can be prevented by

a) defining a linear ordering of resource types
b) using thread
c) using pipes
d) all of the mentioned

Which one of the following is the deadlock avoidance algorithm?

a) banker's algorithm
b) round-robin algorithm
c) elevator algorithm
d) karn's algorithm

What is the drawback of banker's algorithm?

a) in advance processes rarely know that how much resource they will need
b) the number of processes changes as time progresses
c) resource once available can disappear
d) all of the mentioned

For effective operating system, when to check for deadlock?

a) every time a resource request is made
b) at fixed time intervals
c) both (a) and (b)
d) none of the mentioned

A problem encountered in multitasking when a process is perpetually denied necessary resources is called

a) deadlock

b) starvation

c) inversion

d) aging

Which one of the following is a visual (mathematical) way to determine thedeadlock occurrence?

a) resource allocation graph

b) starvation graph

c) inversion graph

d) none of the mentioned

To avoid deadlock

a) there must be a fixed number of resources to allocate

b) resource allocation must be done only once

c) all deadlocked processes must be aborted

d) inversion technique can be used

An edge from process Pi to Pj in a wait for graph indicates that :

a) Pi is waiting for Pj to release a resource that Pi needs

b) Pj is waiting for Pi to release a resource that Pj needs

c) Pi is waiting for Pj to leave the system

d) Pj is waiting for Pi to leave the system

If the wait for graph contains a cycle :

a) then a deadlock does not exist

b) then a deadlock exists

c) then the system is in a safe state

d) either b or c

If deadlocks occur frequently, the detection algorithm must be invoked

_____

a) rarely

b) frequently

c) None of these

The disadvantage of invoking the detection algorithm for every request is :

a) overhead of the detection algorithm due to consumption of memory

b) excessive time consumed in the request to be allocated memory

c) considerable overhead in computation time

d) All of these

A deadlock eventually cripples system throughput and will cause the CPU utilization to _____.

a) increase

b) drop

c) stay still

d) None of these

A computer system has 6 tape drives, with ‘n’ processes competing for them. Each process may need 3 tape drives. The maximum value of ‘n’ for which the system is guaranteed to be deadlock free is :

a) 2

b) 3

c) 4

d) 1

A system has 3 processes sharing 4 resources. If each process needs a maximum of 2 units then, deadlock :

a) can never occur
b) may occur
c) has to occur
d) None of these

‘m’ processes share ‘n’ resources of the same type. The maximum need of each process doesn’t exceed ‘n’ and the sum of all their maximum needs is always less than m+n. In this setup, deadlock :

a) can never occur

b) may occur

c) has to occur

d) None of these