HomeWork 4
Task 1 A fuel space station
A long time ago in a galaxy far far away...

War! The galaxy is in chaos. The galactic empire needs to refuel their tie-fighters to fight the ongoing rebellion. The fearsome death star only has two ports to fuel tie fighters in. It also has a limited amount of fuel in its fuel tanks. The death star cannot refuel ships and itself at the same time. The tie-fighters also need nitrogen and quantum fluid to operate correctly. To simulate fueling the ships engineers on the death star have created a simulation to refuel ships. This simulation is in Java and uses monitors to refuel the ships in parallel and avoiding deadlocks.

The program is structured in three files theFuelSpaceStation.java; spacestation.java; and ships.java. theFuelSpaceStation starts the threads and the spacestation. The spacestation has 4 synchronized monitor methods: refuelN, refuelQ, fillNTank, fillQTank. These methods are used to refuel the ships, and refuel the spacestation respectively. These methods uses wait() and notifyAll() to take exclusive control over the methods.

The solution is kind of fair, but there is no guarantee that the ships waits for an equal amount of time. It is kind of like the bird solution with the semaphores.

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