

Java Fundamentals 2-6: Control Statements 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:

- Define multiple control statements to control animation timing
- Create an animation that uses a control statement to control animation timing
- Recognize programming constructs to invoke simultaneous movement
- Write a storyboard

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_5.a3p file.
3. Using the Save As command from the file menu, rename the file to Fish_6.a3p.
4. If you are not already in the code editor use the Edit Code button to go to the code editor.

When creating animations that are included in a do together statement, the timings can be very important. You don't want one object to sit and wait while the other finishes its movement. By default the time for a single procedure to execute is 1 second in Alice. The swim procedure takes 6 seconds to complete.

1 second ———

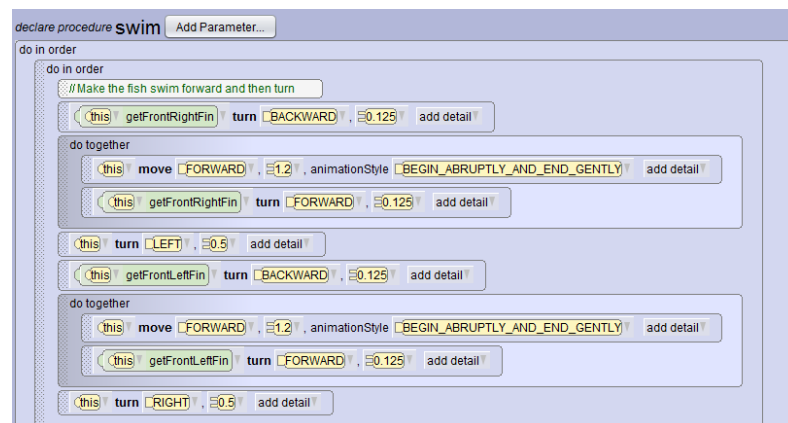
1 second ———

1 second ———

1 second ———

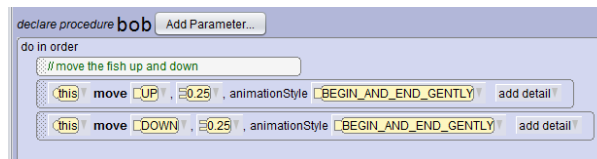
1 second ———

1 second ———

