

# Semaphore is a Special Integer

A semaphore is like an integer, with three differences:

1. You can initialize its value to any integer, but after that the only operations you are allowed to perform are *increment* ( $S++$ ) and *decrement* ( $S--$ ).
2. When a thread decrements the semaphore, if the result is negative ( $S \leq 0$ ), the thread blocks itself and cannot continue until another thread increments the semaphore.
3. When a thread increments the semaphore, if there are other threads waiting, one of the waiting threads gets unblocked.