

## CARS AND USED CARS

### Objectives: Collections, Objects, Inheritance

**Task:** Hold information about Car inventory using a collection of Car objects, including a UsedCar subclass.

#### What will the application do?

- Display a set of at least 6 cars (at least 3 new and 3 used)
- Let the user select one of the cars to purchase.
- Print out details of the car they chose, remove it from the list, and print the whole list again.

#### Build Specifications

- Create a class named Car (5 points) to store the data about a car. This class should contain:
  - Data members for car details
    - A string for the make
    - A string for the model
    - An int for the year
    - A decimal for the price
  - A no-arguments constructor that sets data members to default values (blanks or your choice)
  - A constructor with four arguments matching the order above
  - A ToString() method returning a formatted string with the car details.
    - This method comes from the base object class. Override it.
- Create a subclass of Car named UsedCar (3 points). UsedCar should contain:
  - Data member for used car details:
    - A double for mileage.
  - Constructor: Takes five arguments and calls the four-argument constructor for Car and saves the mileage argument
  - ToString: Returns a formatted string with the used car details
    - This method comes from the base object class. Override it.

- Create an instance of List<Car> that can hold instances of Car and any class derived from Car. **Make this list a public static member of Car.**
  - In your main, create at least three Car instances and at least three UsedCar instances and add these six instances to the list
  - Add a public static method to Car called **ListCars** that loops through the list and prints out each member and its index in the list. (Hint: Use a regular for loop, not a foreach loop so you can print out the index.)
  - Add a public static method to Car called **Remove** which takes an integer parameter and removes the car whose index is that parameter
- In your main, print out the list (by calling the ListCar method). Then ask the user which car they would like to buy, by number (the index of the car).
- Print out the details for the chosen car. (Think about how to print out this information: You'll access the item in the list by index, and call Console.WriteLine.)
- Remove the chosen car from the list
- List all the cars again

#### Hints:

- Use the right access modifiers (public/private/protected)!
- You can just use \t tab escape characters to line things up, or if you want to get fancier, look up text formatters.

