Code Tutorial
Covid

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Overview

This document will provide you with a follow-up information on the code material covering the 2nd Assignment about modelling disease spread in a population. In general, for the code to run you MUST implement the functions mentioned below (with the exact name as mentioned below), as these functions are called upon from the simulation code. However, apart from this you should/and are encouraged to design your own methods/alter the code to achieve what you want to do!

Covid Folder

population.py

Contains the Population class. The two basic functions you have to implement are:

- `__init()__`: initialize the Population class as a subclass of Swarm class, so it inherits all the methods.
- `initialize()`: this function should initialize the environment. What kind of environment is up to you

person.py

Contains the class Person. The functions that have to be implemented are:

- `__init()__`: Initialize the Person class as a subclass of the Agent class
- `update_actions()`: describes how the agents act/interact in the environment

config.toml

This file should specify:

i the general settings of the simulation

ii the specific Population settings (the environment where they act)

iii the specific Person settings

Plots

As mentioned in the assignment file you are provided with the code that generates a plot after each simulation (*check the changes in the* `run()` function of the `simulation.py` file). Below we describe you a bit more details of what is needed for this function to work:

> `plot_simulation()`
>
> In this function the program checks the swarm type. For you of interest is only the Covid function `_plot_covid(data)` (*the rest is there so the program doesn't crash when running the other experiments). To this function you have to pass an object `points_to_plot`. In particular, for the current implementation this object has to be a dictionary, designed as this:
>
> $$\{\text{'S'} = [...], \text{'I'} = [...], \text{'R'} = [...]\} \tag{1}$$
>
> where the corresponding keys are 'S','I', and 'R', and each key has a list as its value.

So now you know the object type that you have to pass, the question is how we add data points to this dictionary. An answer to this you can find in `swarm.py` file. If you carefully check for the changes in the file you can see that the swarm has now additional attribute **datapoints** added to it. Exactly in this **datapoints** object you should store the corresponding agent types when running the simulation (Hint: this should be done in the person.py file). The contents of **datapoints** is trasnferred to `points_to_plot` via function `add_point()` that you can also find in the `swarm.py` file. We hope that these hints help you to understand the correct usage of the function, but also give inspiration of creating your own plotting function depending on the environment settings/disease model you have chosen.