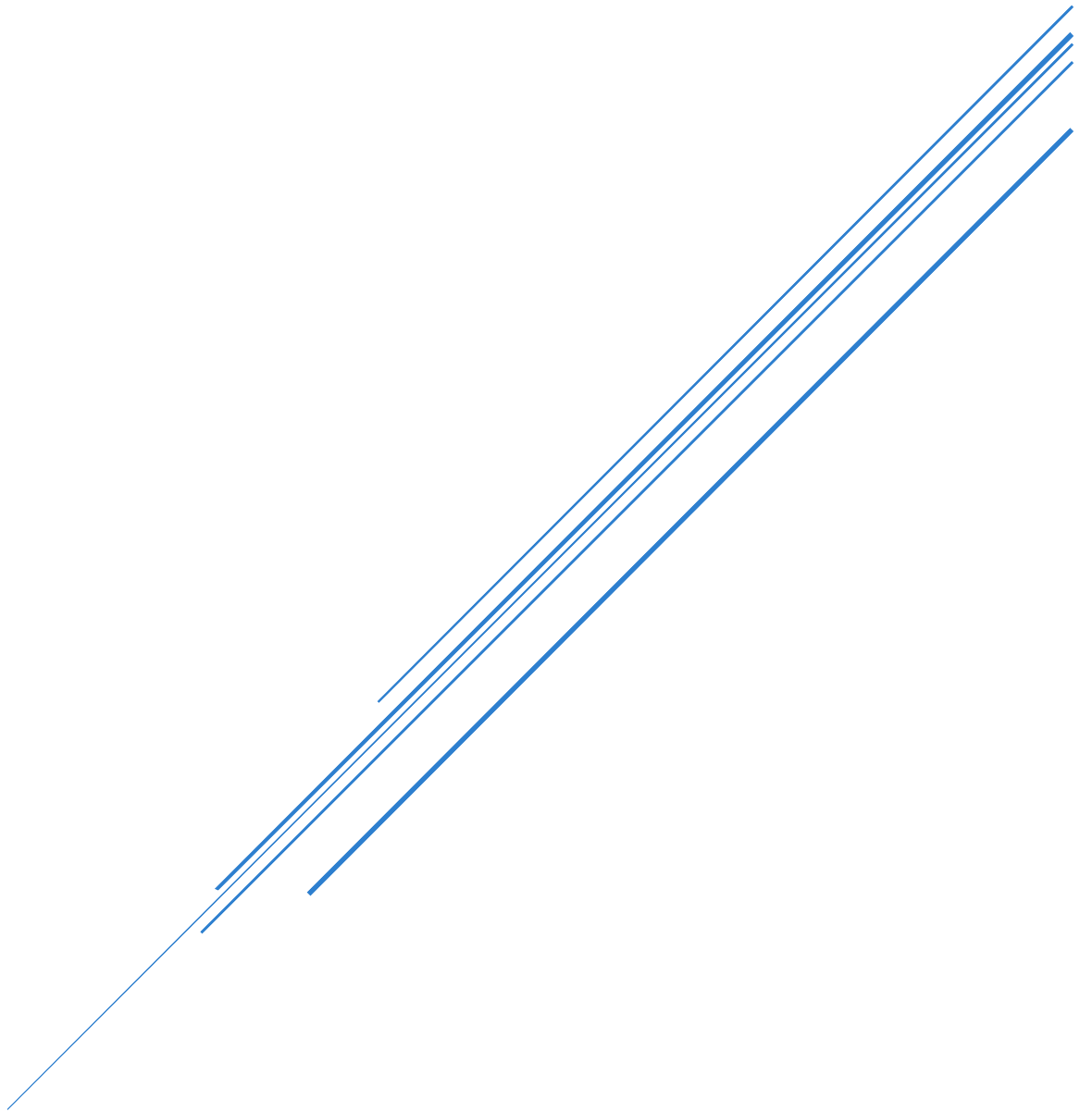# MARKETING CAMPAIGN PERFORMANCE DASHBOARD IN POWER BI

OUTLINE

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Introduction

1.1 Background of the Project

In today's highly competitive digital landscape, organizations invest heavily in online marketing to attract, engage, and convert customers. With multiple channels such as Email campaigns, Instagram Ads, and Influencer Marketing, it becomes critical to track performance and identify which strategies deliver the highest return. However, without a centralized reporting system, decision-making can become fragmented and inefficient.

This project leverages Microsoft Power BI to create an interactive marketing performance dashboard. The dashboard consolidates campaign data from different channels and provides a single source of truth for monitoring KPIs, analyzing trends, and supporting data-driven optimization of marketing strategies.

1.2 Purpose and Scope

The purpose of this project is to design and implement a professional Power BI dashboard that enables stakeholders to:

- **Track key performance indicators (KPIs):** Total Ad Spend, Impressions, Clicks, Conversions, Revenue, and ROI.

- **Visualize performance by channel, product, and category:** Understand how different campaigns and marketing strategies contribute to business outcomes.

