Problem Statement:

As a Data Analyst at a Digital Marketing Agency, the primary objective is to optimize the performance of advertising campaigns across various platforms to achieve maximum return on investment (ROI) for clients. To accomplish this, we have access to multiple datasets containing features related to ad campaigns, impressions, clicks, conversions, sales, and advertising budgets.

Key Features:

1. **Date, Month, Year:** These features provide temporal information that can help analyze trends, seasonality, and performance fluctuations over time.

2. **Ad Campaign:** Identifies the specific advertising campaign being run, which allows for the segmentation and comparison of different campaigns.

3. **Display Ads, Overlay Ads, Skippable Ads, Non-skippable Ads, Bumper Ads:** These features represent different ad formats used within campaigns, each potentially performing differently in terms of impressions, clicks, and conversions.

4. **Platform:** Indicates the platform (e.g., Google Ads, Facebook Ads, Twitter Ads) where the ads are being displayed, enabling analysis of platform-specific performance metrics.

5. **Avg Pages Visited, AVG Time on Site (mins):** These metrics reflect user engagement with the website after clicking on the ads, which is crucial for assessing the quality of traffic driven by the campaigns.

6. **Impressions, Clicks, Conversions, Quantity Sold:** These features quantify the effectiveness of the campaigns in terms of reach, engagement, and conversion rates.

7. **Unit Cost Price, Unit Sale Price, Final Cost Price, Final Sale Price:** Provide insights into the financial aspects of the advertising campaigns, including costs and revenues associated with ad placements and product sales.

8. **Cost Per 1000 Impressions (CPM), Cost Per Click (CPC):** These metrics quantify the cost efficiency of advertising campaigns, helping to evaluate the effectiveness of budget allocation across different platforms and ad formats.

9. **Sales Target, Ad Budget:** Represent the predetermined sales goals and allocated budgets for advertising campaigns, providing benchmarks for performance evaluation and resource allocation.

Analysis Objectives:

1. **Campaign Performance Analysis:** Evaluate the performance of each ad campaign by analyzing metrics such as impressions, clicks, conversions, and ROI across different platforms and ad formats.

2. **Platform Comparison:** Compare the performance of advertising campaigns across different platforms to identify the most effective platforms in terms of cost efficiency and conversion rates.

3. **Optimization of Ad Formats:** Determine the effectiveness of different ad formats (e.g., display ads, skippable ads) and optimize their usage to maximize user engagement and conversion rates.

4. **Budget Allocation Optimization:** Optimize the allocation of advertising budgets across campaigns, platforms, and ad formats to achieve the highest possible ROI while meeting sales targets.

5. **Temporal Analysis:** Identify temporal patterns and seasonality trends in ad performance to optimize campaign scheduling and budget allocation throughout the year.

6. **User Engagement Analysis:** Analyze user engagement metrics such as average pages visited and average time on site to understand the quality of traffic driven by advertising campaigns and optimize targeting strategies accordingly.

7. **Cost Efficiency Analysis:** Evaluate the cost efficiency of advertising campaigns by analyzing metrics such as CPM and CPC, identifying opportunities to reduce costs while maintaining or improving campaign performance.

DAX Functions

Conversion vs CPC

```
Conv vs CPC =
VAR Conv_CPC = DIVIDE([Total Clicks], [Total Impresion])
VAR Minus = 1 - Conv_CPC
Return
Minus
```

Conversion / CPC

```
Conv/CPC = DIVIDE([Total Conversions], [Total Clicks])
```

CPC vs CPM

```
CPC vs CPM =
VAR CPC_CPM = DIVIDE([Total Clicks],[Total Impresion])
VAR Minus = 1 - CPC_CPM
RETURN
Minus
```

CPC/CPM

```
CPC/CPM = DIVIDE([Total Clicks], [Total Impresion])
```

Total Ad Budget CY

```
Total Ad Budget CY = SUMX('Ad Budget', 'Ad Budget'[Ad Budget])
```

Total Ad Cost Current year

```
Total Ads Cost CY = [Total CPC Cy]+[Total CPM CY]
```

Total Clicks

```
Total Clicks = SUMX(Data, Data[Clicks])
```

Total Conversion Last Year

```
Total Conv LY = CALCULATE([Total Conversions],
```

```
SAMEPERIODLASTYEAR('Calender'[Date]))
```

Total Conversion

```
Total Conversions = SUMX(Data, Data[Conversions])
```

Total Cost Current Year

```
Total Cost CY = SUMX(Data, Data[Final Cost Price])
```

Total CPC Current year

```
Total CPC Cy =
VAR TotalCost = SUMX('Click Cost', 'Click Cost'[Cost Per Click (CPC)])
RETURN TotalCost * [Total Clicks]
```

Total CPC Last Year

```
Total CPC Last_Year = CALCULATE([Total CPC Cy],
SAMEPERIODLASTYEAR(Calender[Date]))
```

Total CPM Current Year

```
Total CPM CY =
VAR By1000Impresions = DIVIDE([Total Impresion], 1000)
VAR CostPer100Impresion = SUMX('Impression Cost', 'Impression Cost'[Cost Per 1000
Impression (CPM)])
Return
By1000Impresions*CostPer100Impresion
```

Total CPM Last Year

```
Total CPM LY = CALCULATE([Total CPM CY], SAMEPERIODLASTYEAR(Calender[Date]))
```

Total Impresion

```
Total Impresion = SUMX(Data, Data[Impressions ])
```

Total Profit % Current Year

```
Total Profit % CY = DIVIDE([Total Profit CY], [Total Cost CY])
```

Total Profit Current Year

```
Total Profit CY = [Total Sales Cy] - [Total Cost CY] - [Total Ads Cost CY]
```

Total Quantity Sold Current Year

```
Total Quantites Sold CY = SUMX(Data, Data[Quantity Sold])
```

Total Sales Current Year

```
Total Sales Cy = SUMX(Data, Data[Final Sale Price])
```

Total Sales Last Year

```
Total Sales LY = CALCULATE([Total Sales Cy], SAMEPERIODLASTYEAR('Calender'[Date]))
```

Total Sales YoY%

```
Total Sales YoY% =
VAR CYminusLY = ([Total Sales Cy] - [Total Sales LY])
VAR Division = DIVIDE(CYminusLY,[Total Sales LY])
Return
Division
```

Total Target Sales Current Year

```
Total target Sales CY = SUMX('Sales Target', 'Sales Target'[Sales Target ])
```