

**CSC 2110 Computer Science I**  
**Programming Project**  
**Due Date: 12/04/2017 11:00 PM**  
**80 points + 10 points extra credit = 90 points**

**Submission Format:**

1. The project should be submitted using the Blackboard.
2. Include all files in one folder and compress your folder using (.zip) not rar.
3. Includes all the following files:
  - A. The **code** and the files necessary to compile and test the 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)**

**Final Project:**

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

**Build Specifications (35 points)**

1. The system should **load a catalog** of all cars in the inventory, which includes new and 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)
- You should use inheritance, polymorphism, and aggregation. 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)

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.