- **Identify trends and patterns:** Monitor time-based changes in spend, conversions, ROI, and engagement metrics.

- **Enable interactivity:** Allow dynamic filtering by Campaign Date, Product Name, Product Category, and Marketing Channel.

- **Support decision-making:** Highlight high-performing areas for scaling and low-performing areas requiring optimization.

The scope of this dashboard is limited to the data provided in the company's marketing dataset, focusing primarily on campaign-level metrics. Advanced features such as customer segmentation or predictive modeling fall outside the current scope but can be integrated in future iterations.

1.3 Dataset Description

The dataset used for this project contains marketing campaign performance data across multiple channels. Each record represents campaign activity with the following key attributes:

- **Campaign Date**: The date on which marketing activities occurred (daily granularity).

- **Marketing Channel**: The platform or strategy used (e.g., Email, Instagram Ads, Influencer Marketing).

- **Product Name & Category**: The product being promoted and its associated category.

- **Ad Spend**: The total amount of money spent on the campaign.

- **Impressions**: The number of times the campaign was displayed to potential customers.

- **Clicks**: The number of times users engaged with the campaign.

- **Conversions**: The number of successful customer actions (e.g., purchases).

- **Revenue**: The total income generated from the campaign.

- **ROI (Return on Investment)**: A performance metric already included in the dataset but also validated through calculated measures.

This dataset provides sufficient information to calculate advanced metrics such as **Click-Through Rate (CTR)**, **Conversion Rate**, and custom **ROI calculations**. Combined with Power BI's interactive capabilities, it supports the development of a robust and visually compelling dashboard.

2.0 Stepwise Methods

2.1 Data Preparation and Validation in Power BI Using Power Query

Data Type Validation

- Ensured that Campaign Date column was set to **Date** type.

- Checked numeric fields (Ad Spend, Impressions, Clicks, Conversions, Revenue, ROI) were correctly recognized as **Decimal/Whole Numbers**.

Missing & Outlier Checks

- Looked for any missing/null values in important columns (e.g., Revenue, Ad Spend).

- Confirmed there were no negative values in metrics where they don't make sense (like negative Impressions or Clicks).

▦	A^B_C Campaign ID	A^B_C Product Name	A^B_C Category	1.2 Ad Spend (INR)	1²₃ Impressions	1²₃ Clicks
	● Valid 100% ● Error 0% ● Empty 0%	● Valid 100% ● Error 0% ● Empty 0%	● Valid 100% ● Error 0% ● Empty 0%	● Valid 100% ● Error 0% ● Empty 0%	● Valid 100% ● Error 0% ● Empty 0%	● Valid ● Error ● Empty
1	CAMPAIGN00001	Chocolate	Snacks	3844.96	265053	
2	CAMPAIGN00002	Cold Drink	Beverages	1890.3	466411	
3	CAMPAIGN00003	Moisturizer	Personal Care	1358.76	21229	
4	CAMPAIGN00004	Chocolate	Snacks	4565.75	311612	
5	CAMPAIGN00005	Floor Cleaner	Household	207.38	337554	
6	CAMPAIGN00006	Toothpaste	Personal Care	683.18	11742	
7	CAMPAIGN00007	Milk	Groceries	2988.39	146995	
8	CAMPAIGN00008	Air Freshener	Household	1806.72	481141	
9	CAMPAIGN00009	Coffee	Beverages	1638.25	478563	
10	CAMPAIGN00010	Garbage Bags	Household	2569.97	372607	
11	CAMPAIGN00011	Chips	Snacks	53.48	206230	
12	CAMPAIGN00012	Soap	Personal Care	56.06	174725	
13	CAMPAIGN00013	Chips	Snacks	2942.27	498899	
14	CAMPAIGN00014	Moisturizer	Personal Care	1286.89	391081	
15	CAMPAIGN00015	Soap	Personal Care	1792.42	417754	
16	CAMPAIGN00016	Chips	Snacks	2571.37	172242	
17	CAMPAIGN00017	Eggs	Groceries	1432.65	231561	
18	CAMPAIGN00018	Biscuits	Snacks	3092.43	424138	
19	CAMPAIGN00019	Eggs	Groceries	2843.32	486993	
20						

profiling based on top 1000 rows

Data Preparation and Validation in Power BI Using Power Query

2.2 Data Modeling Creation of a Date Table and Establishing Relationships

Without a proper Date Table, calculating MoM Measures, would return incorrect or blank results, so a date table was created and From the Campaign Data column, and connected back to it, to create a data model, using this formulas:

