

Operating Systems: Homework #3

Due on February 19, 2016 at 11:59pm

Professor Qu

Monday & Wednesday 3:30pm — 5:17pm

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Problem 1

- Can there be a thread blocked on a semaphore with non-negative value?
- Can a semaphore have a negative value without having any threads blocked on it?

SOLUTION

Yes, because a thread is blocked on 0, and 0 is non-negative. If the value is negative, there are no more resources allocated to use the semaphore.

Yes, because if there are no threads requesting it then it can have a negative value.

Problem 2

In the following code, four processes produce output using the routine `printf` and synchronize using three semaphores 'R', 'S' and 'T.' We assume function 'printf' won't cause context switch.

SOLUTION