



Chapter 8 Important Points

This is a summary of the parts of Chapter 8 that you should understand and be able to explain. In addition you should be able to solve problems related to them.

1. System model - resource allocation graphs and how they are used and changed as a result of resource requests, allocations, and releases.
2. Examples of deadlock in multi-threaded applications.
3. Deadlock Conditions:
 - (a) Mutual exclusion
 - (b) Hold and wait
 - (c) No preemption
 - (d) Circular wait
4. How deadlock relates to resource allocation graphs - necessary and sufficient conditions (e.g. cycles in graph)
5. Deadlock prevention - definition and methods (Havender's Solution)
6. Deadlock avoidance - definition and methods (Banker's Algorithm, Resource Allocation Graph reductions)
7. Safe and unsafe states and deadlock states
8. Deadlock detection, methods with single-unit resources and more generally
9. Deadlock recovery - methods and associated costs (process termination, resource preemption: victim selection, rollback)