ACKNOWLEDGEMENT

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ABSTRACT

This project focuses on recreating a Gross Profit Analysis dashboard using Power BI to analyze and visualize gross profit metrics for Plant Co. across various dimensions. The dashboard integrates key performance indicators (KPIs), comparative analysis of current and previous periods (YTD and PYTD), profitability trends, and segmentation insights. It allows stakeholders to assess the company's financial performance at a glance, facilitating data-driven decision-making.

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INTRODUCTION:

Power BI, a leading business intelligence tool, enables organizations to create interactive dashboards and reports for effective data visualization and decision-making. This project utilizes Power BI to build a dashboard for analysing Plant Co.'s gross profit performance. The dashboard consolidates financial metrics, highlights trends, and provides actionable insights into the organization's overall and segmented profitability performance.

OBJECTIVE:

The primary objective of this project is to create a comprehensive, interactive, and user-friendly dashboard in Power BI that provides the following:

1. **Gross Profit Analysis**: Evaluate gross profit metrics for Year-to-Date (YTD) and Previous Year-to-Date (PYTD) to monitor overall financial health.

2. **Period Comparisons**: Enable comparison between YTD and PYTD values, identifying trends and discrepancies in gross profit performance.

3. **Profitability Insights by Region**: Visualize and compare performance across countries to identify high- and low-performing regions.

4. **Product Category Analysis:** Highlight contributions of various product categories (Indoor, Landscape, and Outdoor) to overall gross profit.

5. **Monthly Trends**: Detect fluctuations in gross profit over time, focusing on specific months to identify seasonal trends.

6. **Profitability Segmentation**: Segment accounts based on GP% and Value YTD, helping in targeted decision-making and strategy formulation.

7. **Actionable Insights**: Provide stakeholders with key areas of improvement, optimizing profitability through intuitive data visualization.

PROBLEM AND SOLUTION:

PROBLEM DESCRIPTION:

Challenges in tracking and analysing gross profit performance across different dimensions. Without an effective visual representation, we were unable to:

- Compare Year-to-Date (YTD) gross profit with Previous Year-to-Date (PYTD) values.

- Identify low-performing countries or regions that require immediate attention.

- Analyze product category profitability in a meaningful way.

- Detect trends and variations in monthly gross profit performance.

- Segment accounts based on profitability metrics to focus on high-priority accounts.

SOLUTION:

To address these challenges, a Power BI dashboard was developed that consolidates gross profit data into a single, interactive platform. This dashboard provides:

1. **KPIs and Performance Metrics**: A dedicated KPI section displaying key financial metrics, such as YTD, PYTD, YTD vs. PYTD difference, and GP%. This provides stakeholders with a quick snapshot of overall performance.

2. **Regional Analysis**: A treemap visualization categorizes countries based on their gross profit contribution, identifying underperforming regions like Sweden and Thailand.

3. **Monthly Trends**: A bar chart compares YTD and PYTD performance month-over-month, highlighting significant drops in performance (e.g., April).

4. **Product Category Breakdown**: A stacked bar chart shows contributions of different product types (Indoor, Landscape, Outdoor) to gross profit across months.

5. **Profitability Segmentation**: A scatter plot visualizes GP% and Value YTD, aiding in segmenting accounts into high- and low-performing groups for targeted strategies.

6. **Interactive Filtering**: Slicers enable users to drill down into specific periods, product types, or regions for in-depth analysis.

APPROACH:

1. **Data Preparation:**

   o Financial data was extracted and cleaned in Power Query, ensuring consistent formats and removing duplicates or irrelevant records.

   o Relationships among tables were established using the data model feature in Power BI.

2. **DAX Calculations:**

   o Custom measures were created for:

   ▪ **Gross Profit YTD:** Aggregating gross profit for the current year-to-date period.

   YTD_GrossProfit = TOTALYTD([Grossprofit],fact_sales[Date_Time])

   ▪ **PYTD Comparisons:** Calculating the difference between YTD and PYTD.

