```
        //THIS WILL CHANGE WHEN SWITCHING TO THE GAME. WILL BE BASED ON ACTUAL GAME COLLISIONS
        double rate_of_infection = -(contacts) * ((double)susceptible_count / (double)total_pop) * (infected_count);
        double rate_of_recovery = recovery_rate * (infected_count);

        //loop over to infect
        int i = 0;
        for (int j = 0; j < population.Count; j++) {

            if (population [j] == "susceptible" && i > rate_of_infection) {
            population [j] = "infected";
            infected_count++;
            susceptible_count--;
            i = i - 1;
            }
        }

        //loop over to recover
        int k = 0;
        for (int j = population.Count-1; j >= 0; j--){

            if (population [j] == "infected" && k < rate_of_recovery) {

            population [j] = "recovered";
            infected_count--;
            recovered_count++;
            k = k + 1;

            }
        }
    }

    public static void Main(string[] args){

        sirModel test_model;
        Dictionary<int, int> susceptible_data = new Dictionary<int, int> ();
        Dictionary<int, int> infected_data = new Dictionary<int, int> ();
        Dictionary<int, int> recovered_data = new Dictionary<int, int> ();
        test_model = new sirModel (99990, 10, ((double)1/(double)2), ((double)1/(double)3));

        Console.WriteLine ("");
        Console.WriteLine ("The test model has a susceptible count of: " + test_model.susceptible_count);
        Console.WriteLine ("The test model has an infection count of: " + test_model.infected_count);
        Console.WriteLine ("The test model has a recovered count of: " + test_model.recovered_count);
        Console.WriteLine ("The test model has a contact rate of: " + test_model.contacts.ToString("N8"));
        Console.WriteLine ("The test model has a recovery rate of: " + test_model.recovery_rate.ToString("N8"));
        Console.WriteLine ("The test model has a population of: " + test_model.total_pop);
```