

Magee - OOP - Java - Sample 1

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You will build a program that reads input from a user to draw shapes. I have provided the graphics code, which you are not required to know, but should definitely try to look and semantically understand it. I have also provided Console read and print code, in case SimpleAPI isn't working. So add all these functions to your driver class.

Tasks:

1. read input to paint shapes with varying sizes and colors
2. write your own makeSquare method (hint: look at circle and how it delegates to oval)
3. find a way to integrate for and while loops (this can be drawing many shapes, or something on your own (plain console functionality))

The assignments at the beginning will not be interesting. Instead of showing you how to sort of get something working, we will teach you Java properly, so at the end you can build something you really like, and take these skills and apply them to other problems or future projects. So the purpose of this assignment is to get you used to writing Java code.

Here is the graphics code. You can copy over the methods into your own project. Sample usage has been provided in the main method.

```
package com.adrian;

import java.awt.Color;
import java.awt.Graphics;
import java.awt.Graphics2D;
import javax.swing.JComponent;
import javax.swing.JFrame;

public class DriverBeta {

    public static void main(String[] args) {
        makeOval(100, 120, Color.BLACK);
        makeCircle(100, Color.BLUE);
        makeRectangle(50, 100, Color.RED);
    }

    public static JFrame createNewWindow() {
        JFrame frame; // regular variable declaration.
        // frame is the name of the variable

        // this is a constructor. It is a special method - but it's still a function.
        // here, we pass the title for the new window (parameter)
        frame = new JFrame("Magee_OOP_Java_Assignment_1");

        // understand these intuitively
        frame.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);
        frame.setSize(300, 300);
        frame.setVisible(true);

        // we are returning a JFrame variable
    }
}
```

```

    return frame;
}

// understand intuitively
public static void addToFrame(JFrame frame, JComponent component) {
    frame.getContentPane().add(component);
}

// notice delegation
public static void makeCircle(int radius, Color color) {
    makeOval(radius, radius, color);
}

public static void makeOval(final int width, final int height, final Color color) {
    // ignore
    JComponent j = new JComponent() {
        @Override
        public void paintComponent(Graphics g) {
            super.paintComponent(g);
            // understand this intuitively
            g.drawOval(0, 0, width, height);
            g.setColor(color);
            g.fillOval(0, 0, width, height);
        }
    };
    // understand what is happening
    JFrame frame = createNewWindow();
    addToFrame(frame, j);
}

public static void makeRectangle(final int width, final int height, final Color color) {
    // ignore
    JComponent j = new JComponent() {
        @Override
        public void paintComponent(Graphics g) {
            super.paintComponent(g);
            // understand this intuitively
            g.drawRect(0, 0, width, height);
            g.setColor(color);
            g.fillRect(0, 0, width, height);
        }
    };
    // understand what is happening
    JFrame frame = createNewWindow();
    addToFrame(frame, j);
}
}

```

SimpleAPI

```

// Console.print and Console.println are the same as System.out.print and System.out.println

// resolve package imports - import java.io.*
public static String readLine(String msg) {
    String input = "";
    InputStreamReader converter = new InputStreamReader(System.in);
    BufferedReader in = new BufferedReader(converter);

    while (input.length() == 0) {
        try {
            System.out.print(msg);

```

```
        input = in.readLine().trim();
    } catch (Exception ignore) {
        //
    }
}
return input;
}
```