

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

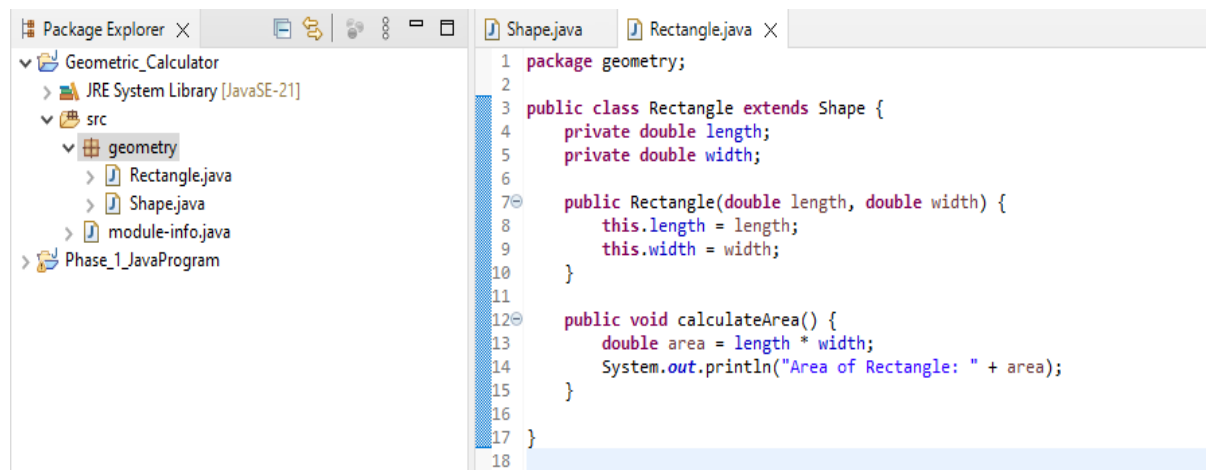
1. Create a Java project in Eclipse.
2. Create a package inside the Java project, for example, `geometry`.
3. Create the following classes:

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.

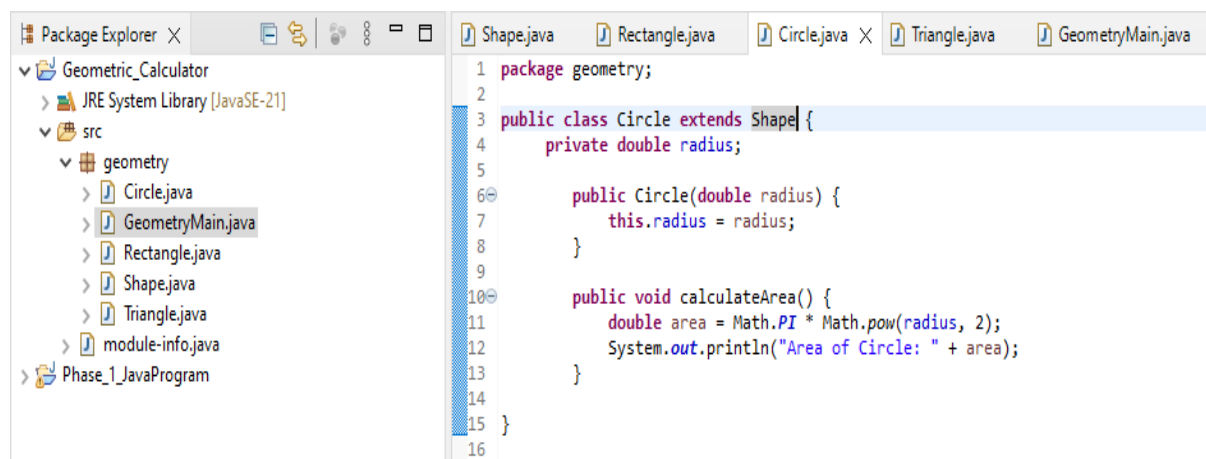
```
Shape.java ×
1 package geometry;
2
3 public class Shape {
4     public void displayArea() {
5         System.out.println("This is the parent class.");
6     }
7
8 }
9
```

