

Assignment 12

Step 01 - Compile the following code (you can get the file from Blackboard)

I used the online compiler: <https://www.jdoodle.com/online-java-compiler/>

However, you can use any IDE as long as you submit code that I can compile and execute.

```
// Class Shape
import java.awt.*;

abstract class Shape {
    double area;
    public abstract void getArea () ;
}

// Class Circle
class Circle extends Shape {

    public Circle (double r) {
        area = 3.14 * r * r;
    }

    public void getArea () {

        System.out.println("Circle's area = " + area);
    };
}

// Class Square
class Square extends Shape {

    public Square (double s) {
        area = s * s;
    }

    public void getArea () {

        System.out.println("Square's area = " + area);
    };
}

public class Assignment11 {

    public static void main(String[] args) {
```

Java Programming

```
System.out.println ("Assignment 12 Written by Matt Weisfeld");

Circle circle1 = new Circle(3);
Circle circle2 = new Circle(4);

Square square1 = new Square(2);
Square square2 = new Square(5);

Circle[] circleArray = new Circle[2];
Square[] squareArray = new Square[2];

circleArray[0] = circle1;
circleArray[1] = circle2;

squareArray[0] = square1;
squareArray[1] = square2;

for (int i = 0; i < circleArray.length; i++) {

    circleArray[i].getArea(); squareArray[i].getArea();

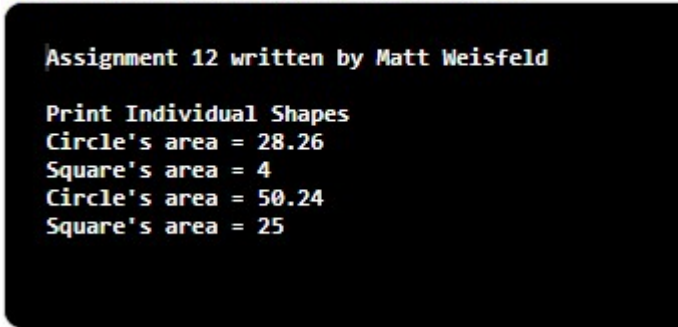
}

}
```

Step 02 – Run the code (the output should look something like this)

Result

CPU Time: 0.00 sec(s), Memory: 3584 kilobyte(s)



```
Assignment 12 written by Matt Weisfeld

Print Individual Shapes
Circle's area = 28.26
Square's area = 4
Circle's area = 50.24
Square's area = 25
```

Step 03 – Add the code

The code above iterates through the two separate arrays - circleArray and squareArray. Your task is to create an array called shapeArray (that holds 4 shapes) and insert the 4 shapes created by the code below, circle1, circle2, square1, square2.

Now, I want you to create code that iterates through the shapeArray and processes *any* shape. In essence, the code doesn't care which shape it is processing.

Polymorphism

Java Programming

All that you need to turn in is your final version of A12. So upload that single file to Blackboard.

Step 04 – When you run the code you will get something like the following output

Result

CPU Time: 0.00 sec(s), Memory: 3424 kilobyte(s)

Assignment 12 written by Matt Weisfeld

Print Individual Shapes

Circle's area = 28.26

Square's area = 4

Circle's area = 50.24

Square's area = 25

Print Abstract Shapes

Circle's area = 28.26

Circle's area = 50.24

Square's area = 4

Square's area = 25

Step 05 – Submit the updated file to A 12.

Submit the file to Blackboard.