This was a project for a course I took from Google on Business Intelligence. This is one of the choices for final project.

At the beginning of the project, I was presented with notes from a fictional job interview with the Google Fiber team.

There are notes I made during an initial interview during the hiring process.(actually provided during the course) I was asked during the hiring process to complete a business intelligence task.

The team at the Google Fiber call center team want a dashboard tool that allows them to explore trends in repeat calls. They need to understand how often customers call after completion of their first inquiry on an issues. This will help them understand how effectively the team answers customer questions the first time.

I went through the documents and considered who was on the team, what they were trying to accomplish, what data I had access to, and what I needed to do to aid in that goal. With that in mind, I considered what visualizations would help illustrate and explore the related data. I need to create an overview dashboard to reveal insights about these repeated callers and let them explore this data better.

The interviewer provided data which I can look at, which I uploaded to BigQuery. I then used an SQL query by performing a union on the tables, creating a single table that I then exported. This table contains the data I need when performing this analysis.

I first accessed the provided data in BigQuery. I select the data using the query tools, creating calculated fields and selecting data from the date range they requested, which was the first quarter of 2022. I then downloaded the outcome into .csv files so I could use them within Tableau. This took multiple files, so this was then combined into a single summary table for use in Tableau for this analysis.

The first table I created was to show the number of repeat calls each month, which is a top priority of the group. This is a simple vertical bar chart, showing the number of initial calls (day N), the number of second calls (Contacts N1), and so on. This will measure how effectively the customer support group answers each call.

Next I moved on to number of first calls on each day of the week, which the team wanted so they could find out which days were the busiest and least busy. This was a simple chart, but I did have to add a second copy of weekday in the columns so I could get the header at the top. This was a peculiarity in Tableau that took me a bit to figure out, but by adding the second copy I could remove the header from the first and that left the weekday label at the top instead of the bottom of the column. This does not change the values at all, though.

This chart shows the % of total calls received each day. For example, you can see that Mondays in January and February get over 18% of the total calls, which is the most in their respective month. However, in March we have only about 15% of the calls on Monday, which is the fourth most of any day in March. What occurs to me is that something may have happened in March that caused some of the calls to shift to

later in the week. And if you look at the tooltip, which also shows the total number of calls, you can see that the number of calls on Monday remained about the same, but that the number of calls Tuesday through Thursday went up dramatically.

The customer support team also wanted to know the number of repeat callers based on the first call date. The best way to present this is to show it in a table, which is what I've decided to do. This shows the date, the number of calls on the original contact date, and follow up calls based on second call (Contact N1), third call (Contact N2), etc. The only other thing I did for this visualization was to rotate the column labels so they were easier to read.

They also wanted a visualization that shows repeat calls broken down by problem type and by market. This will allow them to explore which types of problems are most common and which markets tend to have that problem. This is very similar to the previous chart, but instead of broken down by date it is broken down by market, then by problem type within each market. Like the previous chart, I rotated the labels for contact number to make it easier to read.

Another concern they wanted to address was what first time repeat callers and what types of problems they had most in each market. This is more of a detailed look at what the previous table shows. For example, you can see more easily that problem type 2 is prevalent in market 1 but not much of an issue in market 2 and 3.

Finally, they wanted an overview. While they could dig into each visualization to see more detail, they wanted a single page that would allow them to get a general sense of things. In this case I chose to do this using a Tableau story, allowing me to show groups of related tables so they could look into specific questions I knew they were concerned about.