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LAB 08

abstract class BankAccount {

private int accountNumber;

private double balance;

private double savingInterest;

private double checkingInterest;

public BankAccount(int accountNumber, double balance, double savingInterest, double checkingInterest) {

this.accountNumber = accountNumber;

this.balance = balance;

this.savingInterest = savingInterest;

this.checkingInterest = checkingInterest;

}

public int getAccountNumber() {

return accountNumber;

}

public void setAccountNumber(int accountNumber) {

this.accountNumber = accountNumber;

}

public double getBalance() {

return balance;

}

public void setBalance(double balance) {

this.balance = balance;

}

public abstract double calculateInterest();

}

class SavingsAccount extends BankAccount {

public SavingsAccount(int accountNumber, double balance, double savingInterest, double checkingInterest) {

super(accountNumber, balance, savingInterest, checkingInterest);

}

@Override

public double calculateInterest() {

return balance \* savingInterest;

}

}

class CheckingAccount extends BankAccount {

public CheckingAccount(int accountNumber, double balance, double savingInterest, double checkingInterest) {

super(accountNumber, balance, savingInterest, checkingInterest);

}

@Override

public double calculateInterest() {

return balance \* checkingInterest;

}

}

public class Main {

public static void main(String[] args) {

SavingsAccount savingsAccount = new SavingsAccount(123456, 1000000, 0.12, 0.02);

CheckingAccount checkingAccount = new CheckingAccount(654321, 2000000, 0.12, 0.02);

System.out.println("Interest for savings account: " + savingsAccount.calculateInterest());

System.out.println("Interest for checking account: " + checkingAccount.calculateInterest());

}

}

02.

interface Shape {

double calculateArea();

double calculatePerimeter();

}

class Circle implements Shape {

private double radius;

public Circle(double radius) {

this.radius = radius;

}

public double getRadius() {

return radius;

}

public void setRadius(double radius) {

this.radius = radius;

}

@Override

public double calculateArea() {

return Math.PI \* Math.pow(radius, 2);

}

@Override

public double calculatePerimeter() {

return 2 \* Math.PI \* radius;

}

}

class Rectangle implements Shape {

private double length;

private double breadth;

public Rectangle(double length, double breadth) {

this.length = length;

this.breadth = breadth;

}

public double getLength() {

return length;

}

public void setLength(double length) {

this.length = length;

}

public double getBreadth() {

return breadth;

}

public void setBreadth(double breadth) {

this.breadth = breadth;

}

@Override

public double calculateArea() {

return length \* breadth;

}

@Override

public double calculatePerimeter() {

return 2 \* (length + breadth);

}

}

class Triangle implements Shape {

private double side1;

private double side2;

private double side3;

public Triangle(double side1, double side2, double side3) {

this.side1 = side1;

this.side2 = side2;

this.side3 = side3;

}

public double getSide1() {

return side1;

}

public void setSide1(double side1) {

this.side1 = side1;

}

public double getSide2() {

return side2;

}

public void setSide2(double side2) {

this.side2 = side2;

}

public double getSide3() {

return side3;

}

public void setSide3(double side3) {

this.side3 = side3;

}

@Override

public double calculateArea() {

double s = (side1 + side2 + side3) / 2;

return Math.sqrt(s \* (s - side1) \* (s - side2) \* (s - side3));

}

@Override

public double calculatePerimeter() {

return side1 + side2 + side3;

}

}

public class Main {

public static void main(String[] args) {

Circle circle = new Circle(5);

Rectangle rectangle = new Rectangle(10, 5);

Triangle triangle = new Triangle(5, 10, 12);

System.out.println("The area of the circle is: " + circle.calculateArea());

System.out.println("The perimeter of the circle is: " + circle.calculatePerimeter());

System.out.println("The area of the rectangle is: " + rectangle.calculateArea());

System.out.println("The perimeter of the rectangle is: " + rectangle.calculatePerimeter());

System.out.println("The area of the triangle is: " + triangle.calculateArea());

System.out.println("The perimeter of the triangle is: " + triangle.calculatePerimeter());

}

}