Student Name: Tal Harpaz , ID: 208754622

Student Name: Ariel Ilishayev , ID: 207627985

**Classes and Enums overview:**

GarageLogic interface:

Classes:

1. ElectricCar - Represents an electric car. Inherits from the ElectricVehicle class. It has properties for color, number of doors, and a fixed number of wheels (5). The class overrides methods for charging the battery, getting field descriptors (for user input validation), getting vehicle details, and inflating the wheels to their maximum air pressure. It also defines constants for minimum and maximum air pressure in the wheels, as well as minimum and maximum battery time remaining.
2. ElectricMotorcycle - Represents an electric motorcycle. It inherits from the ElectricVehicle class and has properties for license type and engine volume. The class also has a fixed number of wheels (2), and overrides the same functions like ElectricCar, defines the same constants.
3. ElectricVehicle - Is an abstract base class that represents electric vehicle. It defines properties for battery time remaining and maximum battery time. It also includes an abstract method ChargeBattery that must be implemented by derived classes. Additionally, it overrides methods for getting field descriptors and vehicle details.
4. FieldDescriptor - Represents a descriptor for a field or property of a vehicle. It encapsulates the field's name, data type, a validation function to check user input, and an optional action to set the field's value on the vehicle object. This class serves as a metadata container and facilitates dynamic user input handling, validation, and value assignment for vehicle properties.
5. FuelCar - Represents a fuel-powered car with properties like color, number of doors, and a fixed number of wheels. It inherits from FuelVehicle and overrides methods for refueling, getting field descriptors for user input validation, getting vehicle details, and inflating the wheels to maximum air pressure. It also defines constants for wheel air pressure limits, fuel amount limits, and the default fuel type.
6. FuelMotorcycle - Represents a fuel-powered motorcycle. It inherits from the FuelVehicle class and has properties for license type and engine volume. The class has a fixed number of wheels (2) and overrides the same functions like FuelCar, defines the same constants.
7. FuelTruck - It inherits from the FuelVehicle class and has properties for transporting hazardous materials and cargo volume. The class has a fixed number of wheels (12) and overrides the same functions like FuelCar, defines the same constants.
8. FuelVehicle – Very similar to the ElectricVehicle class but an abstract base class that represents electric vehicle, has it's energy related abstract function and fields(fuel).
9. Garage -
10. Enums:
11. eCarColor – A Enum which represents the options of colors for a car vehicle(Fuel and Electric). The options are: Yellow, White, Red, Black
12. eDoorsNumber – A Enum which represents the options of number of doors for a car vehicle(Fuel and Electric). The options are: Two, Three, Four, Five.
13. eFuelType – A Enum which represents the options of a fuel type – Relevant only for the fuel vehicles(Car, motorcycle and truck). The options are: Soler, Ocatn95, Octan96, Octan98. A fuel car has Octan95, a fuel motorcycle has Octan98 and a truck has Soler.
14. eLicenseType – A Enum which represents the options of a license type - Relevant only for the motorcycles(fuel and electric). The options are: A, A1, AA, B1.
15. eVehicleStatus – A Enum which represents the options of a vehicle status. The options are: UnderRepair, Repaired, Paid. Every new vehicle that is added to the garage is at status UnderRepair.
16. eVehicleType – A Enum which represents the options of the vehicles in the garage. The options are: FuelMotorcycle, ElectricMotorcycle, FuelCar, ElectricCar, FuelTruck.