



**More Methods**

# Multiple For Loops

## Keep The Balance:

I have a factory that runs with 100 people. Some people get paid 500 units/month, some 100 units/month, and some 5 units/month.

I pay 10000 units/month to my workers.

How many of the 100 receive 5 units/month?

# Modulus Operator

The modulus operator gives whatever the remainder would be.

7 % 4 -> 3

9 % 1 -> 0

3 % 3 -> 0

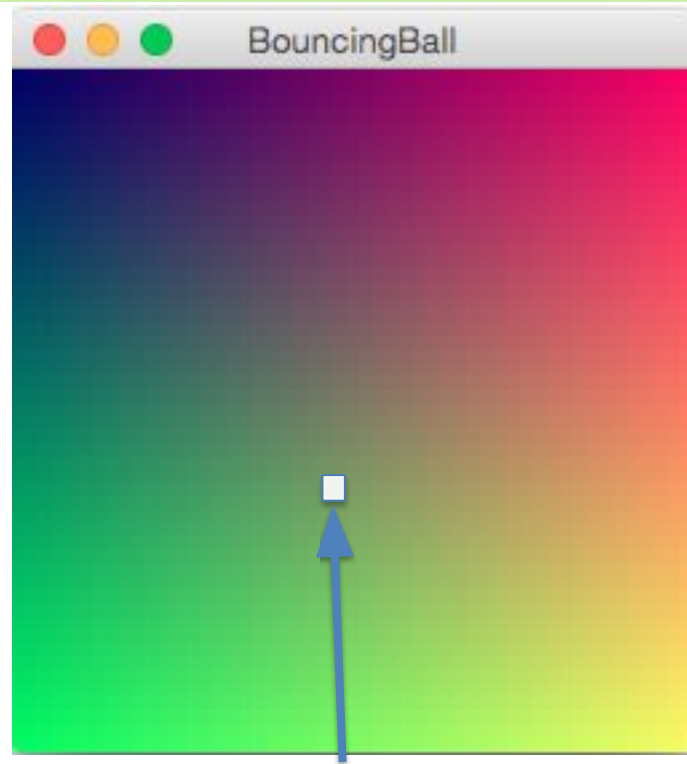
4 % 3 -> 1

```
private boolean isEven(int value) {  
    return (value % 2 == 0);  
}
```

# Color Spectrum



# Color Spectrum



```
private GRect getColoredSquare(int red, int green, int blue) {  
    GRect square = new GRect(STEP, STEP);  
    Color newColor = new Color(red%256, green%256, blue%256);  
    square.setColor(newColor);  
    square.setFilled(true);  
    return square;  
}
```

The output is a colored rectangle

# Color Spectrum

```
public class Spectrum extends GraphicsProgram {

    public static final int APPLICATION_WIDTH = 256;
    public static final int APPLICATION_HEIGHT = 256;
    private static final int STEP = 5;

    public void run() {
        for(int x=0;x<getWidth();x=x+STEP) {
            for(int y=0;y<getHeight();y=y+STEP) {
                GRect point=getColoredSquare(x,y, 100);
                add(point,x,y);
            }
        }
    }

    private GRect getColoredSquare(int red,int green, int blue) {
        GRect square=new GRect(STEP,STEP);
        Color newColor=new Color(red%256,green%256,blue%256);
        square.setColor(newColor);
        square.setFilled(true);
        return square;
    }
}
```

# Methods Returning Objects

```
public void run() {  
    GRect rect = new GRect(SIZE, SIZE);  
    rect.setFilled(true);  
    rect.setColor(Color.RED);  
    changeRect(rect);  
    add(rect, 0, 0);  
}
```

```
private void changeRect(GRect rect) {  
    rect.setColor(Color.BLUE);  
}
```

# Primitives and Objects

Primitives:

`int`

`boolean`

`char`

`double`

...

Objects:

`GRect`

`GOval`

`GLine`

...

And String?



# Methods Returning Objects

When objects are passed to methods, the changes persist in the caller method.

The rectangle is blue.

This is different than with primitives like `int`, `double`, `boolean`.

# Final Projects

Make Your Own - Written by You

Before you get started you must have your idea approved by one of the teachers! Think of a few, incase one is too hard or too easy. We plan to start them Wednesday afternoon.

