

NetLogo Refresher Exercise

Provided for Exercise 8, Chapter 9 of Agent-Based and Individual-Based Modeling

The following tasks are not linked to any model. Their only purpose is to exercise your facility with NetLogo syntax. If you are stuck, use the NetLogo Help function, explore existing models in the Models Library, or ask a colleague or instructor.

1. Create a new NetLogo model via File/New.
2. Save it under some name, e.g. `NetLogoExercises.nlogo`.
3. Change the settings of the world to 20×20 patches, with the coordinate 0,0 in the left lower corner. Adjust the patch size so that the “world” window fits on the screen.
4. Create a setup button and write the “skeleton” of the corresponding `setup` procedure. Click the “Check” button on the Code tab to check if everything is right.
5. In the `setup` procedure, give all patches a random shade of gray: use the `ask patches []` command, and the commands and variables `set`, `pcolor`, `gray`, `scale-color`, and the function `random`.
6. In the `setup` procedure, create 50 turtles and give them a random initial position: use `crt`, `setxy`, `random-xcor`, and `random-ycor`.
7. Click the setup button several times. What happens? Turtles are accumulating? What can you do about this? Change the `setup` procedure so that always after clicking setup, only 50 turtles are present.
8. In the `setup` procedure, randomly give about half of the turtles the color blue, the other half the color orange. Use: `ifelse, random-float 1.0, set color`.
9. Create a button named `count blues` and link it to a procedure `count-blues`, where all turtles with color blue are counted, and the resulting number is shown via `print` in the command center. Use: `count, with, print`.
10. Create a monitor that displays the number of blue turtles.
11. Make the `print` command in the `count-blues` procedure produce: “Number of blue turtles: n ” where n is the number of blue turtles. Use the primitive `word`.
12. Give all turtles the variable `age`. Use: `turtles-own`. Initialize their age to zero when turtles are created.
13. Create a `go` button, and link it to a `go` procedure (for now, leave the “forever” option off) that makes all turtles increase their age by 1.

14. Link a label to each turtle that displays the turtle's age. Use `set label`. Click the `go` button a few times and make sure the labels update with the current age.
15. Edit the `go` button (right mouse click) and activate the forever option. Change the `go` procedure so that it also updates NetLogo's tick counter. The age of each turtle should match the number of ticks displayed on the View.
16. Change the `setup` procedure so that turtles are given a random age between 0 and 10. Age is an integer.