CSC148 Prep 2 Coding Exercise
(Due: May 10, 10:00 pm on Markus)

Remember, no late submissions accepted. Make sure to submit timely. Do not leave it for the last minute - internet connection may go down, server may be overloaded - there are many things that can go wrong - unfortunately they do not count as valid reasons for accommodation.

A car simulation

In this exercise, you'll implement a simple car simulation. This is another chance to brush up on your Python skills and apply what you've learned in lecture.

Learning Goals:

- Review Python basics

- Design and implement some classes based on the given starter code.

Super is a new car rideshare service which uses a computer system to manage its autonomous vehicles. The managing system contains a collection of cars, each uniquely identified by a string. The manager can add a new car to the collection, move a car, and get the current location of a car.

A **Super** car has an initial amount of fuel and starts at (0,0) on a 2-D grid. Cars can move to a new point (both positive and negative coordinates) on the grid, but only move in horizontal and vertical lines, and cannot travel diagonally.

When cars move, they lose 1 unit of fuel per 1 unit of distance. If you try to move a car farther than it can go with its remaining fuel, the car stays in its original position, and does not use any fuel. (In other words, this method will "fail silently." In general this is a bad practice, and we'll explore better ways of handling situations like this later in the course.) Cars can move multiple times, as long as they have enough fuel.

Now, read through the starter code carefully. We have begun the CarManager class for you, but you are responsible for designing and implementing an appropriate Car class and filling in the CarManager methods to make use of your class.