Object Oriented Programming
Homework 4
Objects and Linked Lists

1 Goal

The purpose of this lab is to take what you have learned so far in this course and put it into a practical application to make complete sense of it. This lab has one Big exercise that has been distributed into parts. You will bring all the parts together into making a working code. You can use the code that you created in the previous labs and lectures to speed up the process but that will not be enough to do the lab. Be mindful of the time!

You can access Java Documentation at this link.

2 Problems

We will read the problems carefully as one will lead to another.

2.1 Problem 1 - Creating Car class

You will create a Car class based on the data provided in the cars.text file. When generating a car, it will read the text file and fill in the values of one of the cars from the text file. This means that it will make sense that you first create an array of Car with the defined values and when creating a new car, copy the details from one of the index values of the cars array.

2.2 Problem 2 - Making a Truck

This truck is a delivery truck that will deliver cars to a location. Cars are loaded in such a way that the last loaded car comes out at first when being unloaded. Use appropriate data structure to do that. The truck can load 20 cars maximum

2.3 Problem 3 - Transporting Ferry

A Ferry can hold multiple trucks and the truck that is loaded first, comes out first. The Ferry can load a total of 50 trucks. Use appropriate data structure to do that.

2.4 Problem 4 - Loading and Unloading

Your program will generate random number of cars between 200 to 1000. You will then calculate the total number of trucks that can be loaded with the cars. Once loaded, the trucks will be loaded on to a Ferry. The Ferry will have an unload function, which when called, will first unload all the trucks and then unload all the cars within those trucks, which means that the trucks will also have an unload function.