Operating System 2021
Quiz #5

- For a deadlock detection
  - A cycle in a wait-for graph may indicate a deadlock., A variation of the banker's algorithm can be used to detect deadlocks., An unusual low load on server machines may indicate a deadlock.

- About semaphores for resource allocation graphs (RAGs)
  - A directed edge from a process to a resource type indicates that a process requests and instance of the resource type., If every resource type has only a single instance, then a cycle in the RAG is a necessary and a sufficient condition for a deadlock.

- The Dining Philosophers problem
  - Deadlocks can be avoided by always picking up forks in a defined order., Deadlocks can be avoided by having a waiter server spaghetti to one philosopher at a time only., Solutions preventing deadlocks may still lead to starvation.

- Necessary for a deadlock
  - Mutual exclusion, Hold and wait, Circular wait, No preemption

- True for deadlock avoidance
  - A safe state is a state from which no deadlock can occur., The banker's algorithm avoids deadlocks by granting resource requests only if the resulting state is safe., The banker's algorithm requires that all active resource allocations are known.

- How can deadlocks be prevented from occuring?
  - Deadlocks can be prevented by always dropping all resources before allocating a new set of resources., Deadlocks can be prevented by always allocating resources in a certain order and by dropping all resources if a lower numbered resource is required., Deadlocks can be prevented by making all resources sharable.