CSC 2110 Computer Science I
Programming Project
Due Date: 04/14/2020 11:59 PM
80 points + 10 points extra credit = 90 points

Submission Format (15 points):

1. The project should be submitted on Canvas.
2. Include all files in one folder and compress your folder.
3. Includes all the following files (*Submission Checklist*):
   A. The **code** and the files necessary to compile and test the project. Don't list the code in the word document. You must send the whole project.
   B. **Test Plan**: Showing how you tested the program (show the steps of your testing procedure along with screen shots). **(10 points)**
   C. A **short description** of the design plan and general comments. **(5 points)**

Build Specifications (35 points)

Write a C++ program to manage a **Car Dealership System**. The main user is an employee at the dealership.

1. The system should **load a catalog** of all cars in the inventory, which includes <u>new</u> and <u>old</u> cars. (include at least 5 new cars and 5 old cars).

2. A user can **search the inventory**: The user of the system can search the inventory by using the *make of the car*, *model of the car*, or by *category* (new or old cars).

3. A user can **sell or lease** new and old cars.

4. A user can **return** a leased car into the inventory.

5. **Add** new and old cars into the inventory.

The program must have the following properties (20 points):

-   You should do **error handling** (Ex: An employee cannot add a car that already exists) (5 points)
-   You should use **inheritance**: Example: You can design a generic car class, then design derived classes for new and old cars. The car class may have the following data members: *VIN* (string), *Make* (string), *Model* (string), *year* (integer number), *price* (floating number), and *category* (string). The new car class can have *warranty provider* (string). Old car class can have for example *mileage* (integer number). (10 points)
-   You should use **polymorphism**.: Use functions overloading and overriding. (5 points)

Also, **design a menu** (should still appear until the exit option is chosen) in the Main program that has the following options implemented to test your classes' functionality **(10 points):**

1. Search Inventory
2. Sell/Lease cars
3. Return a leased car
4. Add cars to inventory
5. Exit

Extra Credit: (10 points)

-   Save and load data from and to a file.
-   Show a list of cars within a given price range.