

SQL Analysis of Marketing Campaign Performance

Insights and Key Metrics



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1.0 INTRODUCTION

This report provides a comprehensive analysis of marketing campaign data to evaluate the performance of various campaigns. The dataset analyzed contains 15 columns, including campaign_id, company, campaign_type, target_audience, duration, channel_used, conversion_rate, acquisition_cost, ROI, location, date, impressions, engagement_score, and customer_segment. The primary objective of this analysis is to identify top-performing campaigns, understand customer behavior, and determine the most successful products. The insights gained will support informed decision-making for future marketing strategies and product offerings.

1.1 Data Overview

For this analysis, the dataset containing campaign performance metrics was reviewed. Data cleaning and preprocessing were crucial to ensure data integrity and successful integration into PostgreSQL.

1.2 Data Cleaning and Preparation

The following steps were taken to prepare the dataset:

1. **Formatted the Date Column**

The original date format was incompatible with PostgreSQL, so it was reformatted using Excel to ensure smooth integration upon import.

2. **Converted Acquisition Cost to Currency Format**

The acquisition cost column had inconsistent formatting. To standardize it, the data was converted into a proper currency format before importing into PostgreSQL. This step was necessary for maintaining consistency and ensuring accurate calculations.

3. **Created a New Database and Table**

A new PostgreSQL database was created specifically for this analysis. Using SQL queries, a structured table named campaigndata was created, defining appropriate data

types for each column to optimize query performance and ensure data integrity.

2.0 METHODOLOGY

Using SQL queries, several key metrics were calculated to gain actionable insights from the data. The main areas of focus were:

- **Total Impressions by Campaign**
- **Campaign with Highest ROI**
- **Top Locations by Impressions**
- **Average Engagement Score by Target Audience**
- **Overall Click-Through Rate (CTR)**
- **Most Cost-Effective Campaign**
- **Campaigns with CTR Above Threshold**
- **Channel Ranking by Total Conversions**



For each metric, SQL queries were constructed to filter, summarize, and aggregate the data, allowing for the identification of top-performing campaigns and key insights.

3.0 EXPLORATORY ANALYSIS

This section outlines the SQL queries employed to analyze the dataset and extract valuable insights. Each query is crafted to address specific marketing-related questions and generate meaningful conclusions. Below are the key analyses conducted:

1. Total Impressions by Campaign

```
SELECT
    campaign_type,
    SUM(impressions) AS total_impressions
FROM campaigndata
GROUP BY campaign_type
ORDER BY total_impressions DESC;
```

	campaign_type character varying (80) 	total_impressions bigint 
1	Search	221415139
2	Influencer	220771844
3	Email	220147995
4	Display	220080744
5	Social Media	219073236

Key Findings: Search campaigns lead in total impressions with **221,415,139**, showing strong reach and visibility. The next three—**Influencer**, **Email**, and **Display**—are very close in impressions (between **220M** and **221M**), with only 700K difference between them. **Social Media** has the fewest impressions at **219,073,236**, though it still performs very closely compared to others (within 2.3M of the highest).

All five campaign types fall within a range of **2.35 million impressions**, which is just over **1% variation**, indicating a balanced and well-distributed campaign strategy in terms of exposure.

2. Campaign with the Highest ROI

```
10 SELECT
11     campaign_id,
12     company,
13     roi
14 FROM campaigndata
15 ORDER BY roi DESC
16 LIMIT 1;
```

	campaign_id [PK] integer	company character varying (80)	roi numeric (4,2)
1	168	NexGen Systems	8.00

Key Findings: Campaign ID 168, run by NexGen Systems, has achieved an ROI of 8.00, which indicates:

- For every 1 unit of investment, they earned 8 units in return.
- This is a very high return on investment, suggesting an extremely efficient and successful campaign.

