

Objectives

- Continuing with OOP
- User Interaction
- Animation

Review: Object-Oriented Programming

- How do we create a new object?
- How is the term for how we give commands to/ do operations on objects?
- What is the syntax for calling a method on an object?
- What are two types of methods we talked about?
 - How do they work differently?
- What is a benefit of OO programming?

What is the purpose of this line?

- `from graphics import *`

Using the Graphics Library

- How do we create an instance of a Rectangle?
- Draw the rectangle?
- Shift the instance of the Rectangle class to the **right** 10 pixels
- What are the x- and y- coordinates of the upper-left corner of the Rectangle now?

Using the Graphics Library

- Move the rectangle such that the top-left corner will be at the position of the (current) bottom-right corner

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Sprenkle - CSCI111 [rectangle.py](#)

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Problem: Draw a Full-Canvas Tic-Tac-Toe Board

- Using the Graphics API
- Make lines purple with line width 3
- The width and height of the canvas is 200

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Designing for Change

- Sometimes there are “magic numbers” in our code
- Humans have more trouble understanding numbers than understanding words
- Give our magic numbers meaning by assigning them to variables
 - Example: $\text{PI} = 3.14159\dots$
- We’ll name them with all capitals and put them at the top of programs
 - Makes them easier to change; software is **soft**

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Modification to Tic-Tac-Toe

- **clone** a vertical line and horizontal line and shift appropriately
- Why clone?
 - Maintain the same properties (color, line-width, length)
 - Simplifies code

`tictactoe_clone.py`

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Broader Issue

Max
Aimee
Drew
Liam
Gabe

Utkrist
Katlin
JD
Pranam
Sam

Pengrui
Angel
Prakriti
Amalia
Abhi

Alex
Daniel
Rinn
Landon
Tristan

Annie B
Turner
Isaac
Chris

Algorithm Accountability

- Summarize the second article you read with the group
 - What was the controversy about the algorithm(s) in question?
- How can you enforce algorithm accountability?
- What kind of accountability do you want to see?

Looking Ahead

- Start working through Chapter 4 of the text book
 - Uses turtles as the objects
 - Lab Prep Assignment to come