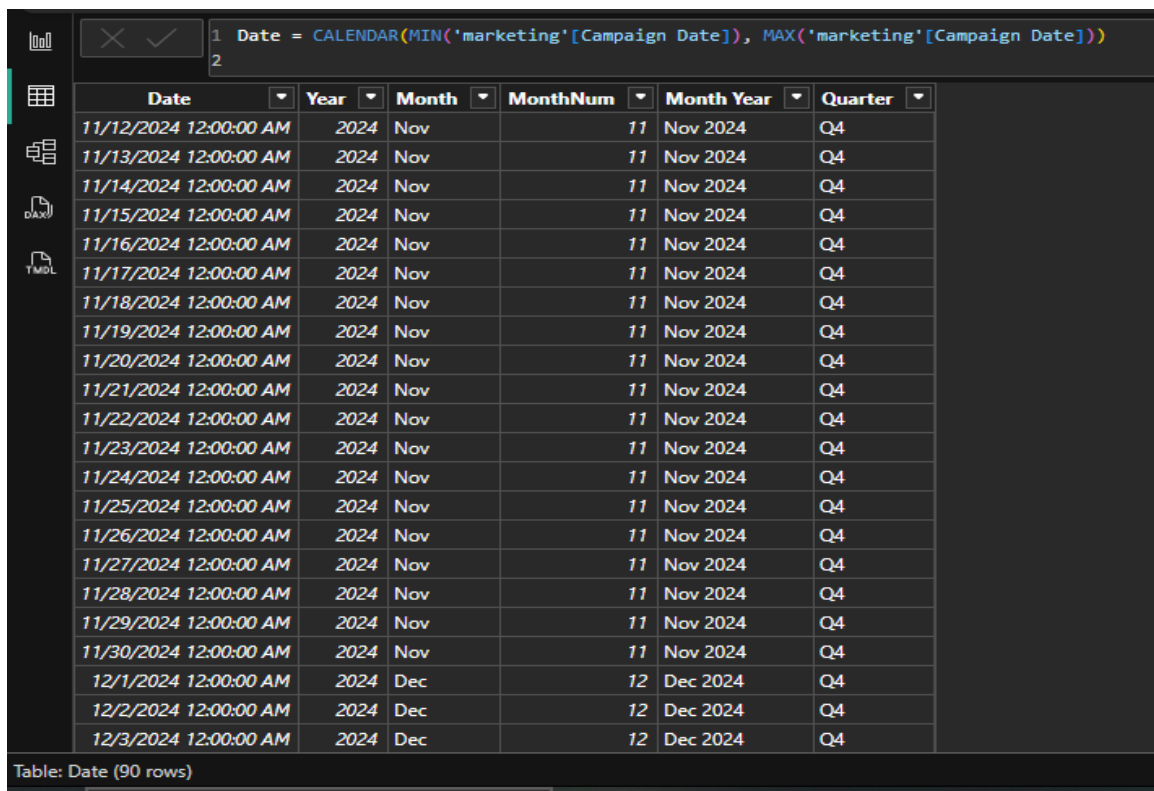Date = CALENDAR(MIN('marketing'[Campaign Date]), MAX('marketing'[Campaign Date]))

Month = FORMAT('Date'[Date], "MMM")

Month Year = FORMAT('Date'[Date], "MMM yyyy")

MonthNum = MONTH('Date'[Date])

Quarter = "Q" & FORMAT('Date'[Date], "Q")

Year = YEAR('Date'[Date])

Creation of a Date Table

Establishing Relationships

2.3 Measure Creation & KPI Development

Building Totals, Conversion Rate, CTR and ROI Metrics

Though the Totals are automatically created in the marketing table when inserted in a visual, but I had to create a Totals Folder so I can utilize it properly when calculating Measures for the Previous Months. First off, I created Totals.

Total Ad Spend =

SUM('marketing'[Ad Spend])

Total Impressions =

SUM('marketing'[Impressions])
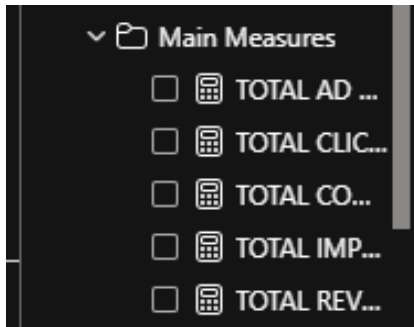
Total Clicks =

SUM('marketing'[Clicks])

Total Conversions =

SUM('marketing'[Conversions])

Total Revenue =
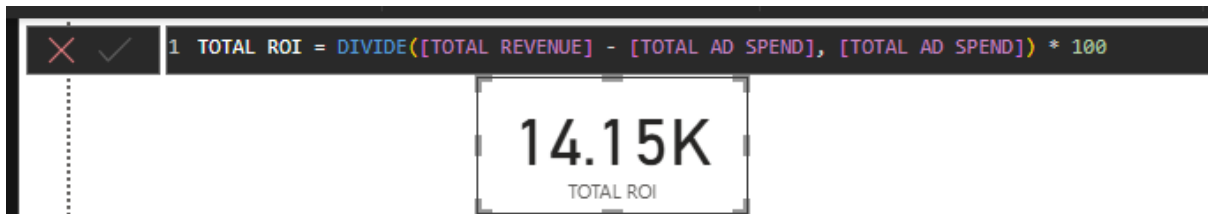
SUM('marketing'[Revenue])

