Take Home Coding Exercise - Simulation Project.

1. State Design Pattern is used to design the simulation application.
2. Singleton Design Pattern is used for all concrete state classes.
3. Sim.cpp file contains the main function.
4. A factor value 100 is used to reduce the simulation test hours. It reduces the unloading time from 5 mins to 3 seconds and total simulation time to 43.2 mins from 72 hours. We can still reduce it.
5. State Executor is used to handle each truck in a separate runnable task and Unloading class has a runnable task to handle the waiting queue. If we give large value for number of trucks and unloading class, then it will slow down the application because thread context switching time.

If we use multi core system, we can avoid frequent thread context switching time.