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**Ex03 - Garage Management System**

*Specifications*

**Ex03.ConsoleUI**

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| Modifier | Type (Class, Struct, Enum) | Name | Explanation |
| Public | Class | GarageUserInterface | Handles all communication with the user, in this case through the console.  Calls the logic’s methods according to user’s request. |
| Public | Class | Program | Contains the program’s entry point |

**Ex03.GarageLogic**

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| Modifier | Type (Class, Struct, Enum) | Name | Explanation |
| Public | Abstract Class | Vehicle | An abstract class that is the common grounds for all vehicles. Is the parent class to Car, Motorcycle and Truck. |
| Public | Abstract Class | Engine | An abstract class that represents a vehicle’s energy source. Is the parent class to FuelEngine and Electric Engine. |
| Public | Nested Enum | Engine.eEngineType | A nested Enum that represents the type of Engine. |
| Public | Class | FuelEngine : Engine | Represents an engine that runs on fuel. Is Engine’s child, extends it by adding a fuel type member. |
| Public | Nested Enum | FuelEngine.eFuelType | Represents all type of fuels available. Nested in the FuelEngine class. |
| Public | Class | ElectricEngine : Engine | Represents an engine that runs on electricity. Is Engine’s child. |
| Public | Class | Tire | Represents a single tire. |
| Public | Class | Car : Vehicle | A car, derived from Vehicle. Inherits vehicle’s methods and members and adds on the data members car color and number of doors. |
| Internal | Nested Enum | Car.eColor | Possible car colors, hence nested in the Car class. |
| Public | Class | Motorcycle : Vehicle | A motorcycle, derived from Vehicle. Inherits vehicle’s methods and members and adds on the data members license type and engine volume. |
| Internal | Nested Enum | Motorcycle.eLicenseType | Possible motorcycle’s license types, hence nested in the Motorcycle class. |
| Public | Class | Truck : Vehicle | A Truck, derived from Vehicle. Inherits vehicle’s methods and members and adds on the data members cargo volume and is it carrying refrigerated goods. |
| Public | Class | VehicleCreator | The only class that creates vehicles in the project. |
| Public | Nested Enum | VehicleCreator.eVehicleType | The available types of vehicle to create, hence nested in VehiceleCreator. |
| Public | Class | ValueOutOfRangeException : Exception | An Exception class derived from .NET’s Exception class, meant for handling exceptions of out of range values (ie. Trying to fuel over the max limit) |
| Public | Class | GarageVehicle | A class that represents a vehicle in the garage, holds in it a Vehicle (Composition), its current status and the relevant owner details. |
| Public | Nested Enum | GarageVehicle.eVehicleStatus | All possible vehicle statuses available for a vehicle in the garage, hence nested in the GarageVehicle class. |
| Public | Class | Garage | Represents the Garage itself, holds a collection of Garage Vehicles and contains all the relevant methods that can be performed in it. |
| Public | Enum | eServiceOptions | Represents all possible services that can be done in the garage. |
| Public | Struct | Param | A struct intended to hold a certain parameter’s details – its name, requirements and type. In our system, a collection of those is used to get all the relevant parameters for the full creation of a vehicle. |

**Diagram

Description automatically generated**

**Class Diagram**