Objectives

- User Interaction
- Animation

Recommendations

- Review the slides, example programs, and/or text book every day to review what we discussed
  - This problem made sense in class… Does it still make sense?
- Practice a problem every day
  - I rarely use problems from the text book so they're good practice
- Ask questions
- "sense of accomplishment after lab"

More Hints

- `for` loops – loop variable
  - What is purpose of the loop variable?
    - Just for looping?
    - Use within loop?

- Debugging practices
  - Trace through the program as if you are the computer
  - Use print statements to display variables' values

Review: Object-Oriented Programming

- How do we create a new object?
- How do 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?

Getting Input from the User

- `<GraphWinObj>.getMouse()`
  - Returns the user's mouse click as a **Point** object
- `Entry` objects
  - Get text from user

Problem

- Create a program where the user tells you where to draw a line
  - What do you need from the user?
  - What do you need to create a line?

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Problem: Circle Shift

- Move a circle to the position clicked by the user
  - Repeat five times

Animation

- Use combinations of the method **move** and the function `sleep`
  - Need to **sleep** so that humans can see the graphics moving
  - Computer would process the **move**s too fast!
- `sleep` is part of the `time` module
  - takes a float representing *seconds* and pauses for that amount of time

Examples of Animation

- From Previous Classes

Problem: Animate Moving to User Click

- Use combinations of the method **move** and the function `sleep`
  - Need to **sleep** so that humans can see the graphics moving
  - Computer would process the **move**s too fast!
- `sleep` is part of the `time` module
  - Takes a `float` parameter representing *seconds* and pauses for that amount of time

Problem: Animate Moving to User Click

- In X steps, move from the circle's current location to the location clicked by user

Looking Ahead

- Friday
  - Lab due
  - BI due by 10 a.m.
- Next Monday: Extra Credit Opportunity
  - Andy Danner, Swarthmore College
  - Computer Science/GIS talk
  - 11:15 a.m , Parmly 307
  - 10 points extra credit for answering questions on Sakai