P3 A: Animation of the 4 Steps in Tango

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CS 3451

Project 3 Part A Module 3

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Summary

The task for this module is to animate a pair of legs so that it demonstrates four steps to tango (transfer, collect, rotate, aim) in a forward step.   Given the calculated leg dimensions from module 2, a pair of legs can be created through a leg class, and can be animated by changing the hip and ball coordinates of a given leg according to a specific dance step. Transfer is the act of switching free foot to support foot, collect is the act of transitioning the free foot to the support foot, rotate will not be shown in this demonstration, and aim will be the act of transitioning the free foot forward past the support foot.

Solution

The legs will be animated in this order: transfer, collect, and aim starting from the left leg as the support foot, which is shown as a green leg. The first step transfer will change the left leg to be the free foot and the red leg (right leg), which was originally the free foot, to be the support foot. The next step would be collect, where the free foot collects to the support foot's position. Lastly, aim will show the free foot moving past the support foot and into position. The above steps are repeated to form a walking motion.

Here is a breakdown of what needs to be done:

- Create two leg objects each with a default hip and ball point. The hip points will remain in the same position the entire time while the ball points change.

- Change the x value of the hip position on transfer and switch to the next step: collect.

- Change the x value of the ball on collect and switch to the next step: aim.

- Change the x value of the ball on aim and switch to the next step: transfer.

- Repeat process.

The two legs are given a default position. Left left starts off as the support leg so the x value of the hip is aligned with the x value of the left ball point. To animate transfer, the x value of the hip will increase until it is aligned with the x value of the right leg's ball point. The left leg will then be the free foot.

To animate collect, the x value of the free foot will be incremented until it is aligned with the x value of the support foot. Both legs will come together at this step.

To animate aim, the x value of the free foot will be incremented until it moves past the x value of the support foot. In my implementation, the free foot is displaced by 380 from its collect position. Once this step is over, the next tango step will revert back to transfer.