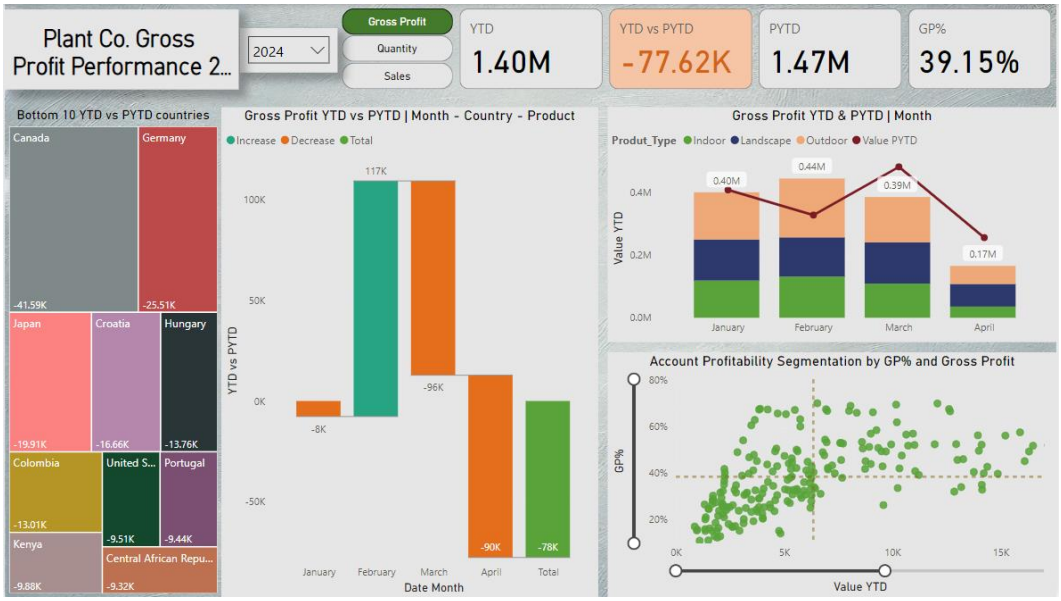
Dashboard Overview

Before diving in, I want to give a shoutout to Mo Chen's wife, whose original work inspired this dashboard. I followed her approach closely, and I'm excited to share some key insights I gained from the process.

Here's a sneak peek at how the dashboard looks:



At glance, the dashboard presents gross profit performance, with top panels highlighting key metrics like YTD and GP%. The different visuals break down profit changes by country and by year, while the scatter plot clearly segments performance by GP%. The mix of charts helps quickly identify trends.

Dataset

The data used in this dashboard is composed of 3 tables (excel sheets).

	A	B	C	D	E	F	G
1	Product_id	Sales_USD	quantity	Price_USD	COGS_USD	Date_Time	Account_id
2	2625	16156.56	502	32.1843825	14104.67688	3/29/2024	1599-E6G-78670
3	2569	13831.29	679.92	20.3425256	10470.28653	7/13/2022	1227--40
4	2195	17402.14	925.66	18.7997105	10528.2947	4/5/2023	1857--758
5	2530	15866.42	809.78	19.5934945	12883.53304	9/24/2022	1793-6140-77

	A	B	C	D	E	F	G	H	I	J
1	country_c	Account	Master_id	Account_id	latitude2	longitude	country2	Postal_co	street_na	Street_nu
2	CA	Gerlach, C	1599	1599-E6G-78670	45.98914	-67.2412	Canada	E6G	Oneill	78670
3	CN	Ziemann L	1227	1227--40	37.94312	115.2177	China	0	Kipling	40
4	CN	Medhurst,	1857	1857--758	26.17017	118.1905	China	0	Glendale	758
5	AR	Larson-Frit	1793	1793-6140-77	-33.9163	-64.3898	Argentina	6140	Manley	77

	A	B	C	D	E	F	G	H
1	Product_Fam	Product_Fan	Product_Group	Product_	Product_Name	Produc	Product_Size	Produt_Type
2	Cucurbitaceae	1051	Gray's Bur Cucumb	3293	Chamaesyce celastroi	2000	Small	Landscape
3	Platanaceae	1138	Arizona Sycamore	3658	Tetraplasandra waim	2001	Medium	Outdoor
4	Scrophulariacea	1167	Little Elephantshe	3876	Iris Vónelsonii Randol	2002	Small	Outdoor
5	Euphorbiaceae	1065	'ekoko	3357	Acanthus L.	2003	Large	Outdoor

These tables contain some metrics that will help us assess the different performances. The data will feed the different visualizations in the dashboard, but let's 'cook' it first.

