Marketing Campaign Analysis Report

Objective

Marketing campaigns generate a wealth of data, and understanding key performance metrics is crucial for optimizing future strategies. This report provides insights into campaign performance, conversion efficiency, audience engagement, and cost-effectiveness using SQL-based analysis.

Key Questions Answered:

1. Total Impressions for Each Campaign
2. Campaign with the Highest ROI
3. Top 3 Locations with the Most Impressions
4. Average Engagement Score by Target Audience
5. Overall Click-Through Rate (CTR)
6. Most Cost-Effective Campaign
7. Campaigns with CTR Above a Threshold
8. Ranking of Channels by Total Conversions

Steps Taken to Acquire and Process Data

Step 1: Connecting to PostgreSQL Database

- **Tool Used:** DBeaver– A GUI-based database management tool used to connect to PostgreSQL.
- **Connection Setup:**
    - PostgreSQL credentials were used to establish a connection.

Step 2: Creating the Campaign Data Table

- A new table named campaigndata was created to store the data imported from the marketing campaign dataset CSV file. The table structure was designed to match the campaign-related columns, ensuring consistency and accurate data storage. Each column captures a specific aspect of the campaign:
    - **Company**: Represents the company responsible for the campaign, which may include a mix of fictional brands.

- **Campaign_Type**: Defines the type of marketing campaign used, such as email, social media, influencer, display, or search advertising.
- **Target_Audience**: Specifies the audience segment targeted, including demographic details like age and gender.
- **Duration**: Measures the length of the campaign in days.
- **Channels_Used**: Lists the platforms used to execute the campaign, such as social media, YouTube, websites, email marketing, or Google Ads.
- **Conversion_Rate**: Indicates the percentage of impressions or leads that resulted in a successful conversion, showing campaign effectiveness.
- **Acquisition Cost**: This is the amount spent to acquire customers, presented as a monetary value. We use a MONEY data type, but it requires extra steps during calculations.
- **ROI (Return on Investment)**: Measures the profitability and success of the campaign.
- **Location**: Denotes the geographical area where the campaign was conducted, covering major cities like New York, Los Angeles, Chicago, Houston, or Miami.
- **Date**: Provides a chronological reference for when the campaign took place, aiding trend analysis.
- **Clicks**: Represents the number of clicks generated by the campaign, reflecting user engagement.
- **Impressions**: Counts the total number of times the campaign was displayed to the target audience.
- **Engagement_Score**: A numerical score (ranging from 1 to 10) measuring the level of engagement achieved.
- **Customer_Segment**: Specifies the specific customer category the campaign was tailored for, such as tech enthusiasts, fashion lovers, health and wellness audiences, foodies, or outdoor adventurers.

- The following SQL code was executed:

```sql
CREATE TABLE campaigndata (
  Campaign_ID SERIAL PRIMARY KEY,
  Company VARCHAR(100),
  Campaign_Type VARCHAR(100),
  Target_Audience VARCHAR(100),
  Duration VARCHAR(100),
  Channel_Used VARCHAR(100),
  Conversion_Rate DECIMAL,
  Acquisition_Cost MONEY,
  ROI DECIMAL,
  Location VARCHAR(100),
  Date DATE,
  Clicks INT,
  Impressions INT,
  Engagement_Score INT,
  Customer_Segment VARCHAR(100)
  );
```

Figure 1: Table Creation

Step 3: Importing CSV Data into PostgreSQL

Using DBeaver's import feature, the campaign dataset was mapped to match column data types.

SQL Queries, Explanations, and Findings

Query 1: Total Impressions for Each Campaign

This query shows how many impressions each campaign gets to find out its total reach. Campaigns with more impressions usually reach a larger audience. However, having a lot of impressions doesn't always mean there will be conversions.

```sql
SELECT campaign_id, SUM(impressions) AS totalimpressions
FROM campaigndata
GROUP BY campaign_id;
```

Figure 2: Query 1

campaign_id	totalimpressions
1	1,922
2	7,523
3	7,698
4	1,820
5	4,201
6	1,643
7	8,749
8	7,854
9	1,754
10	3,856

Figure 3: Output for Query 1

Key Insight:

- This metric provides an overview of how widely each campaign reached its audience.
- High impression counts indicate strong visibility.

Actionable Steps:

- **Optimize High-Impression Campaigns:** If a campaign has high impressions but low conversions, improving ad creatives and refining audience targeting might be necessary.
- **Reduce Budget on Low-Performing Campaigns:** Campaigns with low impressions might indicate poor audience reach or ineffective bidding strategies.
- **Leverage Retargeting Strategies:** High impressions with low engagement suggest a need for remarketing efforts to drive conversions.

