Operating Systems: Homework #3

Due on February 19, 2016 at 11:59pm

Professor Qu
Monday & Wednesday 3:30pm — 5:17pm

Nicholas Land

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 allocate to use the semaphore.

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

Problem 2

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