

Geometric Dimensions

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we will create a Java project

Go to File → New → project → search for java → Select on java project → press next → give name as `GeometryCalculator` → click on finish button
If it asks for open perspective → click on open perspective
You will see project on left side

> create a package

We will always create a package and then create a class
A package is a collection of java class

Go to your Project Phase1-JavaPrograms → open the project → Right click on src folder → select New → select Package → give the package name as "calculator" → click on finish

> create a java class

Select the package → right click → new → select class → class wizard will open → give name of class as `practice_cal` → select the checkbox for public static void `main(String[] args)` → and click on finish button

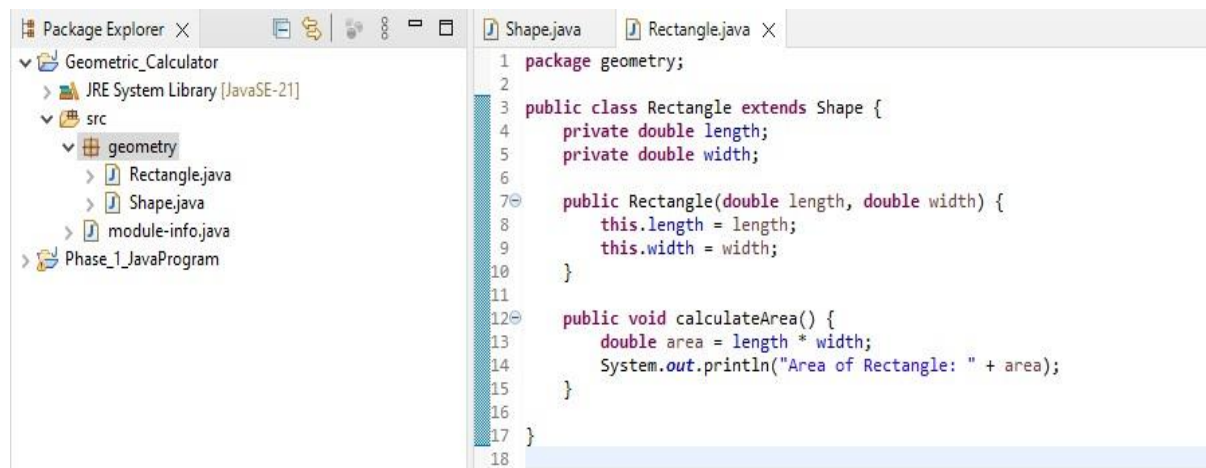
1. Create a Java project in Eclipse.
2. Create a package inside the Java project, for example, `geometry`.
3. Create the following classes:

Shape.java (Parent Class)
Rectangle.java (Child Class)
Circle.java (Child Class)
Triangle.java (Child Class)
GeometryMain.java (Main Class)

Shape.java: It is Parent class.

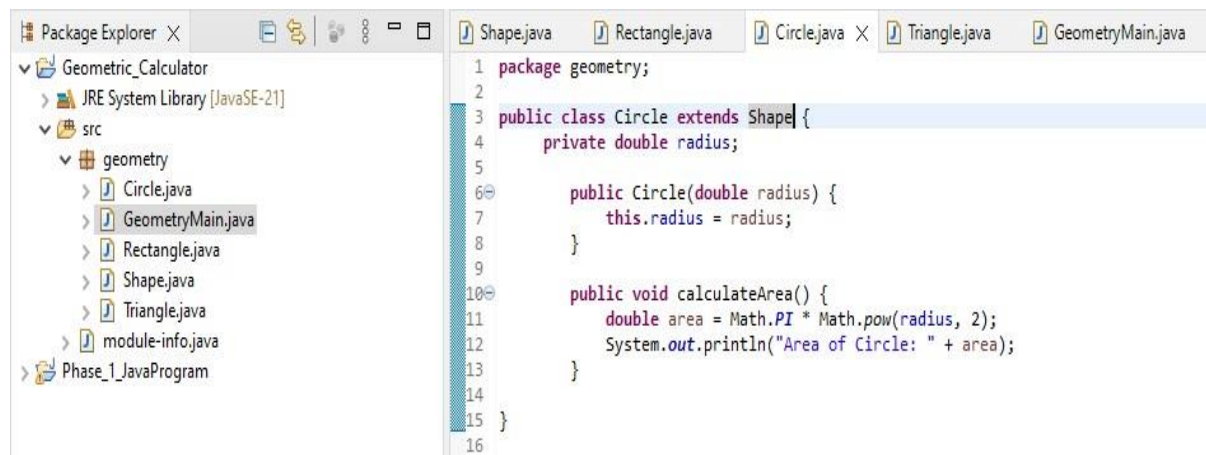
```
Shape.java ×
1 package geometry;
2
3 public class Shape {
4     public void displayArea() {
5         System.out.println("This is the parent class.");
6     }
7
8 }
9 }
```

