CSC 2110
Programming Project
80 points + 20 points extra credit

Submission Format (15 points):

1. The project should be submitted on Canvas.
2. Include all files in one folder and compress your folder. *zip file*
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. *main. cpp*
    B. **Test Plan**: Showing how you tested the program (show the steps of your testing procedure along with screen shots). **(10 points)** ← *Screen shots*

    UML → [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** new and old cars.   *look*
                                            a bank code
4. **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 cars
3. Add cars to inventory.
4. Exit

Extra Credit: (10 points)

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