Preparing the Data for Power BI

Before diving into the visualizations, the first step was loading the raw data into Power BI. Once imported, it was important to clean (transform) things up a bit before loading it—don't worry, if you need to go back and tweak something, Power BI makes that easy.

Some of the tasks done were:

- Verifying the data types (is it a string? number? Date?).
- Renaming columns and tables for clarity and ease of use.
- Removing duplicates from the primary key, if any (because, let's be honest, can it really be a primary key if it's got duplicates?).

Now that the data's in good shape, let's talk about some of the DAX calculations that drive the insights in the dashboard.

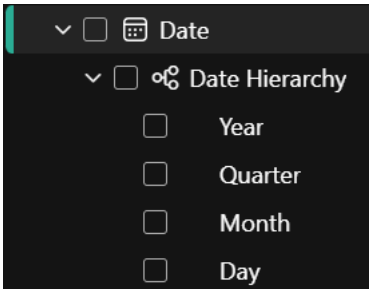
DAX Calculations Behind the Insights

Now that we've prepped the data, let's take a look at some of the key DAX calculations that power this dashboard. These calculations not only drive the insights but also add flexibility to the way the data is filtered and presented.

Here's a breakdown of some DAX elements:

- **Slicers**: Allowing users to toggle between Gross Profit, Quantity and Sales—key metrics for performance tracking.

- **Date Hierarchy**: This is crucial for drilling down into the data by year, quarter, month, and day—helping uncover trends over time.



- **Inpast Calculation**: Useful for comparing current performance with past periods.

```
Inpast =
VAR lastsatesdate = MAX(Plant_sales[Date_Time])
VAR lastsalesdatePY = EDATE(lastsatesdate,-12)
RETURN
Date_dax[Date] <= lastsalesdatePY
```

This formula is used to create a flag (the *Inpast* column) that identifies whether a date from the *Date_dax* table is within the corresponding period from the prior year, compared to the most recent date in the *Plant_sales* data.

- **SWITCH Measures**: These are helpful for switching between different metrics without cluttering up the dashboard with extra visuals.

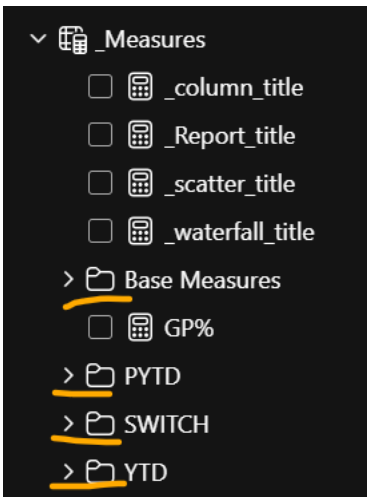
```
Switch_YTD =
VAR selected_value = SELECTEDVALUE(slc_values[Values])
VAR result = SWITCH(selected_value,
    "Sales", [YTD_Sales],
    "Quantity", [YTD_Quantity],
    "Gross Profit", [YTD_Grossprofit],
    BLANK()
)
RETURN
result
```

- **PYTD (Previous Year to Date)** and **YTD (Year to Date)**: Essential for tracking performance against the same period in previous years, giving important context to current data.

```
PYTD_sales =
CALCULATE(
    [Sales],
    SAMEPERIODLASTYEAR(Date_dax[Date]),
    Date_dax[Inpast] = TRUE()
)
```

```
YTD_Sales = TOTALYTD([Sales], Plant_sales[Date_Time])
```

While working on this project, I also learned a few tricks for keeping things organized—like how to group measures into folders, which you can do in the model view. Actually Olivier Faure explains the 'how' in a fun way here -sorry to my non-French speakers. Here's a quick snapshot to show what it looks like:



(wanted to have a better drawing, but I skipped art classes)

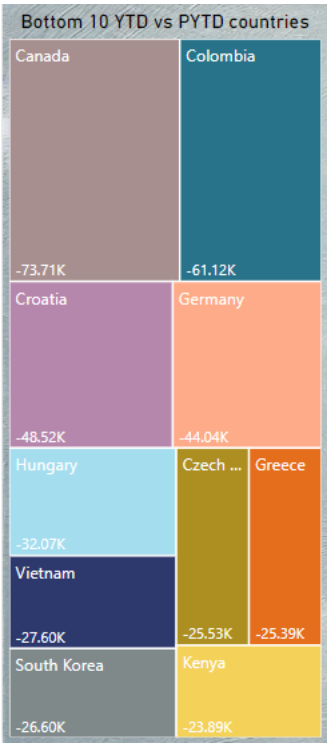
With these calculations in place, we're now ready to dig into the visualizations and see how everything comes together.

