Chue Zhang

Instructor Nikita

Semaphore vs P-Thread

The easiest way to describe the difference between a P-thread and a semaphore is that in P-thread, let’s say we have rest rooms with keys. A person occupies the toilet with that key and no one else can access it except for the person with the key inside the bathroom. When that person is done, then the next person in line can use the bathroom.

A semaphore is basically a more advanced P-thread in the sense that instead of having 1 key, they have “n” number of keys that all can unlock “n” amounts of bathrooms. Whenever a bathroom is occupied, you decrement from the total amount of keys “n” until there is 0. Then whenever a bathroom is not occupied anymore, a person can enter. So, in a sense, semaphore is p-thread with extra steps.

In the 7th lab, what was demonstrated was different smokers unlocking the lock to grab the resources they needed whenever available and if this was done with p-thread, the agent would have had to place the resource and whoever was in queue first, would take the selected resources regardless if they needed it or not.

In a nutshell, Semaphores allow for concurrency with certain restrictions whereas P-thread does not allow for concurrency and has everyone wait.