

PART 1:

INPUT:

```
public interface Shape {
    float calculateArea();
    float calculatePerimeter();
}

public class Circle implements Shape{
    float area,perimeter,rad;

    public Circle(float i){
        rad=i;
    }
    @Override
    public float calculateArea(){
        area = (float) (Math.PI*Math.pow(rad,2));
        return area;
    }
    @Override
    public float calculatePerimeter(){
        perimeter = (float) (2*Math.PI*rad);
        return perimeter;
    }
}

public class Rectangle implements Shape{
    float area,perimeter,b,l;
    public Rectangle(float i,float j){
        b=i;
        l=j;
    }
    @Override
    public float calculateArea() {
        area = b*l;
        return area;
    }

    @Override
    public float calculatePerimeter() {
        perimeter =2*(b+l);
        return perimeter;
    }
}

public class Triangle implements Shape{
    float area,perimeter,b,l,h;
    public Triangle(float i,float j, float k){
        b=i;
        l=j;
        h=k;
    }
    @Override
```

```

    public float calculateArea() {
        area = (float) (h*b*0.5);
        return area;
    }

    @Override
    public float calculatePerimeter() {
        perimeter = b+l+h;
        return perimeter;
    }
}

public class Main {
    public static void main(String[] args) {
        Circle circle = new Circle(5);
        System.out.println("Circle area: " + circle.calculateArea());
        System.out.println("Circle perimeter: " +
circle.calculatePerimeter());

        Triangle triangle = new Triangle(6, 4, 3);
        System.out.println("Triangle area: " + triangle.calculateArea());
        System.out.println("Triangle perimeter: " +
triangle.calculatePerimeter());

        Rectangle rectangle = new Rectangle(7, 3);
        System.out.println("Rectangle area: " + rectangle.calculateArea());
        System.out.println("Rectangle perimeter: " +
rectangle.calculatePerimeter());

    }
}

```

OUTPUT:

The screenshot shows the IntelliJ IDEA IDE with the 'Main.java' file open. The code defines a 'Main' class with a 'main' method that creates instances of 'Circle', 'Triangle', and 'Rectangle' and prints their calculated area and perimeter. The 'Run' tab at the bottom displays the output of the program.

```

C:\Users\USER\.jdk\openjdk-19.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2022.3.1\lib\idea_rt.jar=55
Circle area: 78.53982
Circle perimeter: 31.415926
Triangle area: 9.0
Triangle perimeter: 13.0
Rectangle area: 21.0
Rectangle perimeter: 20.0

Process finished with exit code 0

```

PART 2:

INPUT:

```

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();

    // Getters and setters for name, address and basicSalary
}

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 NormalEmployee extends Employee {
    public NormalEmployee(String name, String address, int basicSalary) {
        super(name, address, basicSalary);
    }

    @Override
    public int calculateMonthlySalary() {
        return basicSalary / 12;
    }
}

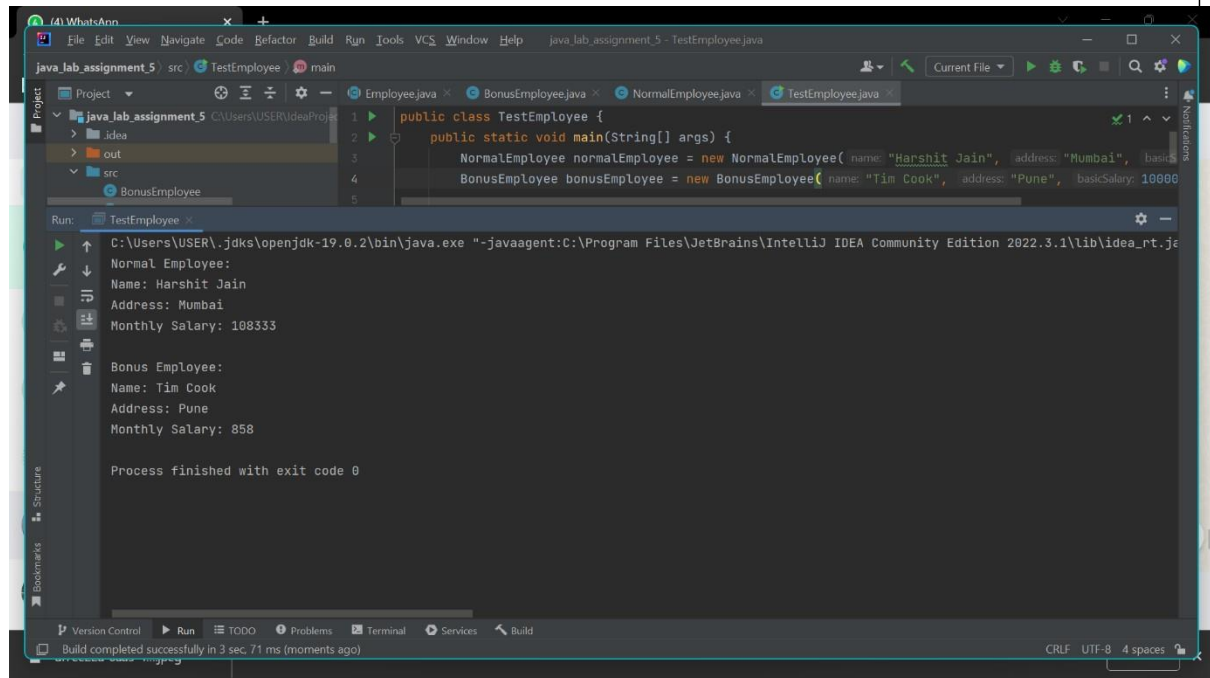
public class TestEmployee {
    public static void main(String[] args) {
        NormalEmployee normalEmployee = new NormalEmployee("Harshit Jain",
"Mumbai", 1300000);
        BonusEmployee bonusEmployee = new BonusEmployee("Tim Cook", "Pune",
10000, 25);

        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:



```
public class TestEmployee {  
    public static void main(String[] args) {  
        NormalEmployee normalEmployee = new NormalEmployee("Harshit Jain", "Mumbai", 108333);  
        BonusEmployee bonusEmployee = new BonusEmployee("Tim Cook", "Pune", 858);  
    }  
}
```

Run: TestEmployee

C:\Users\USER\.jdk\openjdk-19.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2022.3.1\lib\idea_rt.jar" ...

Normal Employee:
Name: Harshit Jain
Address: Mumbai
Monthly Salary: 108333

Bonus Employee:
Name: Tim Cook
Address: Pune
Monthly Salary: 858

Process finished with exit code 0

Build completed successfully in 3 sec, 71 ms (moments ago)

GITHUB LINK:

<https://github.com/adityasable22/pij-assignment-5.git>