   YTD vs PTD = [S_YTD]-[S_PYTD]

   ▪ **GP%:** Deriving gross profit percentage using total sales as the denominator.

   GP% = DIVIDE([Grossprofit],[sales])

3. **Visualization Design:**

   o **KPIs Section:** A card visualization for each metric (YTD, PYTD, YTD vs. PYTD, GP%).

   o **Treemap:** Used to compare gross profit contributions by country.

   o **Bar Charts:** To display monthly trends for gross profit.

   o **Stacked Column Chart:** For product-type-wise analysis.

   o **Scatter Plot:** To depict segmentation based on GP% and Value YTD.

4. **Interactivity:**

   o Implemented slicers for date, region, and product type, enabling dynamic filtering and drill-downs.

   o Applied cross-filtering between visuals to enhance user exploration capabilities.

DASHBOARD FEATURES AND INSIGHTS:

1. KPIs Section:

- **Metrics:** Displays key performance indicators like:

   o YTD Gross Profit: 1.47M.

   o PYTD Gross Profit: 1.40M.

   o YTD vs. PYTD Difference: -77.62K.

   o GP%: 0.39.

- **Purpose:** Provides stakeholders with an overview of the organization's financial health.
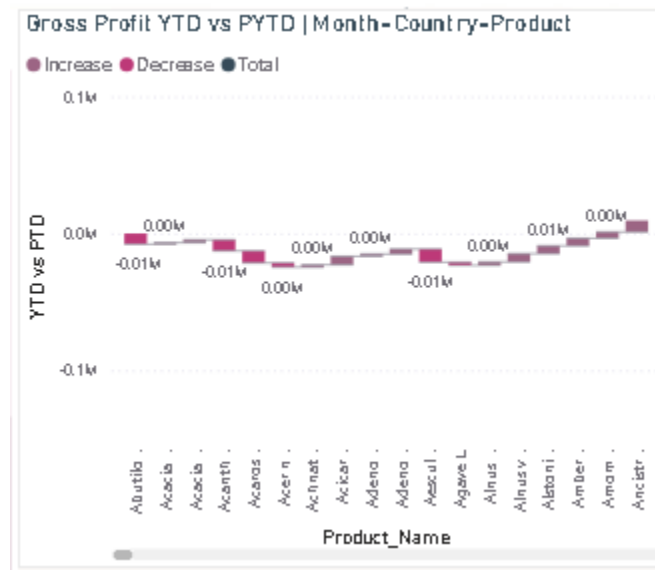
2. Regional Performance (Treemap):

- **Visual Representation:** Displays countries contributing to gross profit.

- **Insights:** Identifies underperforming countries such as Sweden and Thailand, highlighting areas needing improvement.
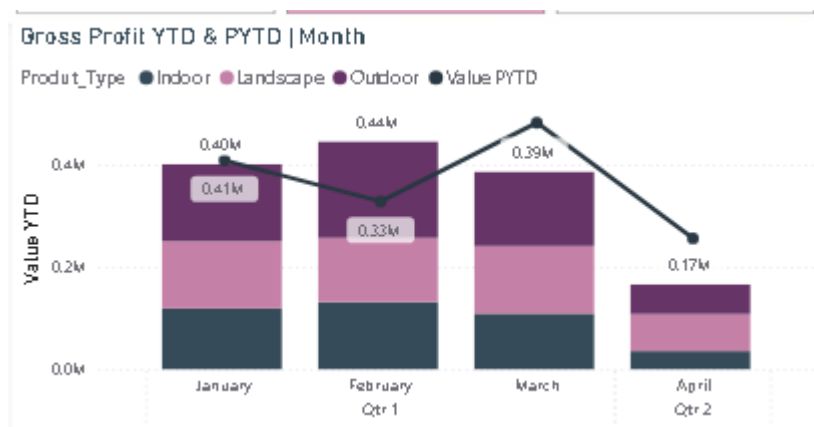

Bottom 10 YTD vs PYTD | Country

3. Monthly Gross Profit Trends (Bar Chart):

- **Analysis:** Compares YTD and PYTD values for each month.

