COSC150: Lab7 21 April 2022

Multiple models of Effects of Social Distancing in Javascript

1. The goals of the lab explorations today are for you
    a. To get comfortable "deconstructing" an existing model to understand its structure, this time in a "modern" language, javascript
    b. To gain confidence in modifying someone else's code, and
    c. Spark some interest in exploring how social distancing (or lack thereof) can be modeled with different agent properties.

    (Note: ***deconstruction*** is the leading learning mode for most scientific programmers . . . ***run, modify, write***).

2. **Turning Code to a Story, Turning a Story into Code**: In class today we again turn a simple story into a code. We'll use the Susceptible (healthy) → Infected (sick) → Recovered model so you see that you get the same result as the "systems dynamics" approach. The approach we will take is "directed inquiry" so I'll start by suggesting questions, observations, and changes.

    a. Recall the basic story:
        i. If a healthy (susceptible) person is next to a sick (infected) person, there is a chance that the healthy person changes into a sick person.
        ii. After a specified number of days, a sick person could recover.
        iii. Healthy and sick and recovered persons move randomly in the world.

    b. Start by creating an account at http://www.replit.com

    c. Open and fork each of the files in:

    https://webs.wofford.edu/panoffrm/COSC150/replit.html

    d. Look at the actual code pieces and make various modifications.
        i. Develop some driving questions. Each time you change the code, force yourself to make some expectation, then careful observations. Run the code changes several times and reflect on what you are seeing.
        ii. Keep track of which part of the code is changed and its effect.
        iii. Which changes are "cosmetic" and which really change the model in an essential way? Which change the running of the code?
        iv. What are the differences in the model science? In the model operation?

    e. By the end of Lab, you should have at least *5* different ways to affect the speed of the transmission of a disease.

3. By end of day Thursday, e-mail me (panoffrm@wofford.edu) a short 2-3 page (PDF) report on what you learned including meaning of semantics, cosmetic changes, operational changes, and the various model methods for affecting the speed of transmission of a disease. Compare and contrast the two models.