

CSI31 INTRODUCTION TO COMPUTER PROGRAMMING I

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Copying an object

```
leftEye = Circle(Point(80, 50), 5)
leftEye.setFill('yellow')
leftEye.setOutline('red')
leftEye.draw(w)
rightEye = leftEye
rightEye.move(20, 0)
```

Try it out and see what happens. Why?

Aliasing problem: one object has two names

Making a separate independent copy

You could create rightEye by writing code, but

```
rightEye = leftEye.clone()  
rightEye.move(20, 0)
```

clone method makes a separate independent copy.

Text input

- An Entry object gets text input from a box that can be edited by user.
- `Entry(centerPoint, width)` constructs an Entry object. `width` is the number of characters that can be written.
- `setText(string)` sets the text in the box to `string`.
- `getText()` gets the text typed in the box as a string.

Example: gui program that converts temperatures

Design:

- Set up the interface: Entry object for getting input, Text object for printing converted result, button to click
- Get mouse click
- Get input and convert using formula
- Display the converted result
- Respond to next click by closing window.
- `convert_gui.pyw`

Graphics Module Reference

- List of all classes and methods in section 4.8
- Classes of drawable objects: Point, Line, Circle, Oval, Rectangle, Polygon, Text
- Entry object
- Image object for displaying, modifying images
- Colors

Colors

- Many built-in colors, with names given by strings
- Color chart at http://www.science.smith.edu/dftwiki/index.php/Color_Charts_for_TKinter
- Create custom color with the function `color_rgb(red, green, blue)`, red, green, blue ints between 0 and 255 inclusive