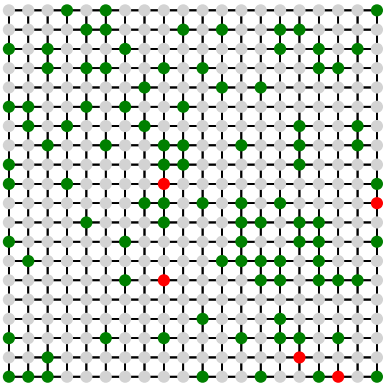
School Nova Computer Science 202
Homework 8 (due 11/21/2020)

TASK 1

We continue working on a basic SIR (Susceptible-Infected-Recovered) model. Start with the class code. Choose randomly 100 agents (hint: use random.sample()). Using .getsick() and .recover() methods, change the status of your selected agents: first 5 are infected and 95 are recovered. (Note: modify recover() method to also include self.sus = 0 since we are artificially skipping the infected stage in this task). Plot your grid. It should look something like the below (in my case, grey are Susceptible, red are Infected, and green are Recovered). Do not use labels for your plot.



TASK 2

How would you keep track of the total number of Susceptible, Infected, and Recovered agents? Can you store this information using *class* attributes? Modify your code. For the initialization method you need to add 1 to the number of Susceptible (since we assume that all agents begin as Susceptible). You also need to modify .getsick() and .recover() methods since the number of Susceptible, Infected, and Recovered agents in the population change when agents get sick or recover. Verify that your code works using Task 1 numbers: 300 (Sus), 5 (Inf), 95 (Rec).

TASK 3*

Introduce a simple disease transmission. Assume that for each connection: if one of the agents is **infected** while the other is **susceptible**, the susceptible agent becomes infected (that is, for the sake of simplicity we assume 100% transmission; also note that **recovered** agents cannot become infected). Start with only **one agent infected**, whose location is (10, 10). Test your code by looking at your population after 7 days (T = 7) with time_to_recover = 3. Plot your grid. It should look similar to the below.