Total Measures in a Folder

Then, I Created the ROI measure:

TOTAL ROI = DIVIDE([TOTAL REVENUE] - [TOTAL AD SPEND], [TOTAL AD SPEND]) * 100

Total ROI

Then the Conversion Rate
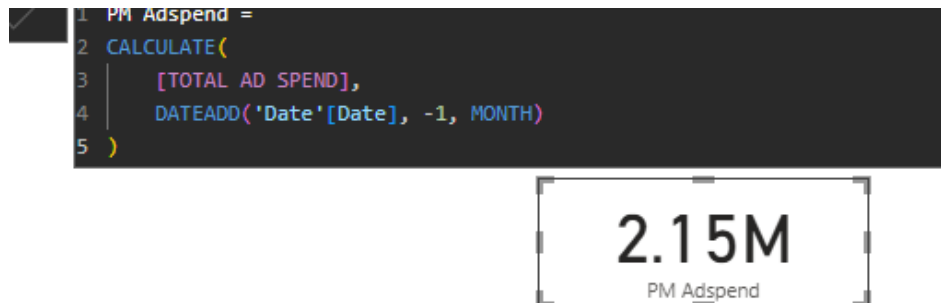

Conversion Rate

Then the CTR

CTR

2.4 Time Intelligence Calculations (Month-over-Month)

I wanted to perform a Year over Year analysis (YOY%) to track the trend of the Core KPIs such as Revenue, Ad Spend, ROI, clicks, Impressions, and Conversion Rate from 2024 – 2025, so it would show the percentage increase or decrease in growth, but the data wasn't sufficient for such calculations as the data only contains information from late 2024 to Early 2025, making the DAX formulas leading to blank values, hence the need to track the changes month over month.

An Example calculating Previous Month (PM)Ad-spend

```
1  PM Adspend =
2  CALCULATE(
3      [TOTAL AD SPEND],
4      DATEADD('Date'[Date], -1, MONTH)
5  )
```

2.15M
PM Adspend

Calculating Previous Month(PM) Ad-spend

Did the same for the other KPI's Revenue, ROI, Impressions, conversions and clicks.
then I calculated the % Month over Month (%MOM) measures

```
1  % MOM ADSPEND =
2  var a = DIVIDE([TOTAL AD SPEND],[PM Adspend])-1
3  var label = FORMAT(a,"#0.0%")
4  Return label & IF(a> 0 , "▲","▼")
```

12.3% ▲
% MOM ADSPEND

Calculating %MOM Ad-spend

This formula calculates the % Month over Month Ad-spend and add the upward or downward sign signifying the trend of the percentage determined.
This was also done for the rest of the KPI's Revenue, ROI, Impressions, conversions and clicks.

I then added a color code, so it will show red, when it's a downward trend and green for an upward trend

ADSPEND Color = IF([TOTAL AD SPEND]>[PM Adspend],"#85BD5F", "#A83F22")
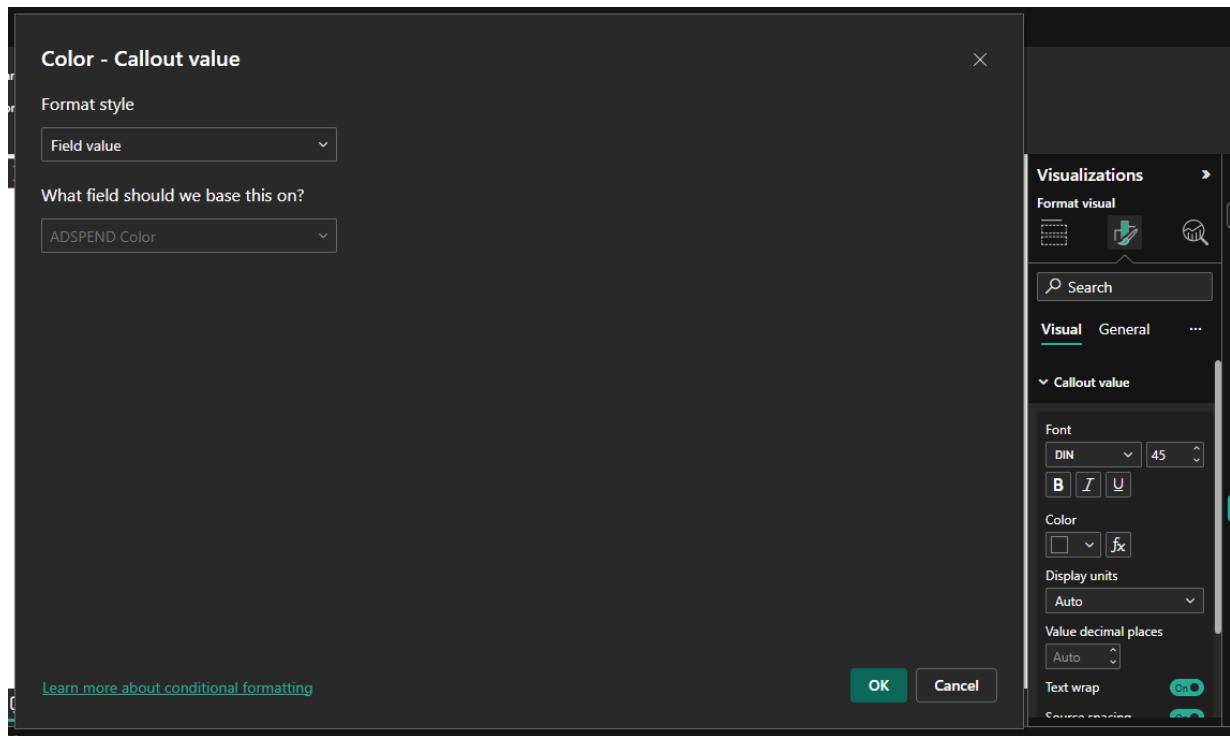

