Lecture 28:

INTERACTION

CSC111: Introduction to CS through Programming

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Discussion

How did Lab 9 go?

What did you notice?

Reminder about lab/HW submissions

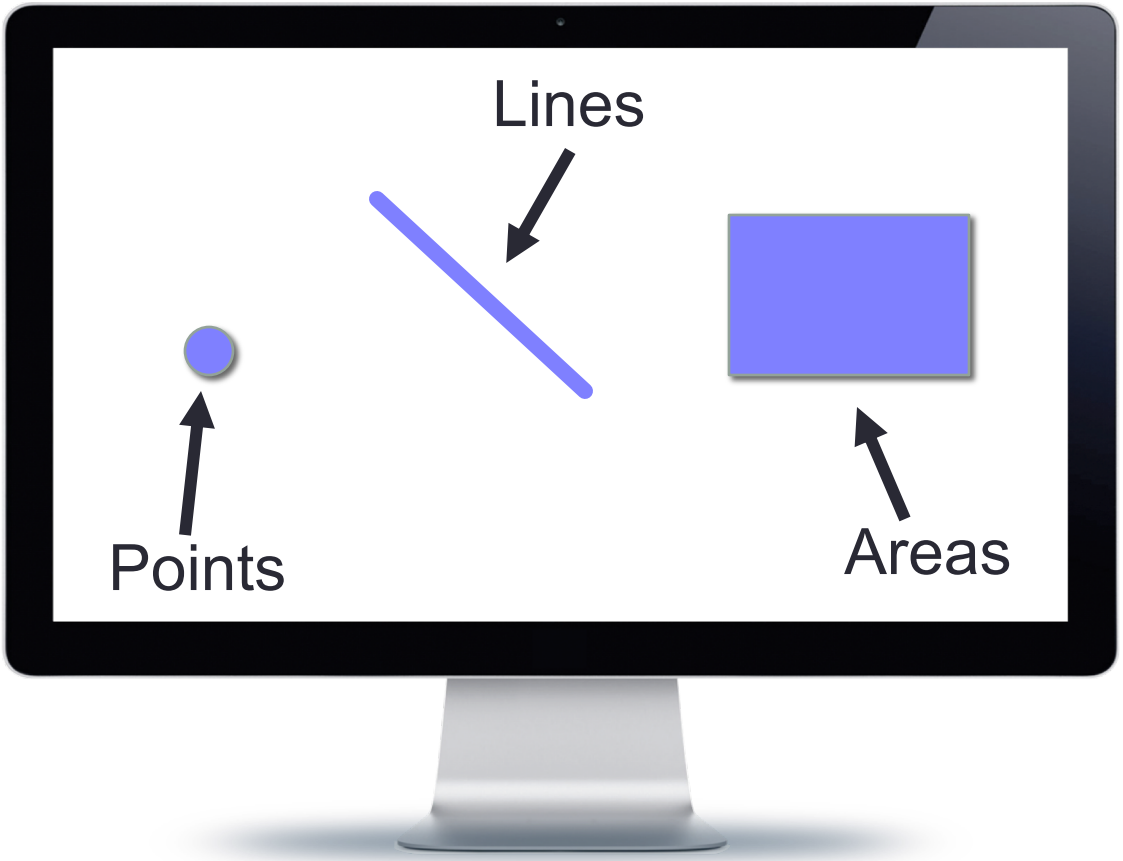
- Remember to put a HEADER at the beginning of your file
- If your code references image files, imports other stuff you've written, etc. **you need to submit that too** (otherwise it won't run)

Outline

- ✓Animation debrief
- Interaction basics
  - mouse
  - keyboard
- In-Class Lab: Interactive Fish Tank

✓ Draw stuff

"graphical primitives"



