

```

1 using System.Collections;
2 using System.Collections.Generic;
3 using System;
4 using System.IO;
5
6
7
8 /**
9  *Class that defines the SIR Model of infection. This version was used to produce the initial phase data and tests
10  *that are included in the evaluation. This is the basis of the class that will be modified and extended to work within
11  *Unity.
12  */
13 public class sirModel{
14
15     private Dictionary<int, string> population; //dictionary for entire pop. with <individual id, infection status>
16     private int susceptible_count;
17     private int infected_count;
18     private int recovered_count;
19     private double contacts;
20     private int total_pop;
21     private double recovery_rate;
22
23
24 /**
25  *Public constructor to create an instance of the SIR model. It takes the intial number of susceptible individuals,
26  *infected individuals, the contact rate, and the recovery rate as arguments. This will be adjusted for the model
27  *that will be used in the game (as the first two parameters will have to be linked to the game objects that
28  *represent individuals.
29  */
30 public sirModel(int susceptible, int infected, double b, double k){
31
32     population = new Dictionary<int, string> ();
33     susceptible_count = susceptible;
34     infected_count = infected;
35     recovered_count = 0;
36     total_pop = susceptible_count + infected_count + recovered_count;
37     contacts = b;
38     recovery_rate = k;
39
40     int i = 0;
41     while (i < susceptible) {
42
43         population.Add (i, "susceptible");
44         i++;
45
46     }

```