3. Top 3 Locations with the Most Impressions

```
20 SELECT
21     location,
22     SUM(impressions) AS total_impressions
23 FROM campaigndata
24 GROUP BY location
25 ORDER BY total_impressions DESC
26 LIMIT 3;
```

	location character varying (80)	total_impressions bigint
1	New York	221359756
2	Miami	221347726
3	Chicago	219999352

Key Findings: The analysis of total impressions by location reveals the top three cities where marketing campaigns had the greatest reach. These findings indicate that **New York, with 22,135,976 impressions**, and **Miami, with 22,134,726 impressions**, were nearly tied for the highest number of impressions, suggesting strong audience presence and potential campaign visibility in these regions. **Chicago** follows closely with **21,999,352 impressions**, rounding out the top three high-performing locations.

4. Average Engagement Score by Target Audience

```
30 SELECT
31     target_audience,
32     AVG(engagement_score) AS avg_engagement_score
33 FROM campaigndata
34 GROUP BY target_audience
35 ORDER BY avg_engagement_score DESC;
```

	target_audience character varying (80) 🔒	avg_engagement_score numeric 🔒
1	Men 18-24	5.5150152760873345
2	Women 25-34	5.4927398595456477
3	Men 25-34	5.4919798121127324
4	All Ages	5.4868693935683766
5	Women 35-44	5.4865702479338843

Key Findings: The highest engagement was observed among **Men aged 18–24**, indicating this group responded most actively to the campaigns. **Women aged 25–34** and **Men aged 25–34** closely followed, showing nearly equal levels of interaction. These insights can guide more targeted future campaigns toward high-engagement demographics.

5. Overall Click-Through Rate (CTR)

```
39 SELECT
40     ROUND((SUM(clicks)* 100.0) / SUM(impressions), 2) AS overallctr
41 FROM campaigndata
```

	overallctr numeric
1	9.98

Key Findings: The **overall CTR** across all marketing campaigns is **9.98%**. This indicates a relatively high level of user engagement, suggesting that the campaigns were effective in driving clicks relative to impressions. A CTR close to 10% is often considered strong performance in digital marketing benchmarks, reflecting well-optimized targeting and messaging strategies.

6. Most Cost-Effective Campaign

```
45 SELECT
46     campaign_type,
47     company,
48     (SUM(acquisition_cost) / NULLIF(SUM(clicks), 0)) AS cost_per_conversion
49 FROM campaigndata
50 GROUP BY campaign_type, company
51 ORDER BY cost_per_conversion ASC
52 LIMIT 1;
```

	campaign_type character varying (80)	company character varying (80)	cost_per_conversion money
1	Social Media	Innovate Industries	\$22.55

Key Findings: At **\$22.55**, **Innovate Industries** is getting more results for less money, which suggests their campaign is well-optimized and efficient. This implies they are likely doing something **very effective**—either

- **Targeting the right audience** (so people are more likely to convert), or
- Using **high-performing creatives** (like compelling ads or messaging that drive action).

7. Campaigns with CTR Above a 5% Threshold

```
SELECT
    campaign_type,
    company,
    (clicks * 100.0 / NULLIF (impressions, 0)) AS ctr
FROM campaigndata
WHERE (clicks * 100.0 / NULLIF (impressions, 0)) > 5;
```

	campaign_type character varying (80) 🔒	company character varying (80) 🔒	ctr numeric 🔒
1	Email	Innovate Industries	26.3267429760665973
2	Influencer	Alpha Innovations	7.5863860743050143
3	Display	DataTech Solutions	11.9230769230769231
4	Email	NexGen Systems	9.0216615091644846
5	Display	DataTech Solutions	6.0864272671941570
6	Email	NexGen Systems	9.3382100811521317
7	Search	DataTech Solutions	7.9449961802902979
8	Social Media	Alpha Innovations	49.0877993158494869
9	Email	TechCorp	16.6493775933609959
10	Influencer	Innovate Industries	7.3647742512293250
11	Social Media	TechCorp	7.6783486446637178

Key Findings: The SQL query identified campaigns with a **CTR greater than 5%**, highlighting those with exceptionally high engagement. These campaigns demonstrated strong audience interaction and effective campaign performance.