✓ Draw stuff

using the **`graphics`** module

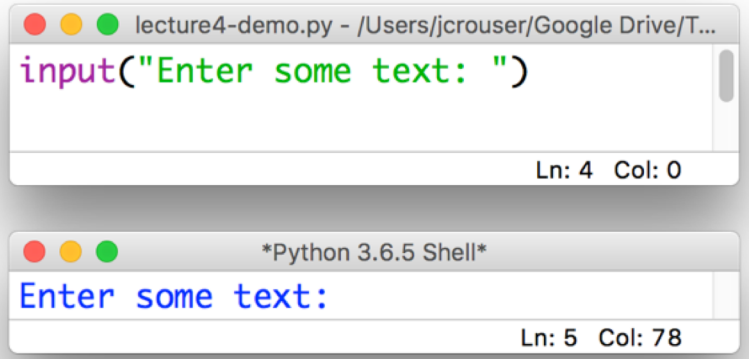
✓ Make it move

3. Get input from the user and react

Lecture 4: first experience with user input

The `.input()` function

- Python has a built-in `.input()` function that allows us to ask the user to type in information
- The `.input()` function takes in a value, which will be printed to the console as a prompt:



Interaction (def.)

- Ways for the user to **affect change** in what's happening in the program

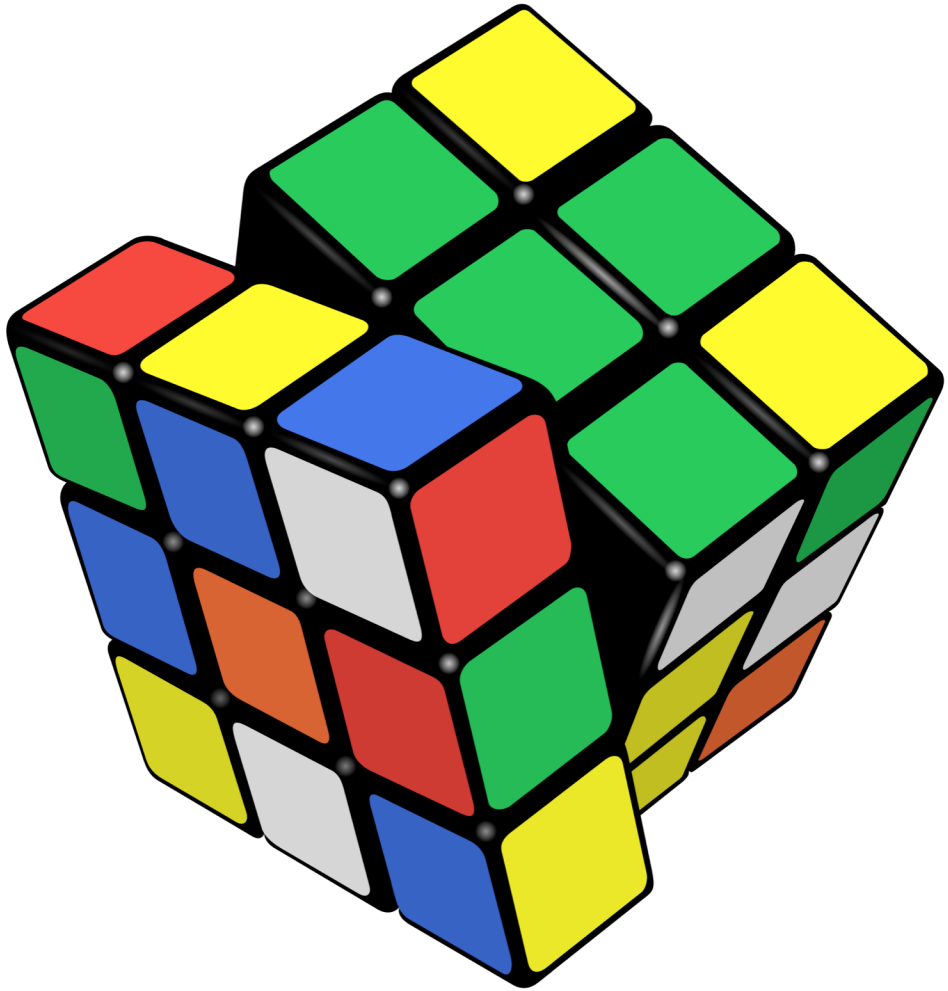
- Low level: **between human and interface**
  - the set of operations available
  - happens between the human and the physical computer

- High level: between **human and problem space**
  - a cognitive act *enabled* by the interface
  - happens between the human and the digital objects

Example: Rubik's Cube

What **low-level** interactions can you have?

What **high-level** interactions can you have?

