The case study is an airport parking lot, and we are going to develop the Parking Lot class.

First Version

There will be a stub object of Ticket. Ticket will have three attributes: days, hours and minutes. There will be a Ticket array containing the three values.

The first requirement is to calculate the amount owed by calculate the amount of time parked and applying the rules to calculate the fee.

Parking Lot Fee rules

* The first 30 minutes of the first day are free. (This is in case you pull into the lot and can’t find a space!)
* Time is billed at $2 per hour over that, with a daily max of $15
* Every 7th day is free
* Lost ticket gets charged $75
* We always round time up to the hour.

The second requirement is to print out a report at the end of the week that lists how much money was collected. (for test purposes generate the report when the last car is processed)

The third requirement is to calculate the number of parking spots available. If a car enters the lot, one spot is taken, when a car leaves one spot becomes available. Assume 4 spots (it’s a small airport). If the parking lot is full, turn on a lot full sign, once a car leaves turn off the lot full sign.

Implementation

Input

Read in a file or manually input a file with

* Car ID
* Time in
* Time out
* Lost Ticket Flag (Y/N)

Output

Every time a car record is processed

Output a record with

Number of cars parked at the time the car in question parks (including the new car)

Lot Full Sign (Y/N)

Car ID

Total Time Parked

Lost Ticket (Y/N)

Fee Collected

Number or cars in lot after car left