- **Key Insight:** April shows a significant drop in performance, warranting further investigation.
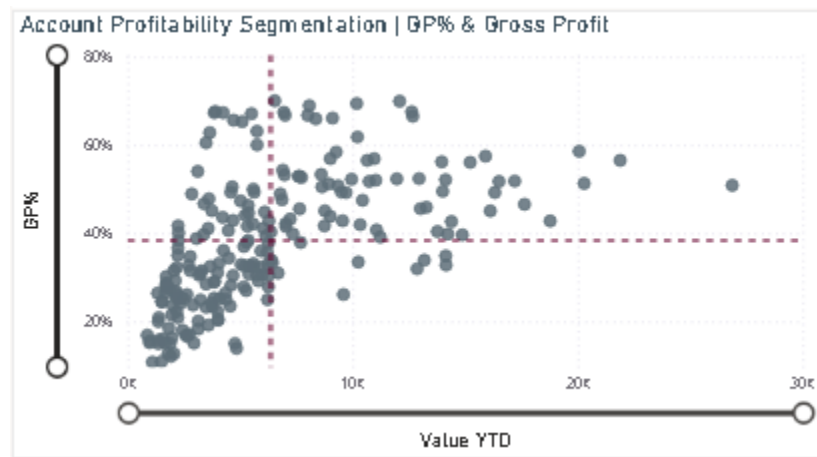

4. Product Category Performance (Stacked Column Chart):

- **Breakdown:** Highlights Indoor, Landscape, and Outdoor product types.

- **Observation:** Outdoor products performed poorly in April, needing targeted marketing or pricing adjustments.
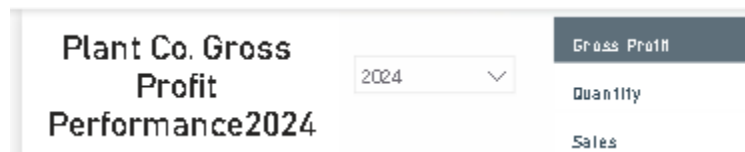
5. Profitability Segmentation (Scatter Plot):

- **Data Points:** Plots GP% against Value YTD.

- **Application:** Helps segment accounts into high-priority and low-priority categories for strategic focus.

6. Interactivity:

- **Filters:** Enable slicing data by time periods, regions, and product types for granular analysis.

- **Cross-Filtering:** Allows users to dynamically interact with visuals and explore relationships between dimensions.

CHALLENGES AND LEARNINGS:

CHALLENGES:

1. **Data Preparation:** Cleaning and organizing data in Power Query was time-intensive, requiring meticulous checks for consistency.

2. **Complex DAX Calculations:** Developing accurate time intelligence measures (e.g., YTD vs. PYTD) required a deep understanding of DAX formulas.

3. **Designing Interactive Visuals:** Balancing aesthetics and functionality posed a challenge during dashboard creation.

4. **Ensuring Performance:** Optimizing the dashboard for responsiveness with large datasets.

LEARNINGS:

1. **Data Modeling Expertise:** Enhanced understanding of creating relationships and optimizing models in Power BI.

2. **Advanced DAX Knowledge:** Gained proficiency in writing complex measures and time intelligence functions.

3. **Storytelling through Data:** Learned the importance of structuring visuals to effectively convey insights.

4. **User-Centric Design:** Realized the significance of interactivity and simplicity in creating user-friendly dashboards.

CONCLUSION

The Gross Profit Analysis dashboard successfully consolidates and visualizes key financial metrics for Plant Co. It provides actionable insights into profitability trends, regional performance, and product category contributions. By leveraging Power BI's capabilities, the dashboard enables data-driven decision-making and highlights areas for improvement, making it an invaluable tool for stakeholders.

REFERENCES:

- YouTube Video: [Video Title](#)
- Microsoft Power BI Documentation