# Lecture Summaries

## l9

CS343 operating systems Methods for Handling Deadlocks . Ensure that the system will never enter a deadlock state and then recover Deadlock Prevention . the system must have at least one of the necessary 4 conditions for deadlock is not met, such as a circular-wait condition .

system is in safe state if there exists a sequence P1, P2, ..., Pn> of all the processes in the systems such that for each Pi, the resources that Pi can still request can be satisfied by currently available resources + resources held by all the Pj, with j I that is: If Pi resource needs are not immediately available, then Pi can wait until all Pj have finished .

process Pi may request resource Rj . request can be granted only if converting request edge to assignment edge does not result in the formation of a cycle in the resource allocation graph Banker’s Algorithm . Suppose that process Pi requests a resource, it may have to wait .

process Pi may request at most k instances of resource type Rj Allocation: n x m matrix . if Max [i,j] = k, then process Pi is currently allocated more instances of Rj to complete its task . Let Work and Finish be vectors of length m and n, respectively .