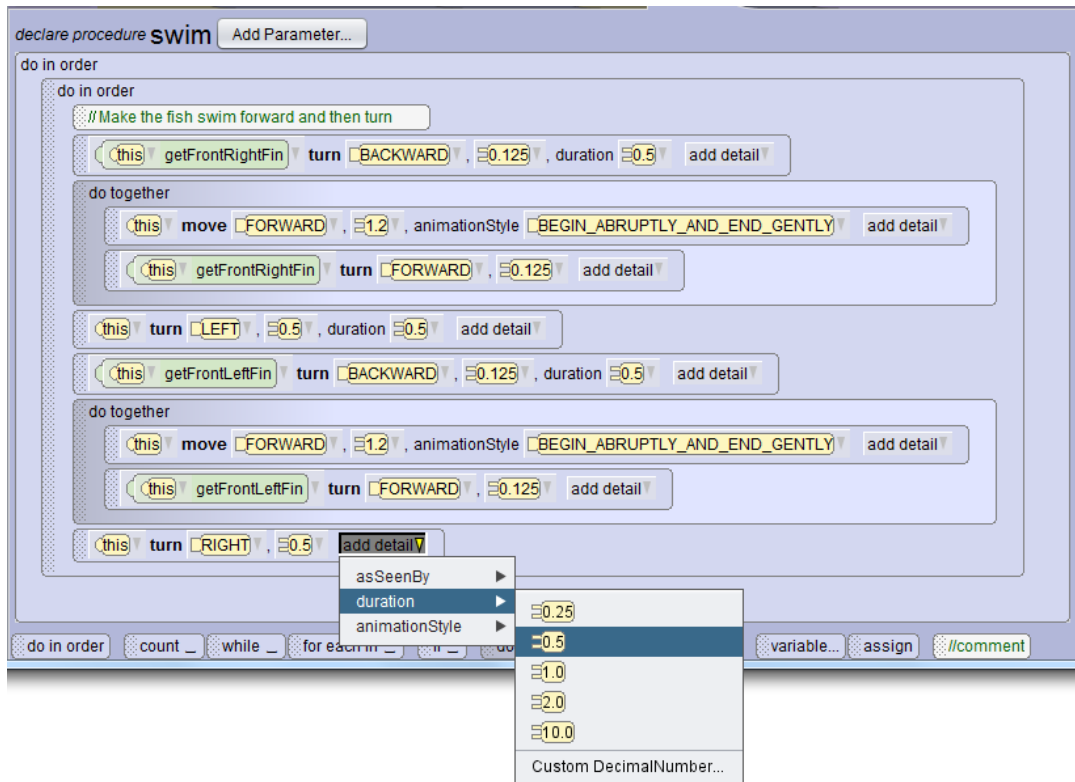


The swim procedure is in a do together statement with the bob procedure which takes 2 seconds to complete.

1 second 
1 second 



5. To ensure a smooth animation you can either change the timings of one of the actions. Change the duration of the individual procedures to match the image.



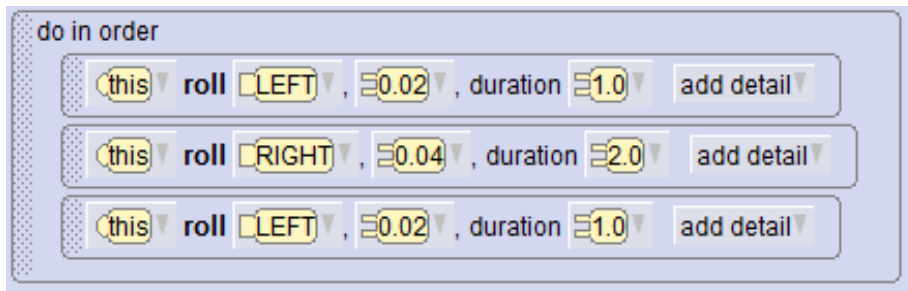
This gives the swim procedure an execution time of 4 seconds.

6. You can have an object carry out multiple procedures while the other object is executing. In the myFirstMethod add a do in order statement that will allow you to call the bob procedure twice. This will make both characters carry out procedures for 4 seconds.
7. Run and test your program!

8. Add three pieces of seaweed to the scene like shown



9. Add a drift procedure at the seaweed level and create the following code block.



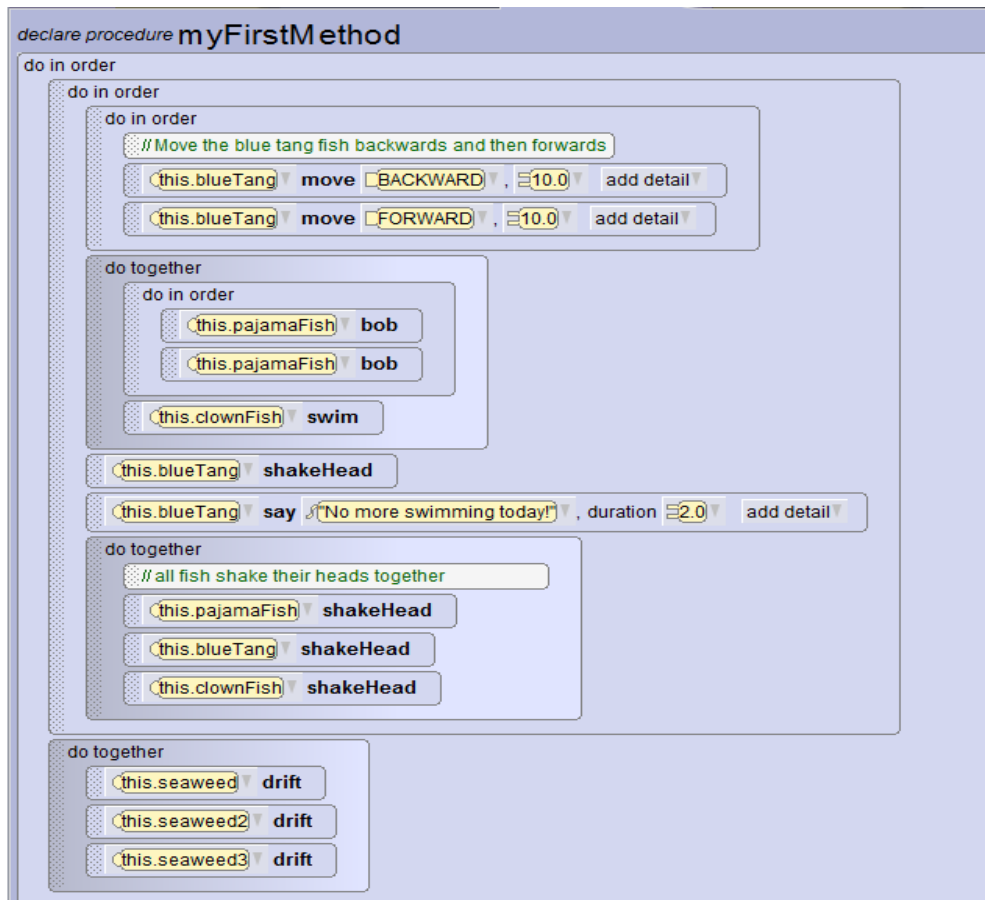
10. In the myFirstMethod tab add a do together statement and add a drift procedure for each of the seaweed objects.
11. Save your program.
12. Run your program!