Choosing the Color Code
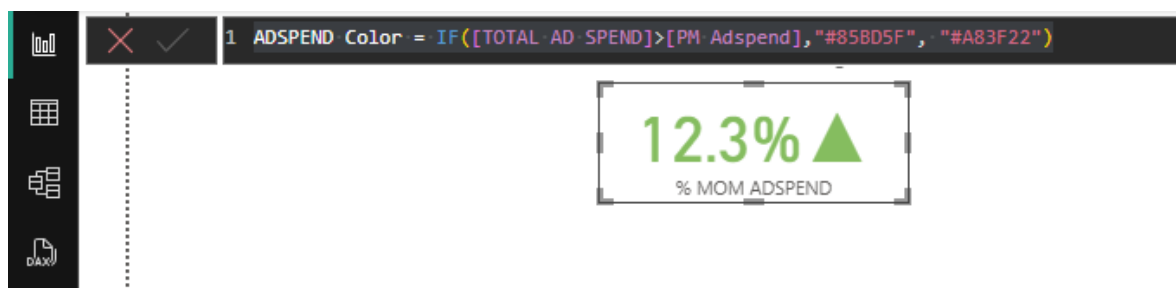
Choosing the Ad-Spend Color Code

Replicated all this steps for the other KPI's Revenue, Roi, Clicks, Impressions and Conversions.

2.5 Dashboard Wireframe Integration

Because of Limitations of Customizations of PowerBI Designs I created a Wireframe from Power Point and was imported into Power BI as a background image.

The purpose of this step was to guide the placement of visuals and maintain design consistency. The PowerPoint layout included placeholders for KPIs, charts, slicers, and filters. By using it as a template, the dashboard development followed a structured and professional layout, ensuring that the final design was aligned with the intended user experience.
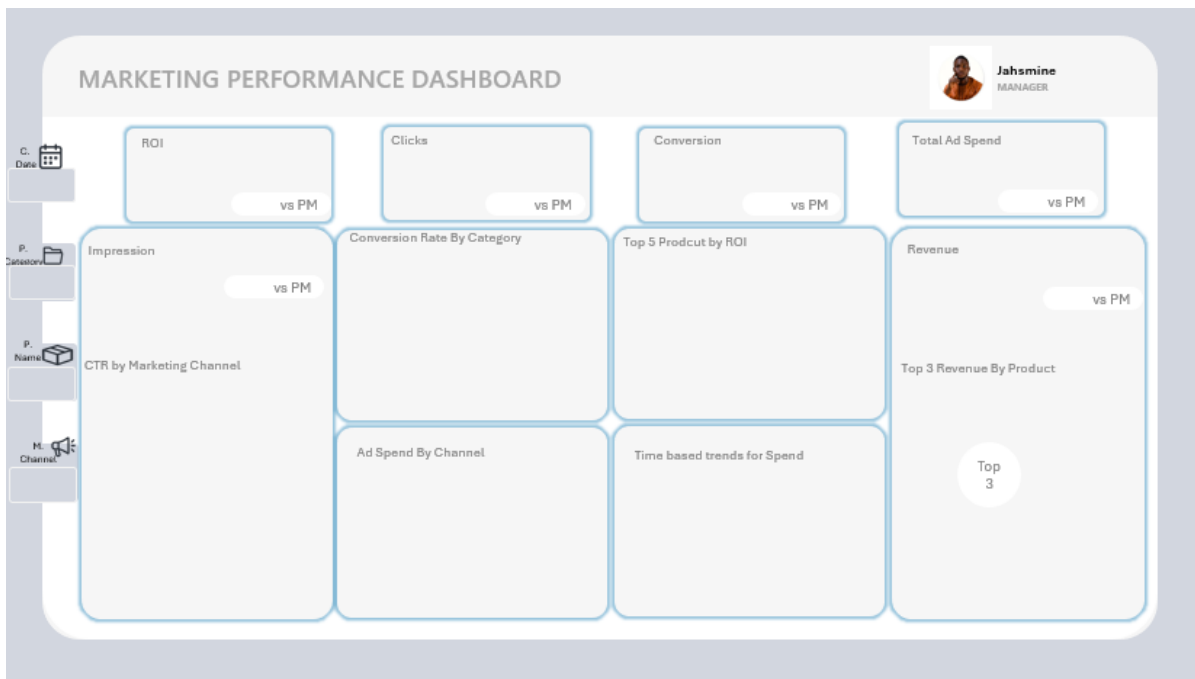
Importing a Designed Wireframe from Power Point

2.6 Visualization and Chart Development

In this step, multiple interactive visualizations were created in Power BI to provide insights into key marketing performance metrics. The charts were carefully selected to align with the dataset structure and the analysis goals, ensuring that trends, comparisons, and relationships could be easily understood by end users.

