

Ex03 - Garage Management System

Specifications

Ex03.ConsoleUI

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

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.

Class Diagram