Exploring the Interactive Visuals

The visuals in this dashboard are designed to be highly interactive, so I encourage you to download the file (if possible), explore them and play around with the different views and slicers. As we walk through these visuals, note that I selected the year 2024 (which includes data of 4 months) and filtered by the 'Sales' slicer. Now to the visuals and what insights they provide.

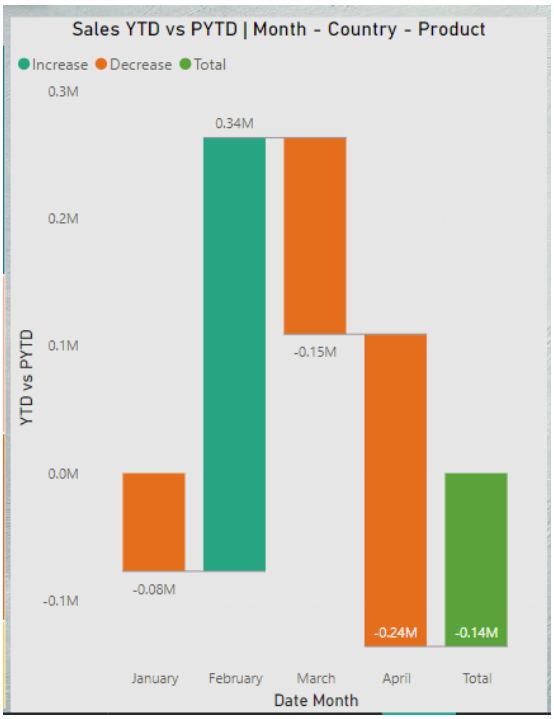
Here's what we're working with:

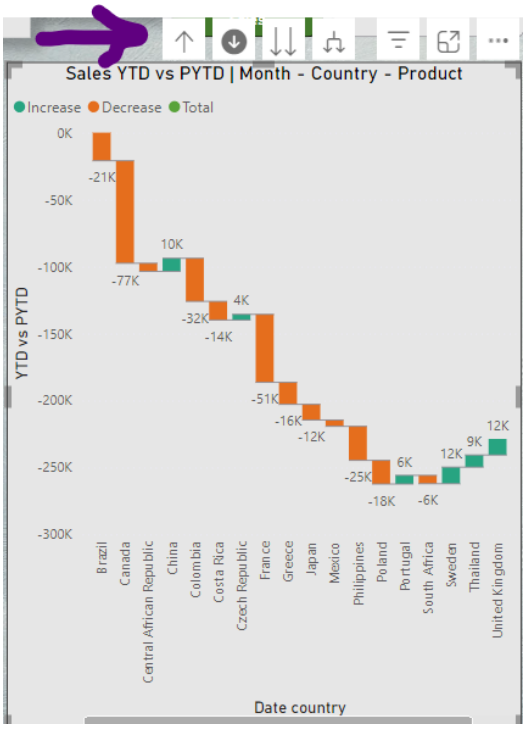
1. **Treemap Visualization**



This treemap helps us understand which countries rank in the bottom 10 when analyzing Year-to-Date (YTD) versus Previous Year-to-Date (PYTD) performance. It's a quick way to spot which regions are underperforming (in terms of sales).

