Java Fundamentals
2-4: Rotation and Randomization
Project

This project will progress with you throughout the course. After each lesson there will be more to add until it builds into a complete animation that you can upload to YouTube or export as a local animation file.
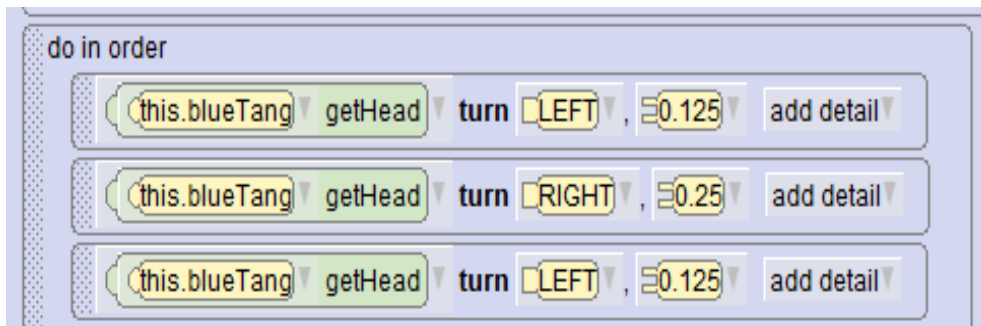
Lesson Objectives:

- Correlate storyboard statements with program execution tasks

- Add a control statement to the Code editor

Instructions:

1. Open Alice 3 on your computer.

2. Either using the My Projects tab or the File System tab, browse for and open the Fish_3.a3p file.

3. Using the Save As command from the file menu, rename the file to Fish_4.a3p.

4. If you are not already in the code editor use the Edit Code button to go to the code editor. In this lesson you will look at adding movement to whole and sub-parts of the objects in your animation.

5. To make your animation more engaging and lifelike you can move the sub-parts of your character models. From the object list menu choose the clown fish and then using the sub-part menus choose getRightFrontFin from the joints menu.

6. The right front fin should turn backwards before the fish swims so drag a turn procedure above the first move command in the clown fish code block using backwards and 0.125 as the arguments.

7. You want to have the fin turn while the fish is moving forward to make it look like the fin is propelling the fish. Add a do together statement under the fin turn statement

8. Drag the move forward statement from underneath into the do together control statement

9. Using the CTRL + mouse click method drag the fin statement into the do together and change the direction argument to forward.

10. Complete the process until the code matches the following image:

```
do in order
   // Make the clown fish swim forward and then turn
   this.clownFish   getFrontRightFin   turn  BACKWARD  , 0.125   add detail
   do together
      this.clownFish   move  FORWARD  , 1.2   add detail
      this.clownFish   getFrontRightFin   turn  FORWARD  , 0.125   add detail
   this.clownFish   turn  LEFT  , 0.5   add detail
   this.clownFish   getFrontLeftFin   turn  BACKWARD  , 0.125   add detail
   do together
      this.clownFish   move  FORWARD  , 1.2   add detail
      this.clownFish   getFrontLeftFin   turn  FORWARD  , 0.125   add detail
   this.clownFish   turn  RIGHT  , 0.5   add detail
```

11. When you test the animation you will see that the clown fish starts and stops abruptly. To change this click on the add detail button, choose animation style and then choose begin abruptly and end gently.

12. Do the same for the other move statement in this code block.

13. At the end of the swimming the Blue tang fish should shake its head and say "no more swimming today!" Drag another do in order to the bottom of the existing code.

14. Select the Blue Tang fish's get head function and add the following three turn statements.


```
do in order
   this.blueTang   getHead   turn  LEFT  , 0.125   add detail
   this.blueTang   getHead   turn  RIGHT  , 0.25   add detail
   this.blueTang   getHead   turn  LEFT  , 0.125   add detail
```

15. Select the Blue Tang fish from the object menu and add a say procedure that makes the fish say "No more swimming today!" Add this under the final turn statement.

16. Add a comment to the code block explaining that the blue tang will shake its head and display a message to screen

17. Save your program.

18. Exit Alice 3.