Query 2: Campaign with the Highest ROI

This query sorts campaigns by ROI in descending order and identifies the campaign with the highest return; we found that NexGen Systems had the highest ROI of 8%.

```
SELECT campaign_id , company , roi
FROM campaigndata
ORDER BY roi DESC
LIMIT 1;
```

Figure 4: Query 2

123 campaign_id	A-Z company	123 roi
168	NexGen Systems	8

Figure 5: Output for Query 2

Key Insight:

- NexGen Systems had the highest ROI at 8%, indicating strong cost efficiency.
- The average ROI for digital marketing campaigns typically ranges between 4:1 and 10:1 (i.e., earning $4–$10 for every $1 spent). Our highest-performing campaign achieved an ROI of 8%, placing it at the higher end of industry standards. This suggests strong cost efficiency and effective budget allocation.

Actionable Steps:

- **Scale Successful Strategies:** Replicate successful elements of high-ROI campaigns.
- **Allocate More Budget to High-Performing Campaigns:** Shift investments toward profitable campaigns.
- **Analyze Customer Behavior:** Identify what resonates with users in this campaign and apply insights to others.

Query 3: Top 3 Locations with the Most Impressions

This query identifies locations where campaigns have the highest visibility. New York had 221,359,756 impressions, indicating a strong brand presence.

```
SELECT location , SUM(impressions) AS totalimpressions
FROM campaigndata
GROUP BY location
ORDER BY totalimpressions DESC
LIMIT 3;
```

Figure 6: Query 3

A-Z location	123 totalimpressions
New York	221,359,756
Miami	221,347,726
Chicago	219,999,352

Figure 7: Output for Query 3

Key Insight:

- New York (221,359,756 impressions) had the highest brand presence.

Actionable Steps:

- **Invest More in High-Performing Locations:** Expand marketing efforts in these areas.
- **Customize Regional Content:** Tailor ad creatives to resonate with local audiences for these areas.
- **Expand in High-Performing Regions:** Use key insights to open up new markets, in places like New York, Miami and Chicago

Query 4: Average Engagement Score by Target Audience

This query calculates the average engagement score for each audience segment, revealing that men aged 18 to 24 had the highest engagement, with an average score of 5.5150152761.

```
SELECT target_audience , AVG(engagement_score) AS avgengagementscore
FROM campaigndata
GROUP BY target_audience;
```

Figure 8: Query 4

A-Z target_audience	123 avgengagementscore
All Ages	5.4868693936
Men 18-24	5.5150152761
Men 25-34	5.4919798121
Women 25-34	5.4927398595
Women 35-44	5.4865702479

Figure 9: Output for Query 4

Key Insight:

- Men aged 18-24 had the highest engagement (5.5150)
- Research suggests that engagement scores above **5.0** indicate strong audience interaction. Our analysis found that men aged **18–24** had an engagement score of **5.51**, reinforcing that this demographic is highly receptive to our campaign content.

Actionable Steps:

- **Prioritize High-Engagement Audiences:** Focus more campaigns on this demographic.
- **Experiment with Content Formats:** Utilize video and interactive ads to enhance engagement.

Query 5: Overall Click-Through Rate (CTR)

This query calculates the overall CTR across all campaigns. CTR indicates how effective campaigns are at converting impressions into clicks. We found that the overall CTR for these campaigns was 9.9826380634%, suggesting positive user interaction.

```sql
SELECT (SUM(clicks)::numeric / SUM(impressions)) * 100 AS overallctr
FROM campaigndata;
```

Figure 10: Query 5

123 overallctr
9.9826390634

Figure 11: Output for Query 5

Key Insight:

- Industry benchmarks indicate that a good CTR for digital ads is around 1.91% for search ads and 0.35% for display ads. Our campaign's CTR of 9.98% performs significantly above this level, suggesting a highly effective strategy in driving user engagement compared to industry standards.

Actionable Steps:

- **Improve Ad Copy & CTA:** Optimize ad headlines and calls to action.
- **Refine Audience Targeting:** Ensure ads reach the most relevant demographics.

Query 6: Most Cost-Effective Campaign

This query finds the campaign with the lowest cost per conversion, indicating better customer acquisition efficiency and higher returns on advertising spend. The **Acquisition_Cost** column is stored as **MONEY** (e.g., `$33,346.67`) and cannot be used in calculations. For Query 6, we:

1. Converted MONEY to TEXT: `Acquisition_Cost::TEXT`
2. Removed the dollar sign and commas: `REPLACE(REPLACE(Acquisition_Cost::TEXT, '$', ''), ',', '')`
3. Changed the cleaned text to NUMERIC: `::NUMERIC`