Rectangle.java: It is a child which is extended by its parent class Shape



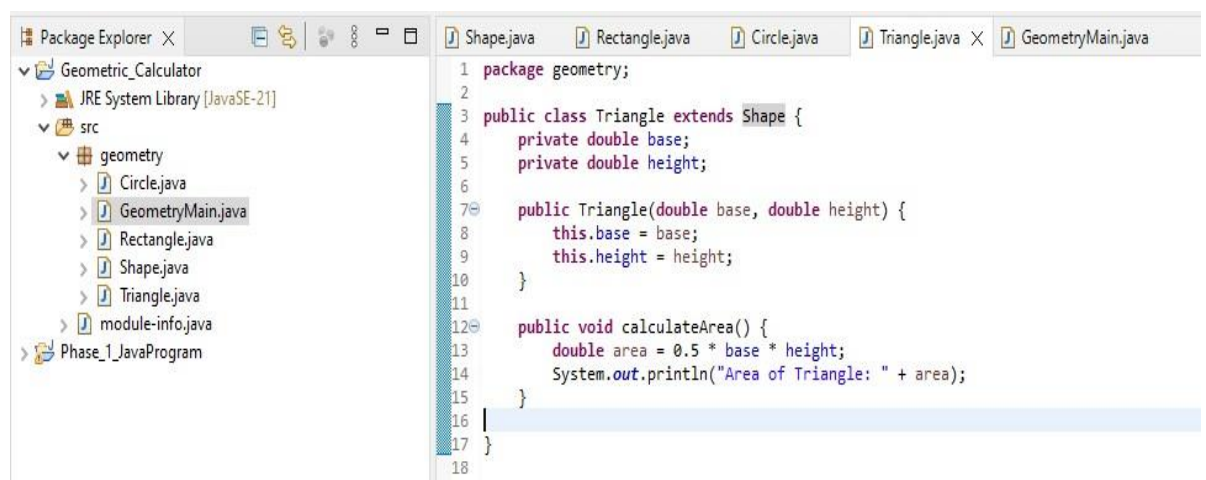
```
1 package geometry;
2
3 public class Rectangle extends Shape {
4     private double length;
5     private double width;
6
7     public Rectangle(double length, double width) {
8         this.length = length;
9         this.width = width;
10    }
11
12    public void calculateArea() {
13        double area = length * width;
14        System.out.println("Area of Rectangle: " + area);
15    }
16 }
17
18
```

Circle.java: It is a child which is extended by its parent class Shape



```
1 package geometry;
2
3 public class Circle extends Shape {
4     private double radius;
5
6     public Circle(double radius) {
7         this.radius = radius;
8     }
9
10    public void calculateArea() {
11        double area = Math.PI * Math.pow(radius, 2);
12        System.out.println("Area of Circle: " + area);
13    }
14 }
15
16
```

Triangle.java: It is a child which is extended by its parent class Shape



```
1 package geometry;
2
3 public class Triangle extends Shape {
4     private double base;
5     private double height;
6
7     public Triangle(double base, double height) {
8         this.base = base;
9         this.height = height;
10    }
11
12    public void calculateArea() {
13        double area = 0.5 * base * height;
14        System.out.println("Area of Triangle: " + area);
15    }
16 }
17
18
```

GeometryMain.java:

Make sure to run `GeometryMain.java` as the main class. This program demonstrates the basic structure you can use for your project and meets the specified requirements. You can customize and expand it according to your specific needs.

```
Shape.java Rectangle.java Circle.java Triangle.java GeometryMain.java X
1 package geometry;
2 import java.util.ArrayList;
3
4 public class GeometryMain {
5     public static void main(String[] args) {
6         ArrayList<Shape> shapes = new ArrayList<>();
7
8         shapes.add(new Rectangle(5, 10));
9         shapes.add(new Circle(7));
10        shapes.add(new Triangle(4, 6));
11
12        try {
13            for (Shape shape : shapes) {
14                shape.displayArea();
15                if (shape instanceof Rectangle) {
16                    ((Rectangle) shape).calculateArea();
17                } else if (shape instanceof Circle) {
18                    ((Circle) shape).calculateArea();
19                } else if (shape instanceof Triangle) {
20                    ((Triangle) shape).calculateArea();
21                }
22                System.out.println("-----");
23            }
24        } catch (Exception e) {
25            System.out.println("An error occurred: " + e.getMessage());
26        } finally {
27            System.out.println("Finally block executed.");
28        }
29    }
30
31 }
32
```

OUTPUT:

```
Problems @ Javadoc Declaration Console X Coverage
<terminated> GeometryMain [Java Application] C:\Users\
This is the parent class.
Area of Rectangle: 50.0
-----
This is the parent class.
Area of Circle: 153.93804002589985
-----
This is the parent class.
Area of Triangle: 12.0
-----
Finally block executed.
```

Copy the path from Eclipse and paste it in command prompt

1. `cd C:\Users\Samyak\eclipse-workspace\Geometric_Calculator`
2. `git init`
3. `git status`
4. `git add .`
5. `git commit -m "done"`
6. `git remote add origin git@github.com:Aman_kesarwani21/Practice02_GeometryCalculator.git`
7. `git push origin master`