# Lab 2: Spirograph

Use NetLogo Turtle Graphics to draw your own, unique rosette (Spirograph) pattern. Basically, this is done by using two turtle commands: `forward` and `right`, in a procedure called by a NetLogo "go" button with the "`forever`" box checked. In the screen captures below, there are circular arrows in the lower right corner of the "`go`" button. These arrows indicate that the forever box in the "go" button's properties had been checked.

In this simple program, you will be "hardcoding" the number of steps the turtles takes in the `forward` command and the angle turned in the `right` command.

In the example shown below on the left, the "`setup`" button calls a procedure that clears Netlogo's model view plane, creates one turtle and sets its heading, pen size and color. As mentioned in the first paragraph, the "`go`" button is different from last week's "`go`" button. It is a forever "go" button that **repeatedly** calls the "go" procedure. The "go" procedure instructs the turtle to move forward and turn. The figure in the left screen capture was created by clicking "`setup`" then clicking the go button; since the "`go`" button has the forever option checked it will run until it is manually stopped. You can manually stop the "`go`" button by clicking on it while it is running. While the program was paused, the hardcoded values of color, pen size, forward distance and turn angle were changed in the code. Then the "`go`" button was clicked a third time to start it again. This was done for each of the 5 separate patterns.
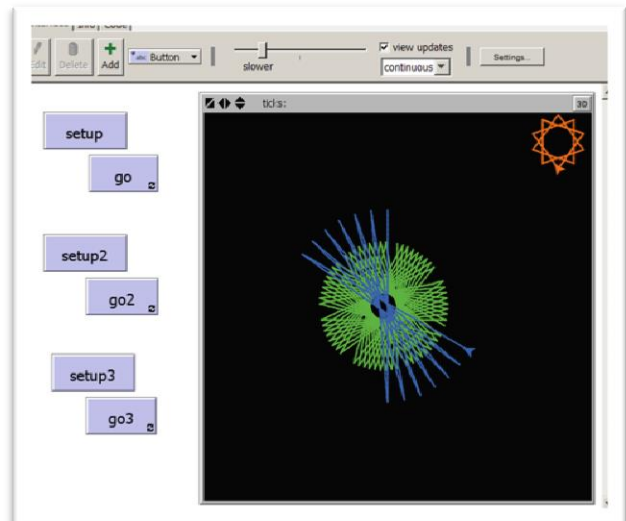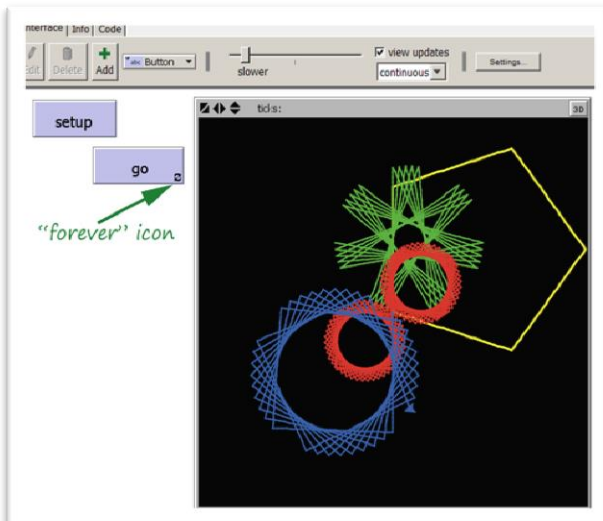
The program captured on the right above shows a different way of creating a compound set of patterns. The second setup button, "`setup2`", does NOT clear the view plane. The "`setup2`" button lifts the pen, moves the turtle, then puts the pen down again. The "`go`" button draws the green pattern, the "`go2`" button draws the blue pattern and the go3 button draws the orange pattern.

Grading Rubric [20 points total]:

[A: 2 points]: Submit TWO files to your instructor:

1) Netlogo source code with the file name: `W2`.*firstname*.*lastname*.`nlogo`.

2) The a screen capture of the image you create with the file name: `W2`.*firstname*.*lastname*.`png`. (save a screen capture from NetLogo by using: File→Export→Export View...).

[B: 2 points]: The first few lines of your code tap are comments including your name, the date, your school, and the assignment name (Lab 2: Spirograph).

[C: 2 points]: The code in the code tab of your program is appropriately documented with "inline comments".

[D: 2 points]: Your program includes a description of what your program does in the Info tab. If you created your screen capture by changing hardcoded values, then the info tap must include each of the values you used for color, forward, right and any other setting you changed between pressing "go".

[E: 4 points]: When the user loads your program and clicks the "setup" button followed by the "go" button, your program draws a rosette that is different than the rosette drawn by each of your classmates.

[F: 5 points]: Your screen capture shows the rosettes made by your program. There must be at least 3 rosettes in your captured image. You may do this by using either of the methods in the examples above.

[G: 3 points]: Your screen capture is creative and interesting to behold. If you are not sure what constitutes "creative" and "interesting", ask your teacher.

Extra credit [10 points]: Request that your screen capture be submitted to an independent panel of expert judges (CS-151 students in a different school). The two students in your class that receive the most votes as being best each receive 10 bonus points.