

CMSC 113: Computer Science I

Lab 2: Interactivity and Compound Objects

This lab will involve a series of small programming exercises. Complete each one with your lab partner before moving onto the next. You will not be handing in the lab; instead, this is meant as practice to help you with homework.

1. Use the `RobinObject` example from class to make a program that draws a new Robin wherever you click. Each click creates a new face, centered on the mouse click.
2. Change that program so that Robin appears with their left eye centered around the mouse. You will have to look at the coordinates in the `RobinObject.java` file to figure out how to do this.
3. Change the program again so that you have only 1 Robin that moves around every time you click. This will require creating a *field*.
4. Change the program so that the 1 Robin moves around as you move the mouse, not requiring a click.
5. Put the following code into a new class file `Square.java`:

```
import acm.graphics.*;

public class Square extends GCompound
{
    public Square()
    {
        GRect r = new GRect(0, 0, 20, 20);
        add(r);
    }
}
```

This `Square` object will contain a 20x20 square. Where is its hotspot?

6. Modify your program to have a `Square` move around beneath the mouse, instead of a Robin. Have it so that the top-left corner of the square is under the mouse pointer.
7. Modify your `Square.java` so that the rectangle is drawn at (-10, -10), instead of at (0, 0). How does that change the behavior of your program? Why?
8. Modify your `Square.java` so that the rectangle is drawn at (90, 90). How does that change the behavior of your program? Why?
9. Make a new program that draws a circle in its center. Make the circle filled in and blue.
10. Change your program to make the circle pink. (Note that pink is *not* a built-in color. Make it by averaging out the color values for red and white.)