Audience: (This isn’t actually true) Certain members of my family think that the lottery is rigged: that some numbers have a higher chance of being selected than others. And they believe that they are using this to their advantage by picking those numbers with better odds. I am creating this report to verify or falsify that belief and will present it to them.

Purpose: Doing the analysis has revealed that the numbers are truly selected at random, although if someone didn’t know about the changes in the drawing fields for both Powerball and Megaball, he might assume from first glance at the data that higher numbers get picked less often. It became very important in this exercise to make sure that time periods were sectioned off for apples-to-apples charting. The first graph shows an example of doing although with it clearly showing 60 - 69 not being selected as often as the other numbers. So, the purpose now is to convince my family members that the lottery numbers are selected truly at random. While that call to action is rather small (call to change a belief), the next presentation would be to show them what random events are more likely to happen than winning the 1 in 300,000,000 lotteries in effort to encourage them to stop playing. For now, this is step 1, and they also might start picking more random lottery numbers as a result.

Medium: I used Power Bi.

Design Choices: I went with the default Power Bi design which includes the nice blue color scheme.

Ethical Considerations:

* What changes were made to the data?

I had to segment data into groups based on when the rules changed for what the ball fields were. I had to do several transformations on the data to show that the numbers were chosen randomly.

* Are there any legal or regulatory guidelines for your data?

Not that I know of.

* What risks could be created based on the transformations or how the visualizations are presented?

It would be extremely easy to leave the data unsegmented and create visualizations that show some numbers not selected as often as other numbers. I made my first visualization to demonstrate this but clearly labeled it as such.

* Did you make any assumptions in cleaning/transforming or when presenting the data? Did you filter any data without labeling or clearly identifying that the data was not included?

The visualizations are clearly labeled what year the data starts at.

* How was your data sourced/verified for credibility?

I trust my professor.

* Was your data acquired in an ethical way?

I trust my professor.

* How would you mitigate any of the ethical implications you have identified?

If this were a more professional presentation to a board or lottery stakeholders, I could probably be even more clear what my date ranges are for each visualization.