General Description

I have performed a bunch of DIY pandemics using my code - *diyclass*. I tried different combination of social distancing and total population, contact number of people and total population, and etc.

If the recovered day is not big and the population is not, social distancing wouldn't make a large difference. But once the population gets large, the total recovered day for the population changed drastically.

Social distancing matters a lot because in my opinion, it works similarly to the vaccination, in a sense of keeping people away from each other and reduce the risk of infecting the disease.

In my *diyclass* code, one can regenerate a pandemic oneself, I found it really interesting to test different combinations. But the input should be correct. I didn't include it in my make file but I included it in the submission.

Data Analysis

Data input for *Ebola.cpp*: Population: 20, day for recovery: 20, probability of getting contagious: 0.8, people vaccinated: 0, daily contact number of people: 2 and social distance is 0. It takes 24 days to recover from the simulation.

Data input for *Covid19.cpp*: Population: 20, day for recovery: 14, probability of getting contagious: 1, people vaccinated: 0, daily contact number of people: 0 and social distance is 1. It takes 15 days to recover from the simulation.

Data input for *Flu.cpp*: Population: 20, day for recovery: 10, probability of getting contagious: 0.5, people vaccinated: 0.545, daily contact number of people: 5 and social distance is 0. It takes 18 days to recover from the simulation.

It takes longest for Ebola to recover because the days for recovery is longest. While the prepare for Covid19 and Flu is interesting because certain people have been comparing them. Indeed Flu takes slightly more days for the whole population of 20 people to recover, even if the total day for one to recover from the flu is fewer and there is vaccination for the flu. The problem with flu is that I didn't set social distancing for the flu and I set daily contact people to a relatively large number. And the other thing I feel like would make a huge difference in the simulation would be the death rate, or the probability of death by a certain disease. That's not shown or simulated from my code but I would say if we have that implemented, the result would certainly be different. Another problem is that for my simulation, the population is just too small to mimic a real world problem. If I increase the population, it will take exponentially longer time for the code to run.