**Hypothesis & Written Report**

My hypothesis is:

I believe humans will only survive a zombie apocalypse if the probability of individuals winning an aggressive encounter with a zombie (i.e. avoid infection) is greater than 50%*.*

Table

Description automatically generated

|  |  |
| --- | --- |
| Condition Number: | 1 |
| Value of convert\_probability | 40% |
| Number of simulations run with this value | 10 |
| Mean value of humans alive (uninfected) | 3.6 |

|  |  |
| --- | --- |
| Condition Number: | 2 |
| Value of convert\_probability | 50% |
| Number of simulations run with this value | 10 |
| Mean value of humans alive (uninfected) | 7.7 |

|  |  |
| --- | --- |
| Condition Number: | 3 |
| Value of convert\_probability | 60% |
| Number of simulations run with this value | 10 |
| Mean value of humans alive (uninfected) | 10.1 |

|  |  |
| --- | --- |
| Condition Number: | 4 |
| Value of convert\_probability | 70% |
| Number of simulations run with this value | 10 |
| Mean value of humans alive (uninfected) | 13.4 |

Chart, bar chart

Description automatically generated

Results Analysed:

To try and confirm my hypothesis I ran some tests by running my model first with extreme measures from both ends of the convert probability slider (i.e. setting the parameters to 10%, 20%, 90% and 100%) to try and predict the outcome as they are often easy to predict, I then decided to run proper tests by running more sufficient simulations to test for a tipping point, I ensured I ran each simulation for the same amount of time and also long enough to get a significant result.

For me this was 20000 ticks.

From the results I analysed I think my hypothesis was not far off as from the tests and graph results, I think the tipping and point of no return is 60% from which the humans most definitely survive the zombie apocalypse.

I was able to tell this because of the big difference in results from the convert probability of 50% to 60%.

You can see in the graph above that the mean average of humans alive changed significantly from 7.7 average humans (uninfected) at 50% to 10.1 at 60% which enabled me to conclude 60% as the tipping point for humans to survive a zombie apocalypse in my model.