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**Part1-**

interface Shapes { double getArea(); double getPerimeter();  
}  
class Circle implements Shapes {  
 private double radius;  
 public Circle(double radius) {  
 this.radius = radius;  
 }  
 public double getArea() {  
 return Math.*PI* \* Math.*pow*(radius, 2); }  
 public double getPerimeter() { return 2 \* Math.*PI* \* radius;  
 } }  
class Triangle implements Shapes { private double base;  
 private double height;  
 private double side1;  
 private double side2; private double side3;  
 public Triangle(double base, double height, double side1, double side2, double side3) {  
 this.base = base;  
 this.height = height;  
 this.side1 = side1;  
 this.side2 = side2;  
 this.side3 = side3;  
 }  
 public double getArea() { return 0.5 \* base \* height;  
 }  
 public double getPerimeter() { return side1 + side2 + side3;  
 } }  
 class Rectangle implements Shapes{ private double width;  
 private double height;  
 public Rectangle(double width, double height) { this.width = width;  
 this.height = height;  
 }  
 public double getArea() { return width \* height;  
 }  
 public double getPerimeter() { return 2 \* (width + height);  
 } }  
public class Main {  
 public static void main(String[] args) {  
// Create a circle with radius 5  
 Circle circle = new Circle(5); System.*out*.println("Circle area: " + circle.getArea());  
 System.*out*.println("Circle perimeter: " + circle.getPerimeter());  
// Create a triangle with base 6, height 4, and sides 3, 4, and 5  
 Triangle triangle = new Triangle(6, 4, 3, 4, 5); System.*out*.println("Triangle area: " + triangle.getArea());  
  
 System.*out*.println("Triangle perimeter: " + triangle.getPerimeter());  
// Create a rectangle with width 7 and height 3  
 Rectangle rectangle = new Rectangle(7, 3); System.*out*.println("Rectangle area: " + rectangle.getArea()); System.*out*.println("Rectangle perimeter: " +  
 rectangle.getPerimeter()); }  
}

**part2-**

package Employee\_5\_pt2;  
abstract class employee{  
 private String name, address, designation, department, DOJ, BankName,  
 BankAccNo, UAN, ESI;  
 protected int paidDays;  
 protected float basicSalary, basicWage;  
 // getter and setter methods  
 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;  
 }  
 public String getDesignation(){ return designation;  
 }  
 public void setDesignation(String designation){ this.designation = designation;  
 }  
 public String getDepartment(){ return department;  
 }  
 public void setDepartment(String department){ this.department = department;  
 }  
 public String getDOJ(){ return DOJ;  
 }  
 public void setDOJ(String DOJ){ this.DOJ = DOJ;  
 }  
 public String getBankName(){ return BankName;  
 }  
 public void setBankName(String BankName){ this.BankName = BankName;  
 }  
 public String getBankAccNo(){ return BankAccNo;  
 }  
 public void setBankAccNo(String BankAccNo){ this.BankAccNo = BankAccNo;  
 }  
 public String getUAN(){ return UAN;  
 }  
 public void setUAN(String UAN){ this.UAN = UAN;  
 }  
 public String getESI(){ return ESI;  
 }  
 public void setESI(String ESI){ this.ESI = ESI;  
 }  
 public float getBasicSalary(){ return basicSalary;  
 }  
 public void setBasicSalary(float basicSalary){ this.basicSalary = basicSalary;  
 }  
 public int getPaidDays(){ return paidDays;  
 }  
  
 public void setPaidDays(int paidDays){ this.paidDays = paidDays;  
 }  
 public float getBasicWage(){ return basicWage;  
 }  
 public void setBasicWage(float basicWage){ this.basicWage = basicWage;  
 }  
 // abstract method  
 public abstract float getMonthlySalary(); }  
 /\*Write the code for a class BonusEmployee which extends the class Employee.java. This class describes an employee who has a monthly bonus  
 added to their monthly salary \*/  
package Employee\_5\_pt2;  
public class BonusEmployee extends employee{  
 private int bonus; public BonusEmployee(){  
 super(); }  
 public int getBonus(){ return bonus;  
 }  
 public void setBonus(int b){ this.bonus = b;  
 }  
 // add the bonus to the monthly salary of the employee from the monthly salary of the employee from the NormalEmployee class  
 public float getMonthlySalary(){  
 } }  
 NormalEmployee ne = new NormalEmployee();  
 // add bonus to the monthlySalary from NormalEmployee class ne.setBasicSalary(super.getBasicSalary());  
 float monthlySalary = (float) (ne.getMonthlySalary() + bonus); return monthlySalary;  
 package Employee\_5\_pt2;  
 import java.util.Scanner;  
public class Main{  
 public static void main(String[] args){  
 Scanner sc = new Scanner(System.*in*);  
// input all the details of the employee into the object  
 NormalEmployee ne = new NormalEmployee(); System.*out*.println("Enter the name of the employee: ");  
  
 ne.setName(sc.nextLine());  
 System.*out*.println("Enter the address of the employee: "); ne.setAddress(sc.nextLine());  
 System.*out*.println("Enter the designation of the employee: ");  
 ");  
 ne.setDesignation(sc.nextLine());  
 System.*out*.println("Enter the department of the employee: "); ne.setDepartment(sc.nextLine());  
 System.*out*.println("Enter the date of joining of the employee: "); ne.setDOJ(sc.nextLine());  
 System.*out*.println("Enter the bank name of the employee: "); ne.setBankName(sc.nextLine());  
 System.*out*.println("Enter the bank account number of the employee:  
 ne.setBankAccNo(sc.nextLine());  
 System.*out*.println("Enter ne.setUAN(sc.nextLine()); System.out.println("Enter ne.setESI(sc.nextLine()); System.*out*.println("Enter  
 the UAN of the employee: ");  
 the ESI of the employee: ");  
 the paid days of the employee: ");  
 ");  
 ne.setPaidDays(sc.nextInt());  
 System.*out*.println("Enter the basic monthly salary of the employee:  
 ne.setBasicSalary(sc.nextFloat());  
// calculate the monthly salary of the employee  
 System.*out*.println("The monthly salary of the employee is: " + ne.getMonthlySalary());  
// ask the user if they want to add a bonus to the employee  
 System.*out*.println("Do you want to add a bonus to the employee? (y/n)");  
 char choice = sc.next().charAt(0);  
// if yes, then add the bonus to the monthly salary of the employee used previously from NormalEmployee class normal employee  
 if(choice == 'y'){  
 BonusEmployee be = new BonusEmployee(); be.setName(ne.getName()); be.setAddress(ne.getAddress()); be.setDesignation(ne.getDesignation()); be.setDepartment(ne.getDepartment());  
 be.setDOJ(ne.getDOJ());  
 be.setBankName(ne.getBankName()); be.setBankAccNo(ne.getBankAccNo());  
 be.setUAN(ne.getUAN());  
 be.setESI(ne.getESI());  
 be.setPaidDays(ne.getPaidDays()); be.setBasicSalary(ne.getBasicSalary()); System.*out*.println("Enter the bonus amount: "); be.setBonus(sc.nextInt());  
 System.*out*.println("The monthly salary of the employee is: " +  
 be.getMonthlySalary()); }  
 sc.close();  
    }  
}

**Github link-**<https://github.com/arjuntyagi19/java_assignment>