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CS 475

Professor Bailey

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Assignment 3

1. What you own-choice quantity was and how it fits into the simulation

So my choice quantity was a Humans versus a Zombie virus, there is a 40% chance that a human will get infected. The reason I chose a ‘Zombie’ virus because it seemed fun, since the humans eat deer, there need to be some kind of predator, so I chose Zombie virus. It’s not possible for the virus to pass on from human to human, once getting the virus the human will wander around for a month before dying. This disease is a viral disease that no one knows much about, maybe in the future the scientist will create a vaccine. The humans increase by 1 every month, they eat .75 deer each.

1. A table showing values for temperature, precipitation, number of deer, height of grain, and your own-choice quantity as a function of month number.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Month | Deer | Human | Height | Temp C | Precipitation |
| 1 | 2 | 9 | 9 | -0.72727 | 9.750994 |
| 2 | 2 | 9 | 10.781096 | 11.41669 | 9.670324 |
| 3 | 2 | 9 | 10.642074 | 15.606927 | 13.333856 |
| 4 | 2 | 9 | 8.784206 | 17.629713 | 14.794628 |
| 5 | 2 | 9 | 6.809799 | 25.324884 | 10.579899 |
| 6 | 2 | 9 | 4.809806 | 23.521368 | 8.788975 |
| 7 | 3 | 8 | 2.809873 | 23.438232 | 4.788744 |
| 8 | 3 | 8 | 0 | 23.898977 | 1.868719 |
| 9 | 3 | 8 | 0 | 21.601871 | 0.604122 |
| 10 | 3 | 8 | 0 | 9.999665 | 3.061567 |
| 11 | 3 | 8 | 0 | 11.688125 | 1.362335 |
| 12 | 3 | 8 | 0 | 8.403986 | 4.466366 |
| 13 | 2 | 9 | 0.987034 | 9.962219 | 10.346066 |
| 14 | 2 | 9 | 2.339116 | 6.191145 | 13.15679 |
| 15 | 0 | 9 | 7.71872 | 17.44516 | 14.234959 |
| 16 | 2 | 9 | 5.750203 | 23.013857 | 14.247616 |
| 17 | 2 | 9 | 3.750309 | 23.917091 | 13.135667 |
| 18 | 2 | 9 | 1.750346 | 21.39164 | 6.867329 |
| 19 | 3 | 8 | 0 | 30.664822 | 5.483625 |
| 20 | 3 | 8 | 0 | 24.514597 | 1.300043 |
| 21 | 3 | 8 | 0 | 22.913212 | 1.482207 |
| 22 | 3 | 8 | 0 | 14.115164 | 1.679448 |
| 23 | 0 | 8 | 0 | 9.143278 | 4.690664 |
| 24 | 3 | 8 | 0.320028 | 6.171752 | 4.518351 |
| 25 | 2 | 9 | 3.370108 | 7.580609 | 9.544789 |
| 26 | 2 | 9 | 7.900594 | 12.875548 | 12.842076 |
| 27 | 2 | 9 | 6.730324 | 15.608448 | 13.039192 |
| 28 | 2 | 9 | 4.874991 | 18.205494 | 13.509896 |
| 29 | 2 | 9 | 2.892216 | 22.810305 | 13.030036 |
| 30 | 2 | 9 | 0.892363 | 25.000593 | 7.456408 |
| 31 | 1 | 10 | 0 | 31.607742 | 5.36852 |
| 32 | 1 | 10 | 0 | 20.659416 | 1.057359 |
| 33 | 1 | 10 | 0 | 16.535948 | 1.587338 |
| 34 | 1 | 10 | 0 | 11.866883 | 3.088459 |
| 35 | 1 | 10 | 0 | 5.863961 | 2.761325 |
| 36 | 1 | 10 | 3.992583 | 3.754487 | 5.49835 |
| 37 | 0 | 10 | 10.229189 | -0.617398 | 9.25786 |
| 38 | 2 | 9 | 12.131449 | 9.762802 | 11.802988 |
| 39 | 2 | 9 | 13.615812 | 13.518066 | 12.668402 |