The following visuals were implemented:

- **Ad Spend by Channel:** A column chart was used to compare ad spend distribution across marketing channels, the Transparency was removed, using the error bars, it gave it a rounded shape look.

- **Clicks vs Impressions:** A line chart was employed to highlight the trend between the clicks and impression, which showed a continuous up ward trend as it goes

- **Conversion Rate by Category:** A Funnel chart was used to show how different product categories performed in terms of conversion efficiency.

- **Revenue by Product:** A Pie chart was designed to identify top 3 revenue-generating products (using the slicers, the other colors for the product were left unchanged to show a visible change in the reaction of the slicers)

- **ROI by Product:** A bar chart highlighted Top 5 Products with the Highest profitability.

- **Time-Based Trends (Spend, Conversions, ROI, Clicks):** Line charts were used to show trends over time, also showing month-over-month or year-over-year performance analysis. This line charts are placed close to these values to show their trend over time

Each chart was styled consistently (colors, labels, tooltips, and interactions) to maintain a professional dashboard layout and to ensure users could explore relationships through slicers and filters.

Visualization and Chart Development

Summary of the Dashboard

1. **Overall Performance KPIs (Top Section):**

- **ROI (14.15K)**: Currently showing a **-2.2%** decrease vs PM (previous month), suggesting profitability slightly dipped.
- **Clicks (12M)**: Increased by +11.4% vs PM, indicating stronger engagement with ads.
- **Conversions (1M)**: Up by +10.5% vs PM, showing campaigns are converting better than before.
- **Total Ad Spend (2.42M)**: Up +11.4% vs PM, meaning investment in campaigns increased.
- **Revenue (344.33M)**: Increased +9.9% vs PM, confirming growth despite rising spend.

Together, this shows that while ad spend increased, both clicks and conversions improved enough to raise revenue, although ROI dipped slightly, possibly due to costs rising faster than returns.

2. **Impressions (242M)**

- Down -22.6% vs PM, a red flag fewer people are seeing the ads compared to the previous month.
- But CTR (Click-Through Rate) across channels is high (96.5–100%), suggesting that the ads reached fewer people but were more effective at driving clicks.

3. **Channel Performance (Left Section):**

- **CTR by Marketing Channel:** Referral, Email, Google Ads, Influencer, Instagram all have strong CTR, with referral looking the best.
- **Ad Spend by Channel:** Spend is spread relatively evenly, with noticeable investments in Google Ads and Referral campaigns.
- This means channels are balanced in spend and engagement, but impressions dropped somewhere, likely due to reduced reach or budget distribution changes.

4. **Category & Product Insights (Middle Section):**

- **Conversion Rate by Category:** Household and Groceries lead, while Snacks and Personal Care lag.
- **Top 5 Products by ROI:** Air Freshener, Eggs, Biscuits, Shampoo, and Rice drive the most ROI, showing top-performing products.
- This suggests **Household essentials are the strongest performers in both ROI and conversion rates**.

5. **Revenue Insights (Right Section):**

- Revenue distribution shows **Top 3 Products**: Cold Drink, Biscuits, and Dishwasher products each contribute ~33% of total revenue.
- Revenue trend line shows consistent growth.

6. **Time-Based Trends (Bottom Section):**

- **Spend Trends (Nov–Feb)**: Spend peaked around December and is declining toward February.
- Suggests **seasonality effects (possibly holidays in Dec)** and a post-peak decline.

Overall Story the Dashboard Tells

- **Strengths:** Engagement (CTR, clicks, conversions) and revenue are growing despite fewer impressions. Certain products and categories consistently drive ROI.
- **Weakness:** ROI dropped slightly (cost growth outpaced returns), and impressions fell significantly, limiting reach.
- **Opportunities:** Reallocate spend to high-conversion categories (Household, Groceries) and optimize channels with higher CTR. Also, address why impressions dropped while spend rose.

## 2.7 Interactivity and Filtering through Slicers

In this step, slicers were added to the dashboard to enhance interactivity and dynamic filtering. The slicers allow the manager to filter the entire dashboard based on selected dimensions, ensuring that insights can be analyzed from different perspectives.