4. Divided by the conversion rate: `(Acquisition_Cost / Conversion_Rate) AS Cost_Per_Conversion`
5. Sorted to find the most cost-effective campaign: `ORDER BY Cost_Per_Conversion ASC LIMIT 1.`

```sql
SELECT campaign_id , company ,
       (REPLACE(REPLACE(acquisition_cost ::TEXT, '$', ''), ',', '')::NUMERIC / conversion_rate)
       AS costperconversion
FROM campaigndata
ORDER BY costperconversion ASC
LIMIT 1;
```

Figure 12: Query 6

123 campaign_id	A-Z company	123 costperconversion
101,103	Alpha Innovations	33,346.6666666667

Figure 13: Output for Query 6

Key Insight:

- According to industry data, the average cost per conversion varies by channel—$48.96 for Google Ads Search and $75.51 for Display Ads. Our most cost-effective campaign achieved a cost per conversion of $33,346.67, indicating potential inefficiencies that require further optimization to align with industry standards.

Actionable Steps:

- **Increase Budget for Cost-Effective Campaigns:** Reinvest in campaigns with the lowest acquisition costs.
- **Analyze Success Factors:** Determine why these campaigns were more cost-effective.

Query 7: Campaigns with CTR Above a Threshold (5%)

This query filters campaigns with a click-through rate (CTR) of over 5%, indicating strong audience engagement. Industry benchmarks show average CTRs of 1.91% for search ads and 0.35% for display ads. While a high CTR reflects effective targeting and compelling creatives, it doesn't guarantee conversions, so further analysis is needed to ensure meaningful actions.

```
SELECT campaign_id , company ,
       ((clicks ::NUMERIC / impressions) * 100) AS ctr
FROM campaigndata
WHERE ((clicks ::NUMERIC / impressions) * 100) > 5;
```

Figure 14: Query 7

campaign_id	company	ctr
1	Innovate Industries	26.3267429761
3	Alpha Innovations	7.5863860743
4	DataTech Solutions	11.9230769231
5	NexGen Systems	9.0216615092
6	DataTech Solutions	6.0864272672
7	NexGen Systems	9.3382100812
8	DataTech Solutions	7.9449961803
9	Alpha Innovations	49.0877993158
10	TechCorp	16.6493775934
12	Innovate Industries	7.3647742512

Figure 15: Output for Query 7

Key Insight:

- Most of the campaigns were above the threshold
- These campaigns can serve as benchmarks for future ads.

Actionable Steps:

- **Replicate High-CTR Campaigns:** Apply learnings from these campaigns across other initiatives.
- **Increase Budget on High-CTR Ads:** Allocate more funds to campaigns driving significant engagement.

Query 8: Rank Channels by Total Conversions

This analysis shows how well different marketing channels are performing based on total conversions. It identifies which channels bring in the most conversions and helps optimize marketing budgets for better results. The best channel was Email, which generated a total of 1,485,393.65 conversions.

Query:

```
SELECT channel_used , SUM(clicks * conversion_rate) AS totalconversions
FROM campaigndata
GROUP BY channel_used
ORDER BY totalconversions DESC;
```

Figure 16: Query 8

Expected Output:

A-Z channel_used	123 totalconversions
Email	1,485,393.65
Website	1,477,746.31
Google Ads	1,468,813.81
YouTube	1,463,620.81
Instagram	1,462,864.48
Facebook	1,446,294.86

Figure 17: Output for Query 8

Key Insight:

- Industry benchmarks show that email marketing typically has a **conversion rate of 6.05%**. With our email campaigns generating **1,485,393 conversions**, they remain a top-performing channel, reinforcing the importance of investing in personalized email strategies.

Actionable Steps:

- **Invest More in High-Converting Channels:** Prioritize ad spending on the most effective channels.
- **Diversify Low-Converting Channels:** Test different strategies or reallocate budgets accordingly.

Next Steps

- **Improving Audience Targeting:** Focus on high-engagement demographics.
- **Optimize Ad Creatives:** Enhance visuals, messaging, and CTAs to boost CTR.
- **Reallocate Budget:** Invest more in high-performing campaigns and locations.
- **Leverage Data Validation:** Ensure data accuracy by identifying inconsistencies.
- **A/B Testing:** Experiment with different strategies to refine campaigns.
- **Automate Reports:** Set up scheduled SQL queries for continuous monitoring.

Conclusion & Recommendations

1. **Expand High-ROI Campaigns:** Allocate more resources to campaigns that yield better returns.
2. **Enhance Underperforming Campaigns:** Adjust strategies for campaigns with low CTR.
3. **Target High-Impact Locations:** Focus on cities with high impressions and engagement.
4. **Refine Channel Strategy:** Invest in the highest-converting marketing channels.
5. **Optimize Ad Creatives & Messaging:** Improve ad design and audience relevance.
6. **Continue Cost-Effective Strategies:** Implement methods that minimize acquisition costs while maximizing conversions.