**From Raw Data to Insights: My Step-by-Step Process**

**Questions**

* Which 10 countries have won the most medals overall?
* What’s the medal breakdown (Gold, Silver, Bronze) for the top 10 countries?
* How have medal counts changed over time for the top 5 countries?

**General Organization**

* First, I began organizing my information by creating a **dictionary sheet** with all the country codes, sports, and events, using the **UNIQUE** function**.**

# **First Question**

Which 10 countries have won the most medals overall?

**Processing the data**

* Queried the database to bring the relevant columns into a new sheet using the query function in Google Sheets.
* Queried the data to discover how many medals each country has using the following formula:

**=QUERY('Country Totals'!A1:B, "SELECT A, COUNT(A) GROUP BY A ORDER BY COUNT(A) DESC", 1)**

This query pulls data from the **Country Totals** sheet, specifically columns **A and B**.

* **The SELECT A, COUNT(A**) part instructs Google Sheets to display each country (column A) and count how many times that country appears in the data. Each appearance represents one medal.
* **GROUP BY A** is the most important part: it tells the function to group the data by each unique country, so that the **COUNT(A)** works per country instead of the column
* **ORDER BY COUNT(A) DESC** then sorts the results, so the countries with the most medals appear at the top.

This step allows me to summarize and rank medal counts by country, which helps me answer one of my core project questions: **Which 10 countries have won the most medals overall?**

**Vizualization**

* Now that my question has been answered, I began by visualizing the data. First, I identified the top 10 countries and organized them into their respective columns. Then, I inserted a bar chart to display the results effectively.

## **Second Question**

*What’s the medal breakdown (Gold, Silver, Bronze) for the top 10 countries?*

**Processing the data**

* I once again queried the database to bring the relevant columns into the Metal Breakdown sheet
* Followed by using the Google Sheets' **QUERY()** function to analyze how many Gold, Silver, and Bronze medals each top country earned. Since pivot tables couldn’t handle the full dataset, I ran separate queries for each medal type, with the logic being that the top 15 countries in total medals should also rank highly in individual categories.

**=QUERY('Medal Breakdown'!A:B,"SELECT A, COUNT (B) WHERE B = 'Bronze' GROUP BY A ORDER BY COUNT(B) DESC LIMIT 10 LABEL COUNT (B) 'Bronze Medals'",1)**

* After this step was complete, I united the top 10 countries' metal breakdown into a single table to make it easier to visualize the data, in turn completing the question: **What’s the medal breakdown (Gold, Silver, Bronze) for the top 10 countries?**

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**Vizualization**

* After combining the data into a single table, the final step was to visualize the results to communicate my insights effectively. I accomplished this by creating a bar chart that allows readers to easily compare each country's medal count and see the distribution across gold, silver, and bronze medals.

## **Third Question**

*How have medal counts changed over time for the top 5 countries?*

**Processing the data**

* First, I queried the database to retrieve the year, country, and medal columns into the “Trends Over Time” sheet.
* Then, I filtered the data to include only the top five countries with the highest total medal counts.
* After that, I used a query to calculate how many medals each of those top five countries earned each year.
* Finally, I created a pivot table based on that data to make it easier to graph and visualize the trends over time.

In turn, answering the question **How have medal counts changed over time for the top 5 countries?**

**Vizualization**

* Lastly, created a line chart to show how Olympic powers have risen and fallen. Moreover, the chart provides a visual representation of the world's state, as many countries didn’t participate in certain Olympics for various reasons.

## **Reflection**

This project was my first real step into the world of data analysis. I chose to study Olympic medal trends because it offered rich historical data and a chance to explore patterns in global competition over time. As an incoming Information Systems student, I wanted to push myself to develop foundational data skills while working on something interesting and meaningful.

Using Google Sheets, I learned how to clean messy datasets, use QUERY functions to extract meaningful information, and build pivot tables and charts to visualize my results. One of the biggest challenges was understanding how to structure queries properly and organize the data to answer questions, such as which countries won the most medals or how performances changed over time. There were moments when I got stuck, but working through those issues taught me persistence and problem-solving skills.

By the end, I felt way more confident using spreadsheet functions and telling a story with data. This project not only helped me develop practical skills but also showed me the value of being curious and analytical. It reinforced my goal of becoming a business analyst, and I now feel more prepared to take on future internships and projects.