Exercise #3 (No computers needed)

This week you will create a design (including a class hierarchy) for the used car inventory program in Assignment 2. You will also develop a test plan for that program.

(5 pts) Design for the automobile inventory program:

There are the operational requirements for the inventory program:
You will have a class to hold the inventory. The information for each vehicle will be in a separate object. The inventory class will use a dynamic array to hold the objects for vehicles currently in the inventory. Your array will start with only 2 elements and you must properly double the capacity whenever it is full when you need to add a vehicle.

Your program must perform the following activities: create a list, add items, search for a vehicle, calculate the price and payments for a vehicle, remove a vehicle, and display the inventory. Which of these should be member functions of the List class, and which will be functions in your program?

The vehicle class will have 2 derived classes motorcycles and automobiles.

Provide a class hierarchy and the algorithms necessary for the different functions. Conduct the necessary research to get information such as Oregon taxes, or the formula to calculate the payments.

(2 pts) Input validation:

What input will you require or need for your program? How will you test the input to ensure it is appropriate or correct? A couple of items are listed in the requirements. What else can you check?

(3 pts) Develop a test plan:

How will you test this program? Testing the input may be obvious, but what else? A test plan should follow the logic flow through your program. Where does the logic change? We call that a boundary and it is important to test the boundaries to ensure your logic is correct on both sides of the change. What boundaries do you have in your design? Here’s one- the boss wants prices over $10,000 verified when entering them. If necessary specify specific values to test.