2024

OOPS - Vehicle Management System

IMPLEMENTATION EVALUATION

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Doc ID	Author	Language	Page No.
OOPS/IMPL/E1	KVVN	En	1

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Introduction

Creating a program to manage a fleet of vehicles. Implement the following:

Class and Object:

- Create a Vehicle class with properties like brand, color, and speed.
- Write a constructor to initialize these properties.
- Add a method showDetails() to display the vehicle's details.

Encapsulation:

- Keep the speed property private.
- Provide public getter and setter methods for the speed.

Inheritance:

- Create the following classes that inherit from the Vehicle class:
  - Car: Add a property fuelType (e.g., Petrol/Diesel) and a method showFuelType().
  - Bike: Add a property hasGear (boolean) and a method showGearStatus().

Polymorphism:

- Add a method specialFeature() in the Vehicle class that prints a generic message: "This vehicle has a special feature."
- Override this method in Car to print: "This car has an advanced cruise control system."
- Override this method in Bike to print: "This bike has an anti-lock braking system."

Abstraction:

- Use the showDetails() method in all classes to display the necessary details about the vehicle without revealing how they are stored internally.

Main Program:

- Create objects of Car and Bike.
- Set their properties using the constructor and the setter methods.
- Call the showDetails() and specialFeature() methods for each object.
- If the vehicle is a Car, call showFuelType().
- If the vehicle is a Bike, call showGearStatus().