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Lab7.java

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package com.mycompany.lab7;

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\* @author krish

\*/

public class Lab7 {

public static void main(String[] args) {

// Instantiate the car

Car myCar = new Car("BMW-M5 CS", "Mercedese AMG", 2024, "Black");

// Display car information

myCar.displayCarInfo();

// Change the car color

myCar.setColour("Blue");

System.out.println("Car color changed to: " + myCar.getColour());

// Display car state

myCar.displayState();

// Try to accelerate without starting

myCar.accelerate(20);

// Start the car

myCar.start();

// Switch gear to 'd'

myCar.switchGear('d');

// Accelerate the car

myCar.accelerate(50);

// Display car state

myCar.displayState();

// Brake the car

myCar.brake(50);

// Switch gear to 'r'

myCar.switchGear('r');

// Accelerate in reverse

myCar.accelerate(20);

// Display car state

myCar.displayState();

// Brake to stop

myCar.brake(20);

// Stop the car

myCar.stop();

// Switch gear to 'p'

myCar.switchGear('p');

// Display car state

myCar.displayState();

// Honk

myCar.honk();

}

}

Car.java

package com.mycompany.lab7;

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\* @author krish

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public class Car {

private String make;

private String model;

private int year;

private String colour;

private int currentSpeed;

private boolean isRunning;

private char gear;

public static final int MAX\_SPEED = 200;

public Car(String make, String model, int year, String colour) {

this.make = make;

this.model = model;

this.year = year;

this.colour = colour;

this.currentSpeed = 0;

this.isRunning = false;

this.gear = 'p';

}

public String getMake() {

return make;

}

public String getModel() {

return model;

}

public int getYear() {

return year;

}

public String getColour() {

return colour;

}

public void setColour(String colour) {

this.colour = colour;

}

public int getCurrentSpeed() {

return currentSpeed;

}

public boolean isRunning() {

return isRunning;

}

public void displayCarInfo() {

System.out.println("Make: " + make);

System.out.println("Model: " + model);

System.out.println("Year: " + year);

System.out.println("Colour: " + colour);

}

public void start() {

isRunning = true;

System.out.println("Car started.");

}

public void stop() {

isRunning = false;

currentSpeed = 0;

System.out.println("Car stopped.");

}

public void accelerate(int speedChange) {

if (!isRunning) {

System.out.println("Please start the car.");

return;

}

if (currentSpeed + speedChange <= MAX\_SPEED) {

currentSpeed += speedChange;

System.out.println("Accelerated by " + speedChange + " units. Current speed: " + currentSpeed);

} else {

System.out.println("Cannot exceed the maximum speed of " + MAX\_SPEED + " units.");

}

}

public void brake(int speedChange) {

if (currentSpeed - speedChange >= 0) {

currentSpeed -= speedChange;

System.out.println("Braked by " + speedChange + " units. Current speed: " + currentSpeed);

} else {

currentSpeed = 0;

System.out.println("The car is already stopped.");

}

}

public void switchGear(char newGear) {

gear = newGear;

System.out.println("Gear switched to: " + newGear);

}

public void displayState() {

System.out.println("Car Status:");

System.out.println("Status: " + (isRunning ? "Started" : "Stopped"));

System.out.println("Speed: " + currentSpeed);

switch (gear) {

case 'p':

System.out.println("The car is in Park.");

break;

case 'd':

System.out.println("The car is in Drive.");

break;

case 'n':

System.out.println("The car is in Neutral.");

break;

case 'r':

System.out.println("The car is in Reverse.");

break;

default:

System.out.println("Unknown gear.");

}

}

public void honk() {

System.out.println("Honk! Honk!");

}

}

Output:-

A screenshot of a computer

Description automatically generated