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Batch- AIML A2

Java assignment 5

Github Link : <https://github.com/Harsh-Ratna/Java-Programs/tree/main/Java%20assignment%205>

Part 1

public class Main {

public static void main(String[] args){

Triangle t = new Triangle(5,6,7);

t.calculateShapeArea();

t.calculateShapePerimeter();

System.out.println(t);

Square s = new Square(5);

s.calculateShapeArea();

s.calculateShapePerimeter();

System.out.println(s);

Rectangle r = new Rectangle(5,6);

r.calculateShapeArea();

r.calculateShapePerimeter();

System.out.println(r);

Circle c = new Circle(5);

c.calculateShapeArea();

c.calculateShapePerimeter();

System.out.println(c);

}

}

Circle

public class Circle implements Shape{

float area, perimeter, rad;

public Circle(int i) {

rad = i;

}

@Override

public float calculateShapeArea(){

area = (float)(Math.PI\*Math.pow(rad,2));

return area;

}

@Override

public float calculateShapePerimeter(){

perimeter = (float)(Math.PI\*rad\*2);

return area;

}

public String toString()

{

return "Dimension is " + rad + "Area is " + area + "Perimeter is " + perimeter+ ".";

}

}

Rectangle

public class Rectangle implements Shape{

float area, perimeter, length, breadth;

public Rectangle(int i, int j) {

length = i;

breadth = j;

}

@Override

public float calculateShapeArea(){

area = (float)(length\*breadth);

return area;

}

@Override

public float calculateShapePerimeter(){

perimeter = (float)(2\*(length+breadth));

return area;

}

public String toString()

{

return "Dimension is " + length+","+ breadth+ "Area is " + area + "Perimeter is " + perimeter+ ".";

}

}

Shape

public interface Shape {

float calculateShapeArea();

float calculateShapePerimeter();

float pi =3.14F;

}

Square

public class Square implements Shape{

float area, perimeter, side;

public Square(int i) {

side = i;

}

@Override

public float calculateShapeArea(){

area = (float)(side\*side);

return area;

}

@Override

public float calculateShapePerimeter(){

perimeter = (float)(4\*side);

return area;

}

public String toString()

{

return "Dimension is " + side + "Area is " + area + "Perimeter is " + perimeter+ ".";

}

}

Triangle

public class Triangle implements Shape{

float area, perimeter, side1, side2, side3;

public Triangle(int i, int j, int k) {

side1 = i;

side2 = j;

side3 = k;

}

@Override

public float calculateShapeArea(){

area = (float)((0.5)\*side1\*side2\*side3);

return area;

}

@Override

public float calculateShapePerimeter(){

perimeter = (float)(side1+side2+side3);

return area;

}

public String toString()

{

return "Dimension is " + side1+","+ side2+","+side3+ "Area is " + area + "Perimeter is " + perimeter+ ".";

}

}

Part 2:

**Code :**

public abstract class Employee {

private String name;

private String address;

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getAddress() {

return address;

}

public void setAddress(String address) {

this.address = address;

}

protected int basicSalary;

public Employee(String name, String address, int basicSalary) {

this.name = name;

this.address = address;

this.basicSalary = basicSalary;

}

public abstract int calculateMonthlySalary();

}

public class NormalEmployee extends Employee {

public NormalEmployee(String name, String address, int basicSalary) {

super(name, address, basicSalary);

}

@Override

public int calculateMonthlySalary() {

return basicSalary / 12;

}

}

public class BonusEmployee extends Employee {

private int monthlyBonus;

public BonusEmployee(String name, String address, int basicSalary, int monthlyBonus) {

super(name, address, basicSalary);

this.monthlyBonus = monthlyBonus;

}

@Override

public int calculateMonthlySalary() {

return (basicSalary / 12) + monthlyBonus;

}

// Getter and setter for monthlyBonus

}

public class TestEmployee {

public static void main(String[] args) {

NormalEmployee normalEmployee = new NormalEmployee("Harsh Ratna", "123 Sus st", 1200000);

BonusEmployee bonusEmployee = new BonusEmployee("Abhinav Kumar", "784 park lane", 100000, 20000);

System.out.println("Normal Employee:");

System.out.println("Name: " + normalEmployee.getName());

System.out.println("Address: " + normalEmployee.getAddress());

System.out.println("Monthly Salary: " + normalEmployee.calculateMonthlySalary());

System.out.println();

System.out.println("Bonus Employee:");

System.out.println("Name: " + bonusEmployee.getName());

System.out.println("Address: " + bonusEmployee.getAddress());

System.out.println("Monthly Salary: " + bonusEmployee.calculateMonthlySalary());

}

}

Output :

