CT561 – Systems Modelling & Simulation
Assignment 4 – SIR Model

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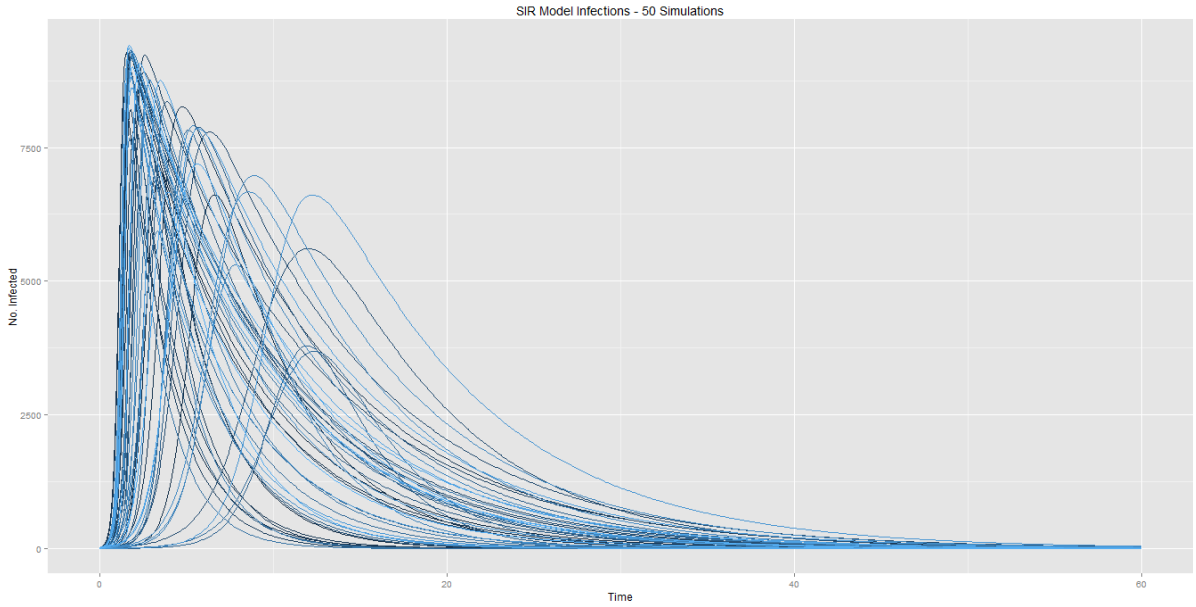
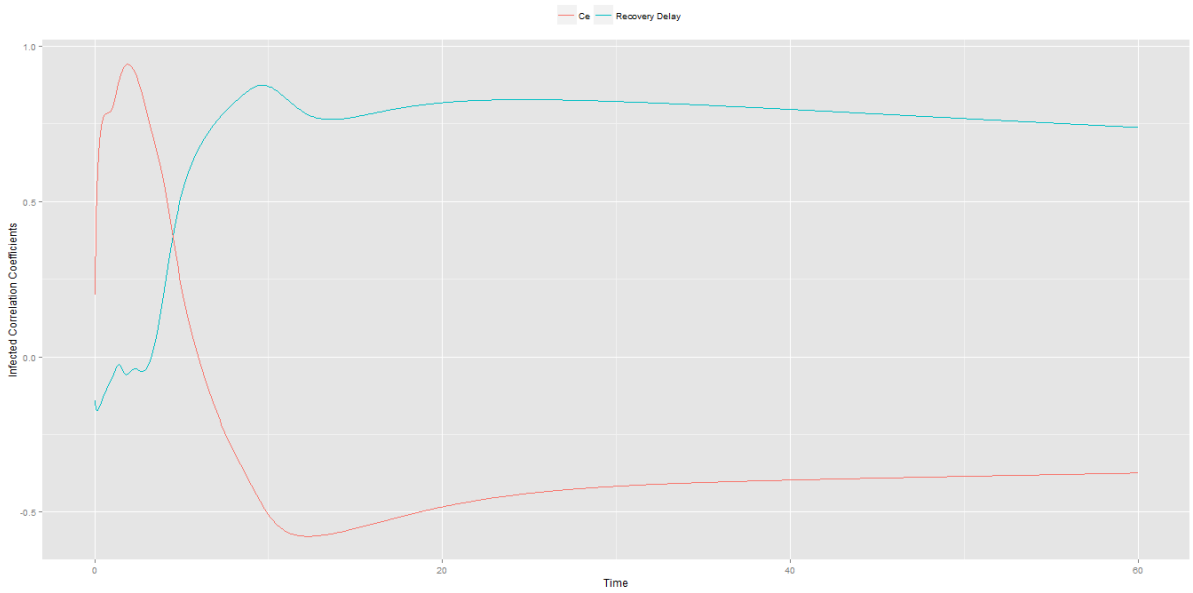
The first graph is an illustration of my SIR model's infected numbers over the course of an epidemic. The model is run 50 times and each line is one simulation. Each time you run my code you will get slightly different results as the initial Infected, Recovery delay and Ce values are a random number between the min and max thresholds that was supplied to me in the assignment brief. But the basic layout of the graph should be the same.

SIR Model - Infections



My second graph shows the correlation coefficient between the number of infected and the Ce throughout the epidemics, and the correlation coefficient between the number of infected and the Recovery Delay throughout the epidemics, as these are the parameters that affect infected numbers the most. Below I will comment on my results.



It's clear that early on in an epidemic, the Ce value has a bigger impact on the amount of Infected that occur in an epidemic as lots of people move from the Susceptible stock to the Infected stock. However as the epidemic progresses this becomes less important and the Recovery Delay value begins to have a much higher impact on the Infected stock, as this value determines how quickly people progress from 'Infected' to 'Recovered'.

Again, each time you run my code the correlation coefficients will be slightly different as the values are taken from a uniform distribution each time, but the overall shape remains the same each time.