You can see that all of the procedures execute in order. What if you wanted the scenery items to move while the main characters of the code are carrying out their own actions? To do this you have to make use of the do in order as well as the do together statements.

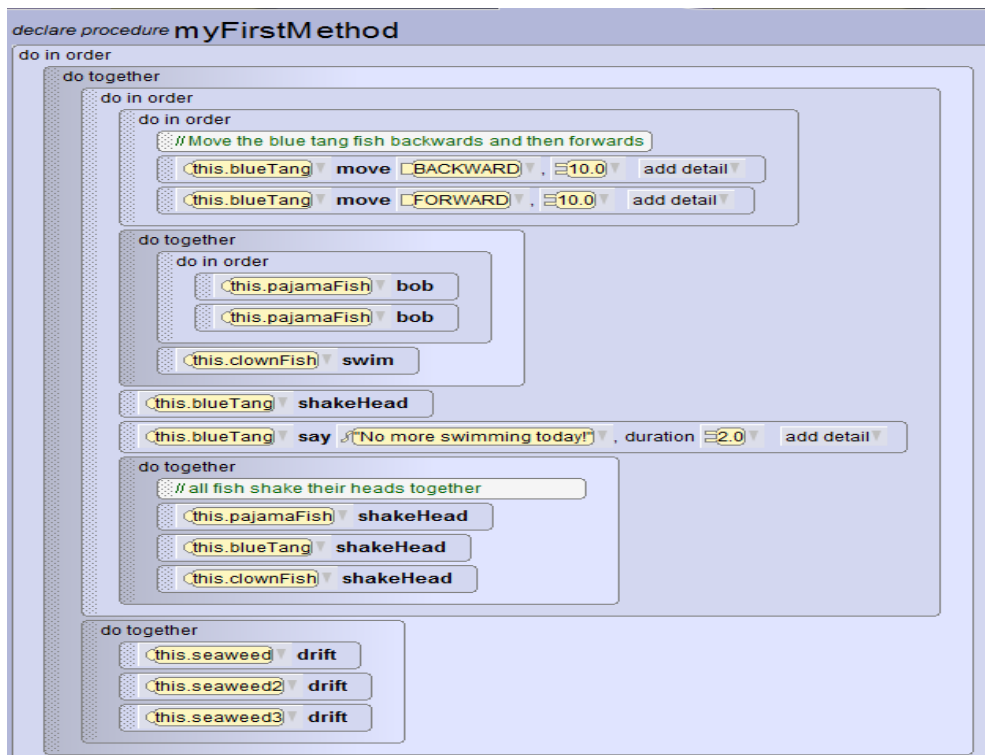
It is important to plan these steps out.

- All of the fish procedures must be carried out in order
- All of the scenery procedures must be done together
- Both the fish and the scenery objects must execute together.

13. Add a do in order statement that will hold all of the fish procedures.



14. Add a do together statement that will hold all of the statements.



15. The seaweed only moves once but you will look at changing this in a later lesson.
16. Save your program.
17. Exit Alice 3.