

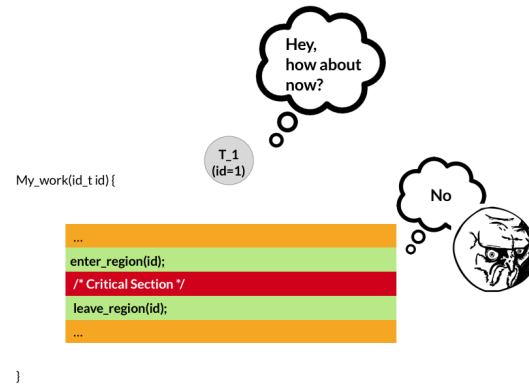
Vocabularies

• Peterson's Algorithm

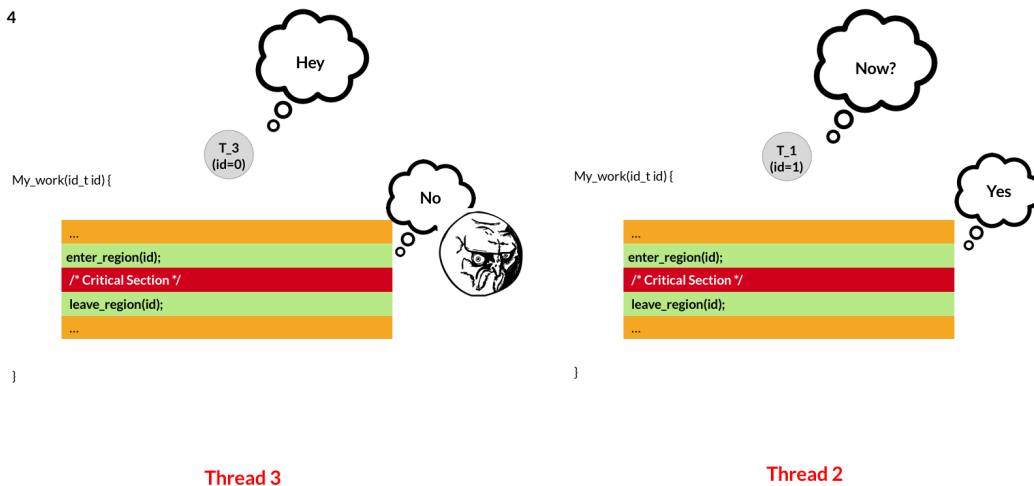
- is a concurrent programming algorithm for mutual exclusion that allows two or more processes to share a single-use resource without conflict, using only shared memory for communication



3



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- **Lamport's Bakery Algorithm**

- Is one of the simplest known solutions to the mutual exclusion/critical section problem for the general case of N process

- **Synchronization**

- Is the concurrent execution of two or more threads that share critical resource to avoid critical resource use conflicts

- **Disable Interrupts**

- Is a type of interrupt that postpones interrupts until a later time

- **Spin Lock**

- Is a loop that keeps a thread from going beyond the loop till a certain condition is met

```
1 while(cantGoOn) {};
```

- **Priority Inversion**

- Is a problem a low priority process acquiring a resource that a high priority process needs, and then being preempted by a medium priority process, so the high priority process is blocked on the resource while the medium priority one finishes

- **Example**

Mars Pathfinder Rover

- **Sleep Lock**

- Is a type of thread where locking condition is achieved by putting thread to sleep (into “blocked” state) while waiting to acquire a lock lock

```
wait_event(queue, condition)
wake_up(wait_queue_head_t *queue);
```

- **Condition variables**

- Is an explicit queue that threads can put themselves on when some state of execution (i.e., some condition) is not as desired (by waiting on the condition); some other thread, when it changes said state, can then wake one (or more) of those waiting threads and thus allow them to continue (by signaling on the condition)

- **Semaphores**

- Is a variable or abstract data type used to control access to a common resource by multiple processes in a concurrent system such as a multitasking operating system.

```
wait_event(queue, condition)
wake_up(wait_queue_head_t *queue);
```

- **Signal**

- Is a function that unblock one threads currently blocked on the specified condition variable

- **Broadcast**

- Is a function that unblock all threads currently blocked on the specified condition variable

1 Lecture Video

1.