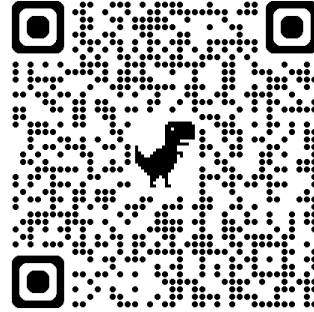


UNIVERSITY OF CALIFORNIA, BERKELEY
Department of Electrical Engineering and Computer Sciences
Computer Science Division

CS10 Spring 2025

TA: Victoria



Discussion 9: OOP in Snap!

Instructions:

- If you're attending this section in-person, please log into iClicker!
- If you missed this discussion, fill out this entire worksheet, and upload it to the Gradescope assignment titled "Discussion 9" by next Discussion.
- Please open up snap.berkeley.edu/run on your computer.
- For the worksheet, you can either explain the process in words, show a screenshot, or draw the block/process.
- Please complete the Feedback Form tinyurl.com/sp25-disc-form

Group Activity / Question of the Day

- If you could live in any fictional place (from a book, show, movie, song, poem, comic, etc.), where would it be and why?

Required (Pages 2 - 3):

Assigned Reading

How will the widespread adoption of automation and AI impact income inequality? Will it lead to a higher concentration of wealth in the hands of a few, or will new economic opportunities be created? How can we ensure that these technologies are used responsibly, without exacerbating unemployment or creating social harm?

Section I - Objects

Your TA will perform a mini lecture going over a new technique of OOP in Snap! We will be using [this Snap! file](#) to review the concept (you can follow along with the file, but it is not required).

Throughout this discussion, we will be using the following starter file: [Aquarium Starter File](#). In this starter file, you will find an aquarium with a Fish class. The sprites (Purple Fish, Yellow Fish, and Spotted Fish) should be instances of the main Fish class (found in the Aquarium sprite)

1. Create instances of the Fish class for each of the fish sprites (Purple Fish, Yellow Fish, and Spotted Fish). Be sure to change their 'Species Name' and 'x, y coordinates'.
2. In the Fish class, change the attribute for 'children', so that it increments by 1 each time an instance is created.
3. Now fill in the 'feed func' so that the hunger level of the fish increases by 20. This increase should only happen if the fish's hunger level is at 80 or below.
4. Now create a new variable / attribute called 'speed'. The speed will represent how fast the fish is moving.
5. Next, create a function called 'swim', the fish should continuously swim at the speed of its 'speed' variable until it reaches the edge of the aquarium. The default

- should be 1. Once the fish reaches the edge, it should swim in a new direction.
- a. The swim function should also update the x, y coordinates of the fish.
6. Finally, add a mechanism that continually decreases all fish's hunger by 5.

Section II - Clones + Subclasses

You will be using the same Aquarium starter file

1. In this part, you will be making clones of each of your fish sprites. You will also need to make a subclass of each species when making a clone. So, when you create a clone of the "Purple Fish", the clone must inherit the attributes of "Purple Fish", and not just the "Fish" class.
2. Each time a clone is created, that particular fish species children should increase.
3. Make it so that clones are only created when the 'spacebar' on the keyboard is clicked. And, a clone should only be created when the sprite has less than 4 clones. Hint: You can use 'my clones' for this.
4. Next, add a randomness condition that only generates a clone 1 out of 10 times.
5. Your clones should also be swimming and start out in a randomly generated position. You may need to update your swim function, so that you are using the x, y coordinates relative to the clone and NOT the sprite. Hint: You can use "my center x" and "my center y"