CSC104 project #1
Sneeze and sneezability...
best before Friday November 1st, 11:59 p.m.

Every winter respiratory infections sweep through our population, carried on a sneeze. Depending on how strong your resistance is, your neighbour's sneeze today will be your sneeze tomorrow.

You will build a simplified model of a sneeze epidemic. The population is represented as a list of zeros (representing healthy individuals) mixed with a single positive number (an infected individual). As each day passes, a healthy individual with an infected individual beside them will become infected if their resistance is less than the virulence of the infection. Once infected, they remain sick (and infectious) for a number of days (which I call duration), at which point they recover and become immune for a number of days (which I call immunity).

Depending on the value of *virulence* (a number between 0 and 100), *immunity*, and *duration*, the course of the epidemic will be different. For each individual, *resistance* is randomly chosen to be a number between 0 and 100. If a person has a sick neighbour, and their *resistance* is less than virulence, they become sick.

In DrRacket, open `sneeze.rkt` (go to November 1st on the course web page and right-click on it). Make sure the language level is `Intermediate Student with lambda`.

Hunt for comments that begin with three exclamation marks: !!! — these indicate the work you need to do. You have to complete some short (usually a few lines) definitions that will make the simulation work. I have tried to indicate the resources you should look at to figure these out, and of course your TAs and I are always available for questions.

Comments are those lines of code that begin with a semicolon ";" character, and are meant for humans to read and computers to ignore. The definitions you create should **not** have semicolons in front of them — you don't want the computer to ignore them!

If you complete the code correctly, you will see a 100×100-dot green square that slowly depicts the course of an epidemic: green areas are uninfected, blue areas are infected, and red areas are immune. Once you get the feel of what's going on (this should take a few minutes of watching), you can change values such as VIRULENCE, DURATION, or IMMUNITY to see what the effect is. There is a space for your observations and conjectures at the bottom of the file `sneeze.rkt`

What to submit

Please submit `sneeze.rkt` on MarkUs