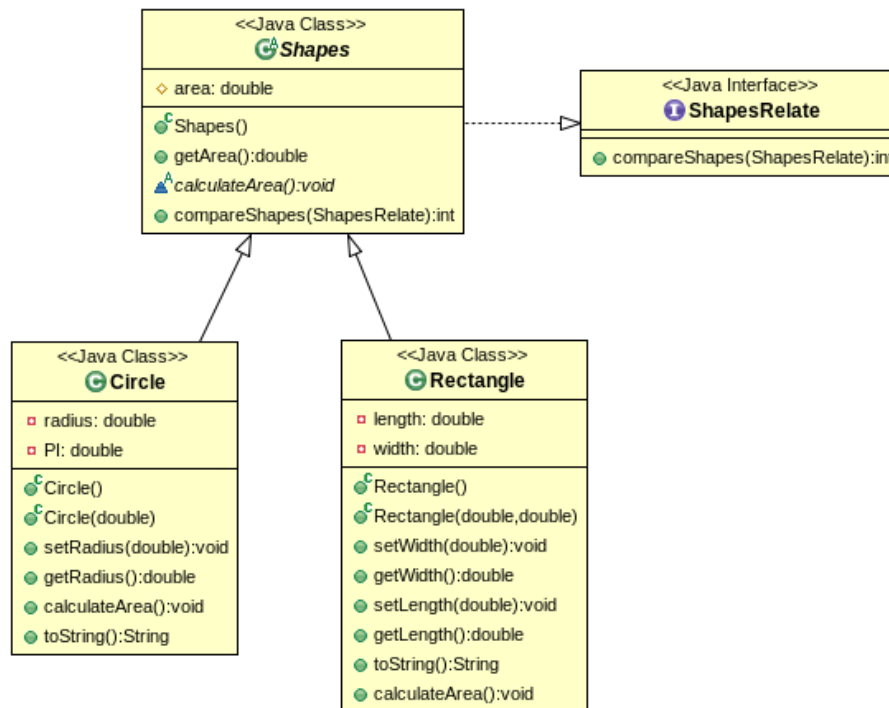


Programming I Assignment 7



NOTE:

- A diamond symbol indicates the *protected* modifier.
- A square symbol indicates the *private* modifier.
- The C circle symbol with an A indicates an *abstract class*.
- A triangle symbol with an A indicates an *abstract method*.

You are required to:

1. Implement in Java, the interface and classes as shown in the UML diagram above.

Note: The area of a rectangle is $length * width$ and the area of a circle is $PI * radius^2$

2. The assignment requires you to write a driver class which:
 - i) creates an ArrayList of type Shapes and populate it with Rectangle and Circle instances.
 - ii) Includes a method with the following signature which uses the **compareShapes** method to calculate the largest shape based on area in the collection.

```
public static Shapes largestShape(List<Shapes> list)
```

- iii) displays the largest shape in the collection.
- iv) The driver class should Serialize and then Deserialize the list displaying its contents.

Note: Static methods, which have the static modifier in their declarations, can be invoked without the need for creating an instance of the class and belong to the class rather than an object of the class.