

CS 511 – Quiz 5: Monitors

16 October 2023

Names:

Pledge:

Exercise 1. We wish to model vehicles and trucks in a gas station. The gas station has:

- six fuel dispensers used by vehicles; and
- one refueling dispenser used by trucks to refuel the gas station.

Each fuel dispenser can serve one vehicle. Thus at most six vehicles can be filling gas at any given time. Similarly, at most one truck can refuel the station at any given time. Moreover, when a truck refuels the gas station, no vehicles are allowed to be filling gas at that time. You may ignore issues related to fairness. You may choose to use the built-in wait-set (in which case you would need to add the `synchronized` qualifier to the methods) or to use condition variables. **IMPORTANT:** Your code must compile.

```
class GS {
2   int g
   GS() {
4     g=0
   }
6   void start_gasUp() {
      // complete
8   }
   void done_gasUp() {
10    // complete
   }
12  void start_refuel() {
      // complete
14  }
   void done_refuel() {
16  }
}

18
GS gs = new GS()
20 final int NV = 100 // no of vehicles
22 final int NT = 10 // no of trucks
24
NV.times {
  Thread.start { // Vehicle
```

```
    gs.start_gasUp()  
    // gas up  
    gs.done_gasUp()  
  }  
}  
  
NT.times {  
  Thread.start { // Truck  
    gs.start_refuel()  
    // gas up  
    gs.done_refuel()  
  }  
}
```