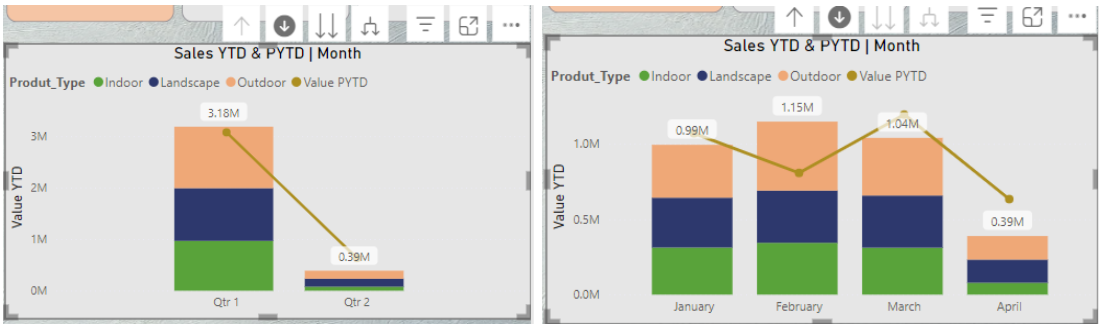
2. **Waterfall Chart**





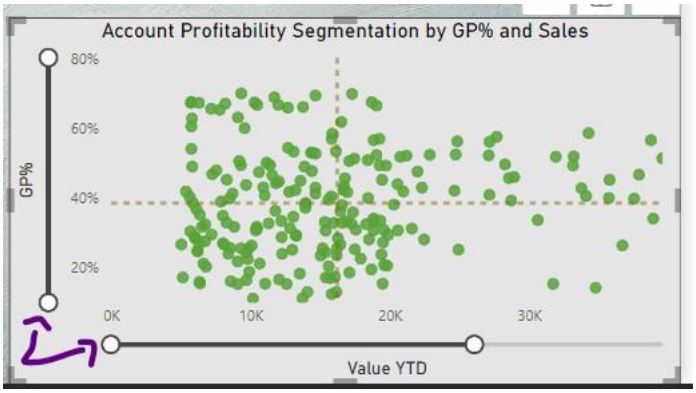
The waterfall chart is useful for seeing how different countries contribute to the overall sales trend. It highlights the countries responsible for the months with major declines or growth. One cool feature here is the drill-down (from left to right) (the big purple marker) functionality. We can zoom in on specific months—like April in this case—to see which countries contributed the most to the decline. As a bonus, if you download the Power BI file, you can drill down even further to explore the impact of individual products within those countries.

3. **Column Chart**



This chart also features a drill-down option, but this time from the quarter level down to the month. Since we're looking at 2024, only four months are available. This visual compares YTD to PYTD in a slightly different way—I'll let you take a guess at how!

4. **Account Profitability Segmentation**

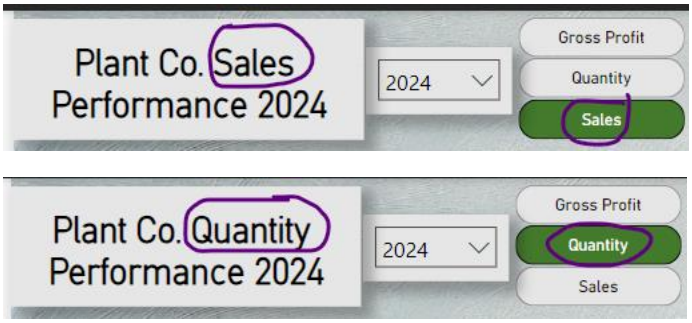


This scatter plot helps us segment accounts by profitability (GP%). It includes a zoom slicer (purple marker), which is handy for sales strategies. You can zoom in on accounts (green dots) generating a higher GP%, giving you a clear idea of where to focus, especially if you have targets. For further analysis, average lines for GP% and YTD were added to help in pinpointing accounts that are worth further attention.

Power of Dynamic Titles

Did you know you can make your report titles dynamic? Not just for show, it actually makes the report feel more interactive and tailored. Dynamic titles can adjust based on the slicers you choose, helping users stay focused on the specific data they're viewing (isn't that cool?).

In this dashboard, most of the visuals—and even the main title—change depending on whether you select Sales, Quantity, or Profit. Let me show you a quick example: here's how the main title shifts between 'Quantity' and 'Sales'.



I encourage you to download the file and see how the titles adapt to your slicer choices. Although it's a small detail, it makes the whole report feel more intuitive and user-friendly!

Reflecting on the Process

Creating this dashboard was both challenging and rewarding, and one of the best parts is being able to break down the work in detail. Looking ahead, there's definitely room **for growth**. For instance, adding a predictive analysis visual could shift the dashboard from being purely descriptive to offering forward-looking / predictive insights, which would be a game-changer.

That said, there are also a few **pain points**. One of the main challenges I noticed, especially from the perspective of someone less familiar with dashboards, is that the drill-down feature could become overwhelming if not managed carefully. Keeping the user experience in mind will be key to ensuring everything remains accessible and intuitive.