// Car

class Car {

public int milesDriven;

private int milesSinceOilChange;

public Car() {

milesDriven = 0;

milesSinceOilChange = 0;

}

public Car(int miles) {

milesDriven = miles;

milesSinceOilChange = miles;

}

public Car(int miles, int oilMiles) {

milesDriven = miles;

milesSinceOilChange = oilMiles;

}

public void revEngine() {

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

}

public double ride(int miles, int speed) {

revEngine();

milesDriven += miles;

milesSinceOilChange += miles;

if (speed > 0) return (miles / (double) speed) \* 60; // minutes

return 0;

}

public void ride(int miles) {

revEngine();

milesDriven += miles;

milesSinceOilChange += miles;

}

// allow args in other order

public double ride(int speed, double miles) {

return ride((int)miles, speed);

}

public boolean checkOil() {

return milesSinceOilChange >= 5000;

}

public void changeOil() {

milesSinceOilChange = 0;

System.out.println("Oil changed.");

}

}

// Dog

class Dog {

private boolean tired;

private int runCount;

public Dog() {

tired = false;

runCount = 0;

}

public Dog(boolean tired) {

this.tired = tired;

runCount = 0;

}

public void bark() { System.out.println("Bark!"); }

public void bark(String sound) { System.out.println(sound); }

public void run() {

runCount++;

if (runCount % 2 == 0) {

System.out.println("Dog is tired.");

tired = true;

} else {

System.out.println("Dog is running.");

tired = false;

}

}

}

// Student

class Student {

private String name;

public Student() { name = "Unknown"; }

public Student(String name) { this.name = name; }

public double calculate(double a, String op, double b) {

if (op.equals("+")) return a + b;

if (op.equals("-")) return a - b;

if (op.equals("\*")) return a \* b;

if (op.equals("/")) return b != 0 ? a / b : 0;

return 0;

}

public double calculate(String eq) {

String[] p = eq.trim().split(" ");

if (p.length != 3) return 0;

double a = Double.parseDouble(p[0]);

String op = p[1];

double b = Double.parseDouble(p[2]);

return calculate(a, op, b);

}

}

// Test runner

public class Main {

public static void main(String[] args) {

// Car

Car myCar = new Car();

System.out.println("Ride took: " + myCar.ride(120, 60) + " minutes");

System.out.println("Needs oil change? " + myCar.checkOil());

myCar.ride(5000);

System.out.println("Needs oil change? " + myCar.checkOil());

myCar.changeOil();

// Dog

Dog myDog = new Dog();

myDog.bark();

myDog.bark("Woof woof!");

myDog.run();

myDog.run();

// Student

Student myStudent = new Student("John");

System.out.println("Calc: " + myStudent.calculate(20, "+", 5));

System.out.println("Calc from string: " + myStudent.calculate("10 \* 3"));

}

}