Problem – 4

Reference : ImmutableDemo.java

Create Java classes for Triangle, Rectangle, and Circle. Provide each class with a method

public double computeArea()

Make all of these classes immutable. (Follow the guidelines in the slides for creating this type of class.) Provide one constructor for each class; the constructor should accept the data necessary to specify the figure, and to compute its area. The values accepted by the constructor should be stored in (private) instance fields of the class. For example, Rectangle should have instance fields width and length, and the constructor should look like this

public Rectangle(double width, double length)

For Triangle, you may use arguments base and height. And for Circle, use radius as the constructor argument.

Whenever you create instance fields for one of these classes, provide public accessors for them (but do not provide mutators since the class is supposed to be immutable – for instance, the dimensions of a Rectangle should be read-only). For example, you will have in the Rectangle class:

```
private double width;

public double getWidth() {
        return width;
}
```

Create a fourth class Main that will, in its main method, test these three figure classes as follows: It will create one instance of each (you can make your own choice for the dimensions of your figures and get the input from the console) and then print to the console the area of each. Typical output would be:

A Sample Output looks like this:

Enter C for Circle

Enter R for Rectangle

Enter T for Triangle

R

Enter the width of the Rectangle

120

Enter the height of the Rectangle

200

The area of Rectangle is : 24000.00

Here are some area formulas, in case you do not remember them:

Area of a rectangle = width * height

Area of a triangle = 1/2 * base * height

Area of a circle = PI * radius * radius