Methodology

We decided to use Python programming language with the NumPy and matplotlib libraries. Python is a common program language with plenty of prior research. Its suitable at visualizing the data in the form of graphs.

The SIR Model considers the , and constants where they are the infection, and recovery constant. The program aims to use arrays to store the susceptible, infected, and recovered groups to help with the tracking of the population over time.

2 values: a, and b are used to calculate the probability of infection and recovery. The values change over time in the program centered around the susceptible, the infected population, the current time, and the constants.

For the population, a uniform distribution is utilized to reflect the differences between individuals.

Problems related to the data collection ✅

Scenario: perfect data and applying without noise ✅

Complicate the model ✅

Description: pseudocode for the program.

Graph 1: SIR graph ✅

Graph 2 : cumulative infection data and fit ✅

Logistic fit uses all data ✅

Apply fittings to different dates

Graph 3 : fitting from different dates.

Add noise to the data points

Consider data points in the networks.

Another approach to plot the curve involves using the fitting curve from the start to the end of simulation. The simulation splits the data into different stages, each stage acts as a check point to simulate the data after. At the point, the future projection is applied to simulate the current unknown data and projection is compared with the simulated data to determine the error in the curves.