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Section: B
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Project 9 Report:

Title: *Objects Rotating and Colliding*

Abstract:
This program draws a zelle graphics object onto your screen and rotates it about a fixed point. In certain tests, the rotating object is made to collide with another moving object to observe whether or not the collision dynamics are accurate.

Results:
There isn't a lot to say about the results this week because the project was thoroughly commented on and all I had to do was convert pseudo code into actual code, without having the space to make any huge implementation decisions.

Lab (Rotating Line Class):
In Vid_1.1, you can see a line rotating about a fixed point.

Test 1:
In Vid_1.2, you can see a rectangle rotating about its center

Test 2:
In Vid_1.3, you can see a rectangle rotating about a point that isn't its center, this is to demonstrate that any point can be the axis of rotation.

Test 3:
In Vid_1.4, you can see a rectangle interacting with a ball while it's rotating. The ball falls towards the rectangle and has a collision, bouncing in the direction that the rectangle is facing at the point of collision.

Reflection:
In class we were learning about Object Oriented Programming (OOD) and the Zelle Graphics Package. OOD can be used in anything just to make the code more efficient and readable. A potential use of OOD is whenever you're coding a group of similar objects like animals, cars, or people—objects with similar (if not exactly the same) fields and methods. The Zelle Graphics Package, on the other hand, can (and is) used to animate things. This week's project in particular focusses on animating rotating objects like tyres, amusement park rides or the loading sign when you're buffering videos.

Follow-up Questions:

1. **How did inheritance help you on this project?**

Inheritance made it so that I didn't have to repeat a lot of functions that I knew I had to code for a majority of the shapes. It made it so that I could use a general thing class and then borrow the method whenever I needed to.

2. **What is the difference between the position anchor point and the rotational anchor point?**

The position anchor point is the point the object is placed in reference to and the rotational anchor point is the point that the object is rotating about.

3. **What is the difference between an object field and a local variable in a function?**

Local variables only exist inside the block where they are defined while field variables exist as long as a particular instance of the class is active.

4. **What is your favorite rotating amusement ride?**

A ferris wheel

Extension (optional):

I made an object out of two zelle graphics objects and you can see that object colliding with a ball in **Vid_1.5.**
The shape that I drew was a plus sign using two blocks. I drew it by adding dimensions for another block to self.points (this was really easy because all I had to do was copy the points that were already there, switch the places of the width and the height in each point and add the new points to the list of lists) and drawing them as two different shapes in self.vis. I positioned them on top of eachother, perpendicular to each other, and since they were in the same self.vis list, they moved together and collided together as well.

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