Campaign Date Slicer: Located at the Left side of the dashboard, a dropdown menu, it enables filtering by the years and in those years, the specific months. This supports trend analysis and comparisons across time ranges.
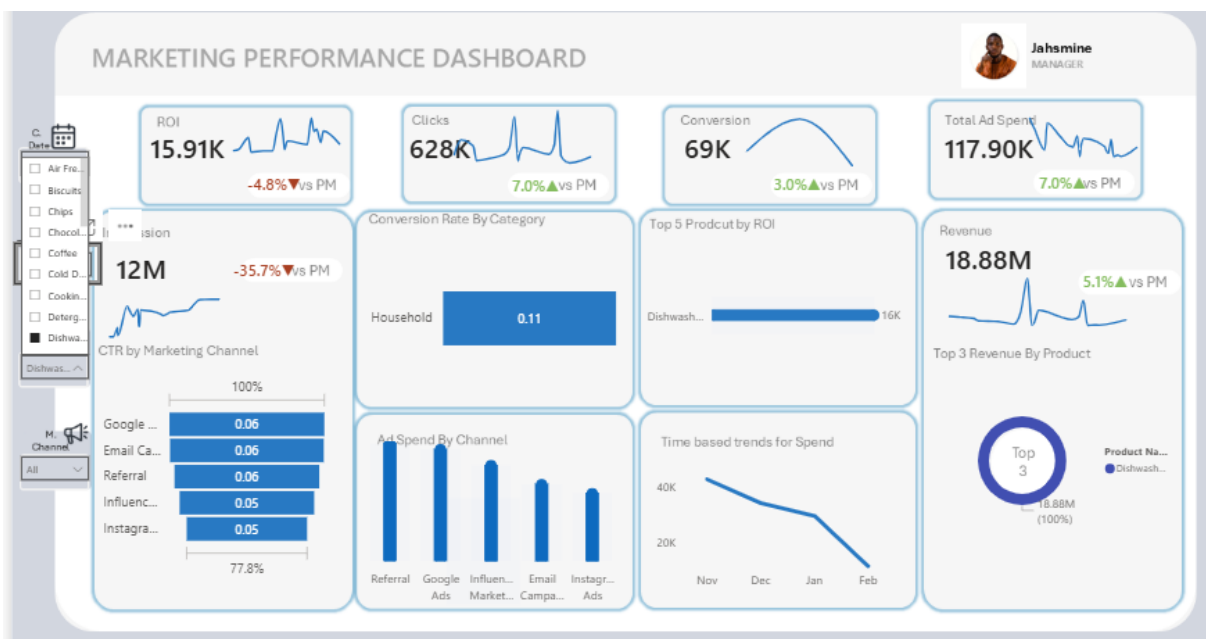

The color change in the Top 3 Product indicated a different product and was allowed to highlight a noticeable change in the dashboard in that area.

Product Category Slicer: Located at the Left side of the dashboard, a dropdown menu, it groups products into broader categories (e.g., Household, Groceries, Beverages). This allows higher-level insights on category performance.
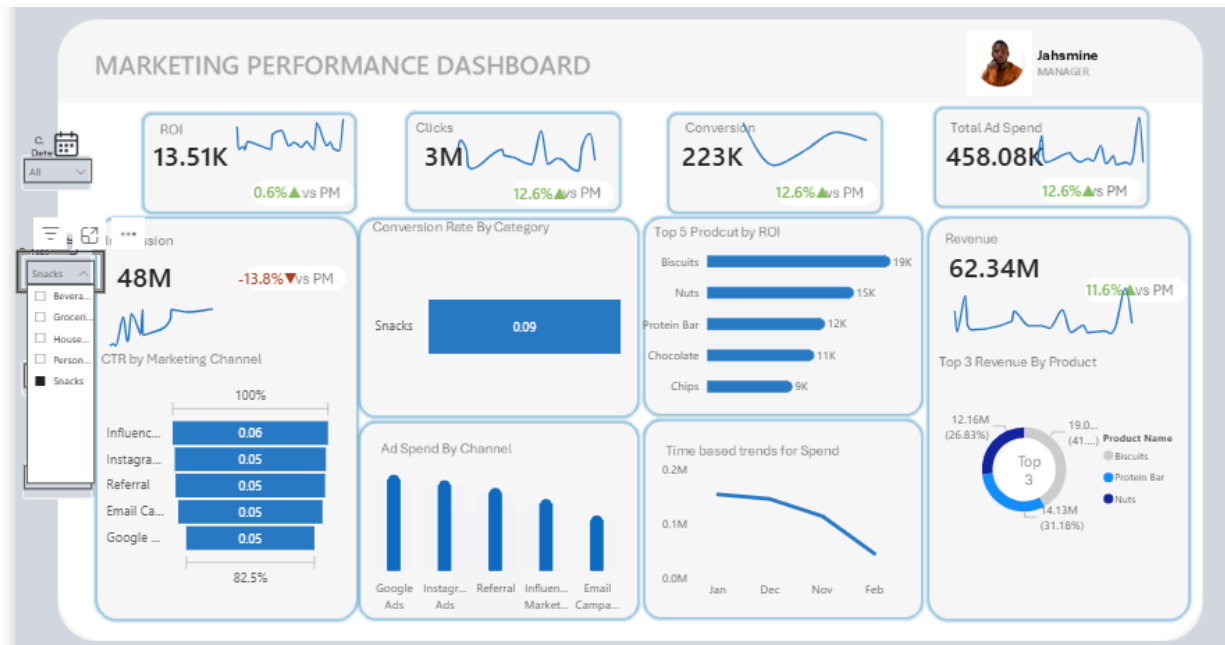
Product Name Slicer: Located at the Left side of the dashboard, a dropdown menu, it allows users to focus on individual products and see how each one performed across metrics such as revenue, clicks, and ROI.

