CS 314-001 Operating Systems, Spring 2020
Quiz #5 on February 18, 2020

List of the Possible Questions

#1: What is “race condition”?

#2: How can “race condition” happen? Show “how” using an example.

#3: What is “critical section”? 

#4: What is “mutual exclusion”? 

#5: What does “atomic” in “atomic operations” mean?

#6: What is “a binary (or mutex) semaphore”?

#7: What are the two primary system calls for manipulating a semaphore?

#8: Explain how a semaphore can prevent race condition.

#9: What are the two operations of a semaphore (just name them)?

#10: What “wait” system call to a semaphore exactly performs?

#12: What “signal” system call to a semaphore exactly performs?

#13: Why must the two system calls for semaphores (“wait” and “signal”) be atomic operations (explain the reason)?

#14: What are “counting semaphores” (how are “counting semaphores” different from “binary (mutex) semaphores”)?

#15: Operating systems use “queue (FIFO data structure)” for managing processes blocked on a semaphore. Why is FIFO-queue used (the best reason for using FIFO structure)?

#16: Is starvation possible for programs using semaphores? If yes, show how. If not, explain why not.

#17: What is “process deadlock”?

#18: Is process deadlock possible for programs using semaphores? If yes, show how. If not, explain why not.