**C17 EX03 - Garage management**

**Shiran Shaut – 308018969**

**Noy Davidyan – 308121227**

Classes:

* Vehicle:

Abstract class that represents vehicle.

Properties: number of wheels, maximum air pressure, wheels, license number, model name, engine, wheels filled to maximum (Boolean member).

* Car:

Abstract class that represents car.

Inherent from Vehicle.

Properties: number of doors, car color.

* Motorcycle:

Abstract class that represents motorcycle.

Inherent from Vehicle.

Properties: license type, engine volume.

* Truck:

Abstract class that represents truck.

Inherent from Vehicle.

Properties: carrying dangerous materials (Boolean member), maximum carrying weight.

* FuelCar

Sealed class that represents fuel type car.

Inherent from Car.

Properties: fuel type, number of wheels, maximum liter fuel, maximum air pressure.

* ElectricCar:

Sealed class that represents electric type car.

Inherent from Car.

Properties: number of wheels, maximum battery time, maximum air pressure.

* FuelMotorcycle:

Sealed class that represents fuel type motorcycle.

Inherent from Motorcycle.

Properties: fuel type, number of wheels, maximum liter fuel, maximum air pressure.

* ElectricMotorcycle:

Sealed class that represents electric type motorcycle.

Inherent from Motorcycle.

Properties: number of wheels, maximum battery time, maximum air pressure.

* FuelTruck:

Sealed class that represents fuel type truck.

Inherent from Truck.

Properties: fuel type, number of wheels, maximum liter fuel, maximum air pressure.

* Engine:

Abstract class that represents engine.

Used as an engine for vehicle.

Responsible for the vehicle's energy status (energy left / maximum energy / energy percent left).

Properties: current energy, maximum energy.

* FuelEngine:

Sealed class that represents fuel type engine.

Inherent from Engine.

Properties: fuel type.

\* Inherent from engine the properties: current energy, maximum energy.

* ElectricEngine:

Sealed class that represents electric type engine.

\* Inherent from engine the properties: current energy, maximum energy.

* CreateVehicle:

Class that responsible to produce a certain type of vehicles.

* GarageManagement:

Class that responsible for garage operations

Properties: current vehicle in garage, list of vehicles in garage (save license number, vehicle in garage type in dictionary).

* ValueOutOfRange:

Class that defines an exception from the range, inherits from Exception.

Properties: minimum value, maximum value.

* Wheel:

Class that represents wheel.

Properties: current air pressure, maximum air pressure, manufacturer name.

* VehicleInGarage:

Class that represents vehicle in garage.

Properties: owner name, owner phone number, vehicle status in garage, vehicle type.

* Program:

Main class – run the UI.

Enums:

* eFuelType – types of fuel
* eMainMenu – UI garage options
* eEngineType – types of engine
* eMotorcycleMembersToInitialize – properties of motorcycle to initialize
* eLicenseType – types of license
* eTruckMembersToInitialize – properties of truck to initialize
* eCarMembersToInitialize – properties of car to initialize
* eNumberOfDoors – number of doors in car
* eCarColor – optional colors of car
* eVehicleType – types of vehicles
* eEngineMembersToInitialize – properties of engine to initialize
* eVehicleStatus – status in garage.