Marketing Channel Slicer: Located at the Left side of the dashboard, a dropdown menu, it enables filtering results by channel (e.g., Email, Google Ads, Referral, Influencer, Instagram). This allows channel-specific analysis of spend, impressions, CTR, and conversions.
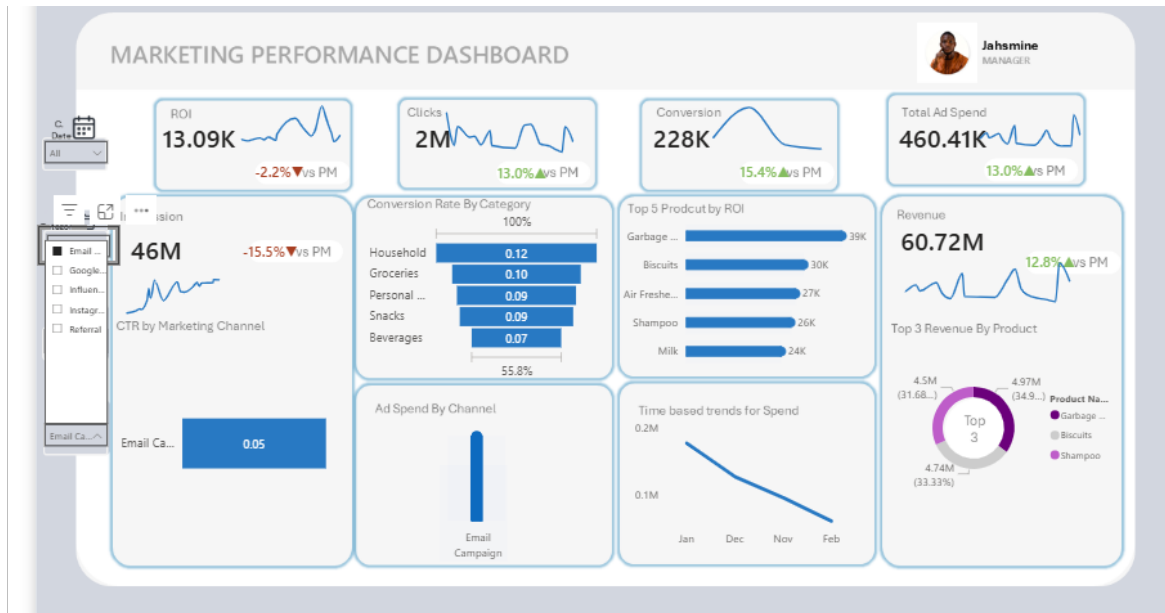
The color change in the Top 3 Product indicated a different product and was allowed to highlight a noticeable change in the dashboard in that area.

Purpose of Slicers:

These slicers make the dashboard fully interactive and ensure users can drill down into specific areas of interest. For example, the manager can select *"Email Campaigns" in January 2025* and instantly see how spend, clicks, conversions, and ROI compare against other campaigns and timeframes.

3.0 Overall Conclusion

The Marketing Performance Dashboard successfully consolidates campaign data into a clear, interactive, and professional reporting tool. By combining key performance indicators (Ad Spend, Impressions, Clicks, Conversions, Revenue, and ROI) with detailed breakdowns by channel, product, category, and time, the dashboard provides both a high-level overview and the ability to drill down into specifics.

Key findings highlight that while revenue, clicks, and conversions are trending upward, challenges remain with declining impressions and slightly reduced ROI, signaling the need for more efficient budget allocation and broader audience reach. Strong performance in certain categories (Household, Groceries) and products (Air Freshener, Biscuits, Eggs) also reveals clear opportunities for optimization and scaling.

Through the use of DAX measures (CTR, Conversion Rate, ROI, MOM %) and slicers (Campaign Date, Product Name, Product Category, Marketing Channel), the dashboard ensures flexibility and enables decision-makers to analyze performance across multiple dimensions. The clean design, supported by consistent color coding and visual hierarchy, makes the dashboard both insightful and accessible to stakeholders.

In conclusion, the project demonstrates how Power BI can transform raw marketing data into actionable insights, empowering the business to:

- Identify what drives ROI and revenue.

- Optimize campaign strategies by reallocating spend toward high-performing channels and products.

- Monitor seasonal trends to improve planning.

- Continuously refine decisions using interactive and dynamic reporting.