8. Channel Ranking by Total Conversions

```
68 SELECT
69     channel_used,
70     ROUND(SUM(clicks * conversion_rate / 100), 2) AS total_conversions
71 FROM campaigndata
72 GROUP BY channel_used
73 ORDER BY total_conversions DESC;
```

	channel_used character varying (80) 🔒	total_conversions numeric 🔒
1	Email	14853.94
2	Website	14777.46
3	Google Ads	14688.14
4	YouTube	14636.21
5	Instagram	14628.64
6	Facebook	14462.95

Key Findings: Email is the most effective channel, achieving the highest total conversions at 14,853.94. Website and Google Ads follow closely with 14,777.46 and 14,688.14 conversions, respectively. The social media platforms YouTube, Instagram, and Facebook have slightly lower conversions, ranging from 14,636.21 to 14,462.95. The difference between the highest (Email) and the lowest (Facebook) is just 391 conversions, which is about a 2.6% gap, indicating relatively consistent performance across channels. This suggests a well-balanced multi-channel marketing strategy.

4.0 CONCLUSION

The marketing campaign analysis reveals a well-optimized, multi-channel strategy with consistent performance across platforms. Email proved to be the most effective channel, delivering the highest total conversions (14,853.94) while maintaining broad reach with over 220 million impressions. Search campaigns led in visibility, registering over 221 million impressions, which reinforces their role in driving awareness.

Despite varying channel types, conversion rates showed minimal fluctuation (only ~2.6%),

suggesting a strong, balanced approach to campaign execution. High-performing campaigns such as **NexGen Systems** (ROI = 8.00) and **Innovate Industries** (low cost per conversion) highlight the benefits of targeted strategies and well-crafted creatives.

Geographically, **New York**, **Miami**, and **Chicago** were top locations for impressions, indicating where marketing efforts had the greatest reach. In terms of audience engagement, **Men aged 18–24** emerged as the most responsive demographic, achieving the highest average engagement score. The overall **click-through rate (CTR) of 9.98%** reflects strong campaign effectiveness and audience alignment.

Overall, the data underscores the success of a strategic, data-driven marketing approach that balanced reach, engagement, and cost-efficiency across multiple dimensions.

5.0 RECOMMENDATIONS

Based on the analysis of campaign performance data, the following recommendations are proposed to enhance future marketing strategy:

1. **Scale High-Performing Channels**

Invest further in **Email** and **Search** campaigns, which demonstrated the strongest performance in conversions and impressions, respectively. These channels offer both reach and engagement, making them key drivers of campaign success.

2. **Replicate Successful Tactics from Top Campaigns**

Analyze the strategies used by **NexGen Systems** and **Innovate Industries**, both of which showcased high ROI and cost efficiency. Applying their targeting methods, messaging, or creative elements to other campaigns could improve overall performance.

3. **Prioritize High-Engagement Demographics**

Focus on audience segments such as **Men aged 18–24**, who recorded the highest average engagement score. Tailoring content and offers to this group may yield even greater returns.

4. **Leverage Top-Performing Locations**

Direct marketing efforts towards regions like **New York**, **Miami**, and **Chicago**, which consistently had the highest impression counts, indicating strong market presence and interest.

5. **Optimize Campaigns Below 5% CTR**

Identify and refine underperforming campaigns with CTRs below 5%. This could involve adjusting targeting criteria, refreshing creatives, or experimenting with different channels to improve engagement.

6. **Maintain Multi-Channel Balance**

Continue leveraging a diverse channel mix. The low variation in conversion rates across channels suggests that maintaining a broad presence contributes to campaign resilience and reach.

7. **Monitor Key Metrics Continuously**

Use CTR, engagement score, and cost per conversion as core KPIs for real-time performance tracking and strategic decision-making. Regular analysis will help quickly identify what's working and where to pivot.