Sample Exam

This exam has two parts. In the first part you will implement 5 functions that are like the functions done in homework 1 and 2. If you get stuck on a function implementation, **move on to the next and return to it later**. Do not spend the entire exam stuck on one function or you will not get credit for the rest of the exam.

Part 1

To study for this part of the exam, redo homework assignments 1 and 2.

Part 2

Classes and File Reading

1. Create a class called Car in a file called **car.py**
   The class Car should have the following instance variables:
   - color – this is the color of the car
   - engine_type – this is the type of engine the car has
   - gas_tank – keeps track of how many gallons of gas are in the tank
   - odometer – keeps track of the car mileage

   The Car class should have the following class methods:

   - __init__ - the init method should have the color, engine_type, gas_tank, and odometer as parameters to initialize the car.
   - __str__ - the str method should return the color of the car concatenated with the engine type of the car.
   - drive – if the engine type is “4_cylinder” then drive should reduce the gas_tank by 3 gallons and increase the odometer value by 90 miles. If the engine type is “V8” then the drive method should reduce the gas_tank by 4 gallons and increase the odometer by 50 miles.
   - get_gas_tank – returns the number of gallons of gas left in the car.

- get_odomoter – returns the mileage of the car

2. Create a file called **car_tester.py** that reads in the file cars.txt. The file, cars.txt contains data on 5 cars. Each line of the file contains the color, engine type, gas tank, and odometer readings. Each value is separated by a whitespace. Read in this file and create five car objects. Store the 5 car objects in a list.
   Call the class methods on the first and second cars read from the file and confirm the results are as expected. The first and second cars are stored in index 0 and 1 of the list.
   Note: the gas tank and odometer readings will be read in as strings. You should convert those strings to integers before creating the Car object.