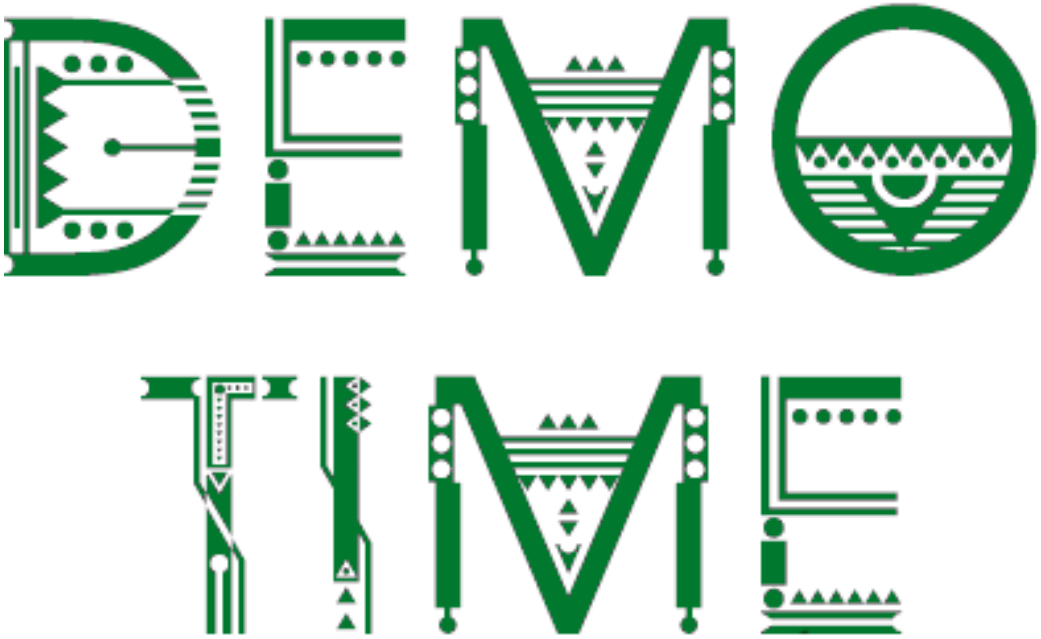


Low-level vs. high-level interactions

Interaction with **`graphics`** objects

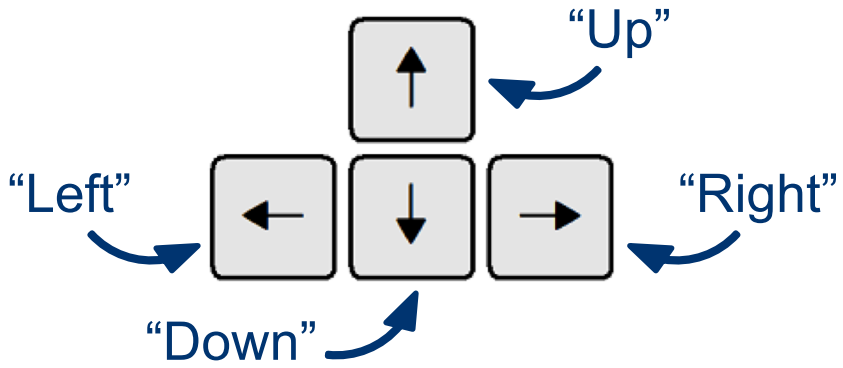
- The **`GraphWin`** object has methods to detect interactions
- Mouse:
  - **`.getMouse()`**: stop the program and wait for user to **click**
  - **`.checkMouse()`**: continuously check if the user has **clicked**
  - both return a **`Point`** object
- Keyboard:
  - **`.getKey()`**: stop the program and wait for user to **type**
  - **`.checkKey()`**: continuously check if the user has **typed**
  - both return a **`string`**

Our first interactive **`graphics`** program



Notes about keyboard interaction

- The strings returned by the **`.getKey()`** / **`.checkKey()`** methods ae called **keycodes**
- Some keys don't have an obvious letter attached to them, but their keycodes are still pretty intuitive, e.g.



- See also: **"space"**, **"Escape"**, **"minus"**, **"underscore"**, **"equal"**, **"plus"**, **"BackSpace"**, **"Return"**, **etc.**

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Challenge 1: press ’q’ to quit

Challenge 2: fish position

Challenge 3: fish frenzy

Coming up next

- Monday: paper prototyping
- Wednesday / Friday: THANKSGIVING BREAK!