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



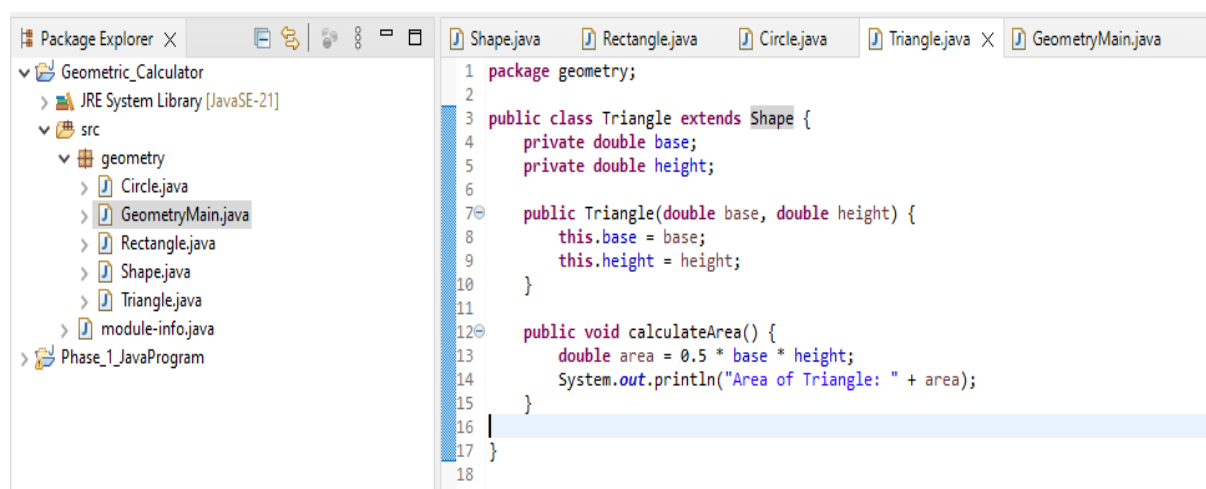
```
1 package geometry;
2
3 public class Rectangle extends Shape {
4     private double length;
5     private double width;
6
7     public Rectangle(double length, double width) {
8         this.length = length;
9         this.width = width;
10    }
11
12    public void calculateArea() {
13        double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

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 }
```

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 }
```

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\Samyak\.p2\pool\plugins\org.eclipse.
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`

```
Command Prompt
Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Samyak>cd C:\Users\Samyak\eclipse-workspace\Geometric_Calculator

C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>git init
Initialized empty Git repository in C:/Users/Samyak/eclipse-workspace/Geometric_Calculator/.git/

C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>_
```

3. `git status`

```
C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>git init
Initialized empty Git repository in C:/Users/Samyak/eclipse-workspace/Geometric_Calculator/.git/

C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .classpath
        .project
        .settings/
        bin/
        src/

nothing added to commit but untracked files present (use "git add" to track)

C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>
```

4. `git add .`
5. `git commit -m "done"`

```
C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>git add .

C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>git commit -m "done"
[master (root-commit) 104a3ef] done
16 files changed, 139 insertions(+)
create mode 100644 .classpath
create mode 100644 .project
create mode 100644 .settings/org.eclipse.core.resources.prefs
create mode 100644 .settings/org.eclipse.jdt.core.prefs
create mode 100644 bin/geometry/Circle.class
create mode 100644 bin/geometry/GeometryMain.class
create mode 100644 bin/geometry/Rectangle.class
create mode 100644 bin/geometry/Shape.class
create mode 100644 bin/geometry/Triangle.class
create mode 100644 bin/module-info.class
create mode 100644 src/geometry/Circle.java
create mode 100644 src/geometry/GeometryMain.java
create mode 100644 src/geometry/Rectangle.java
create mode 100644 src/geometry/Shape.java
create mode 100644 src/geometry/Triangle.java
create mode 100644 src/module-info.java
```


6. git

remoteaddorigin git@github.com:Samyak0311/Practice02_GeometryCalculator.git

7. git push origin master

```
C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>git remote add origin git@github.com:Samyak0311/-Practice02_GeometryCalculator.git

C:\Users\Samyak\eclipse-workspace\Geometric_Calculator>git push origin master
Enumerating objects: 23, done.
Counting objects: 100% (23/23), done.
Delta compression using up to 4 threads
Compressing objects: 100% (23/23), done.
Writing objects: 100% (23/23), 5.96 KiB | 290.00 KiB/s, done.
Total 23 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To github.com:Samyak0311/-Practice02_GeometryCalculator.git
 * [new branch]      master -> master
```


 -Practice02_GeometryCalculator Public Pin Unwatch 1

🔗 master 1 Branch 0 Tags

Go to file

Add file

<> Code

 admin done 104a3ef · 21 minutes ago 1 Commits

📁 .settings	done	21 minutes ago
📁 bin	done	21 minutes ago
📁 src	done	21 minutes ago
📄 .classpath	done	21 minutes ago
📄 .project	done	21 minutes ago

LINK FOR REFERENCE :

https://github.com/Samyak0311/-Practice02_GeometryCalculator.git