| 40 | 2 | 9 | 12.197693 | 19.578209 | 12.638755 |
| 41 | 2 | 9 | 10.20272 | 25.565605 | 10.378082 |
| 42 | 2 | 9 | 8.202724 | 27.488466 | 10.27264 |
| 43 | 0 | 9 | 6.202724 | 25.643013 | 6.93087 |
| 44 | 3 | 8 | 3.202728 | 23.755604 | 4.20367 |
| 45 | 3 | 8 | 0.202765 | 18.290083 | 0 |
| 46 | 3 | 8 | 0 | 10.582539 | 2.382686 |
| 47 | 3 | 8 | 0 | 13.12265 | 2.39078 |
| 48 | 3 | 8 | 0 | 6.973881 | 4.228745 |
| 49 | 2 | 9 | 2.242791 | 7.215436 | 8.23886 |
| 50 | 2 | 9 | 7.04623 | 6.532019 | 11.270797 |
| 51 | 2 | 9 | 12.735895 | 16.994722 | 13.004155 |
| 52 | 2 | 9 | 10.785865 | 15.517152 | 12.961799 |
| 53 | 2 | 9 | 8.941088 | 20.443642 | 12.375322 |
| 54 | 2 | 9 | 6.943215 | 29.109375 | 9.428385 |
| 55 | 1 | 10 | 4.943215 | 29.113832 | 3.871001 |
| 56 | 1 | 10 | 3.943215 | 26.292406 | 3.329378 |
| 57 | 1 | 10 | 2.943217 | 21.051563 | 1.05211 |
| 58 | 0 | 10 | 1.943748 | 11.466548 | 1.313138 |
| 59 | 1 | 10 | 1.800135 | 7.092599 | 3.847871 |
| 60 | 1 | 10 | 5.71137 | 0.598106 | 7.302725 |
| 61 | 0 | 11 | 9.893085 | 0.089315 | 8.828156 |
| 62 | 0 | 11 | 14.694719 | 4.678069 | 11.377106 |
| 63 | 0 | 11 | 23.510048 | 11.360181 | 13.637474 |
| 64 | 0 | 11 | 25.184196 | 15.721188 | 13.834522 |
| 65 | 0 | 11 | 25.310389 | 24.140375 | 12.055277 |
| 66 | 0 | 11 | 25.310419 | 30.950809 | 10.189489 |
| 67 | 1 | 10 | 25.310419 | 30.226236 | 3.85773 |
| 68 | 1 | 10 | 24.310419 | 28.895332 | 1.288372 |
| 69 | 1 | 10 | 23.310419 | 16.287487 | 1.283193 |
| 70 | 1 | 10 | 22.355156 | 14.517456 | 1.021865 |
| 71 | 1 | 10 | 21.505274 | 5.960344 | 3.615302 |
| 72 | 1 | 10 | 26.062656 | 8.809361 | 3.839896 |

1. A graph showing temperature, precipitation, number of deer, height of the grain and your own-choice quantity as a function of month number.
2. A commentary about the patterns in the graph and why they turned out this way. What evidence in the curves proves that your own quantity is actually affecting the simulation correctly?

So, looking at the graph I notice that every time the human population increases the deer population will decrease. Since humans eat deer the more humans there are the deer population will decrease.

As the deer population increases the height of the hay decreases, and as the deer population decreases the height of the hay increases. Deer eat hay and the more deer there are the more hay is eaten, decreasing the height of hay; if there are less deer the deer eat less hay so the height of hay increases.

It seems that the precipitation also affects the height of the hay and the precipitation is slightly affected by the temperature, if the temp increases the precipitation increases, but when temperature starts to decrease the precipitation sometimes decreases as well. The temperature the warmer the temperature is the better it is for the hay to grow in height.