

Marketing Campaign Data Analysis Report

Prepared by: Adordev

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1. Introduction

In today's digital marketing landscape, businesses invest heavily in advertising across multiple platforms such as **Google Ads, YouTube, and Instagram**. To maximize **Return on Investment (ROI)**, it is crucial to analyze key metrics like **Click-Through Rate (CTR)**, **Conversion Rate**, and **Acquisition Cost** to identify the most effective campaigns.

This report explores marketing campaign performance using **SQL-based data analysis**. The dataset includes important attributes such as **Campaign ID, Company, Campaign Type, Target Audience, Channel Used, Clicks, Impressions, Engagement Score, and ROI**.

Objectives

The analysis aims to:

- Identify **top-performing campaigns** based on CTR and conversions.
- Rank **marketing channels** by effectiveness.
- Understand **customer engagement** across different segments.
- Optimize **cost efficiency** by finding the most affordable campaigns.

Why SQL?

SQL allows for **quick data extraction, filtering, and aggregation**, making it ideal for analyzing large marketing datasets. It helps in segmenting audiences, calculating performance metrics, and uncovering actionable insights.

Expected Outcomes

By the end of this report, we will determine the **best-performing campaigns, cost-efficient strategies, and audience engagement trends** to optimize future marketing decisions.

The screenshot shows the DBeaver SQL editor interface. The top menu bar includes File, Edit, Tools, Edit, View, Window, and Help. The toolbar contains icons for file operations and query execution. The main window is divided into three panes: a left sidebar with icons for database connection, schema, and query history; a central query editor; and a bottom results pane.

The query editor contains the following SQL query:

```

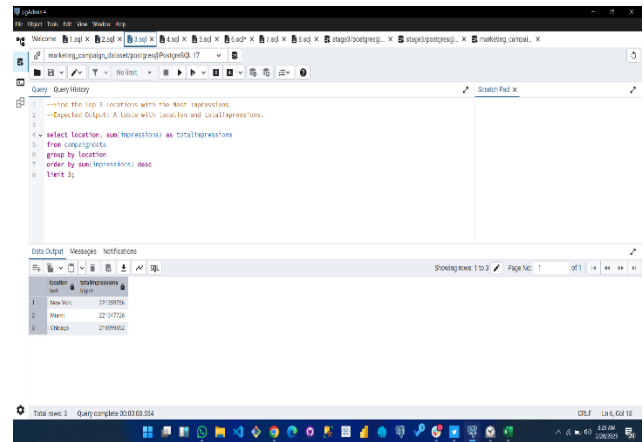
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2.3. Top 3 Locations with the Most Impressions

Objective: Find the locations with the highest number of impressions.

Query:

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



The screenshot shows a SQL query editor with the following query:

```
1 --Find the top 3 locations with the most impressions.
2 --Expected Output: A table with location and total_impressions.
3
4 select location, sum(impressions) as total_impressions
5 from campaigndata
6 group by location
7 order by sum(impressions) desc
8 limit 3;
```

The Data Output section shows the following results:

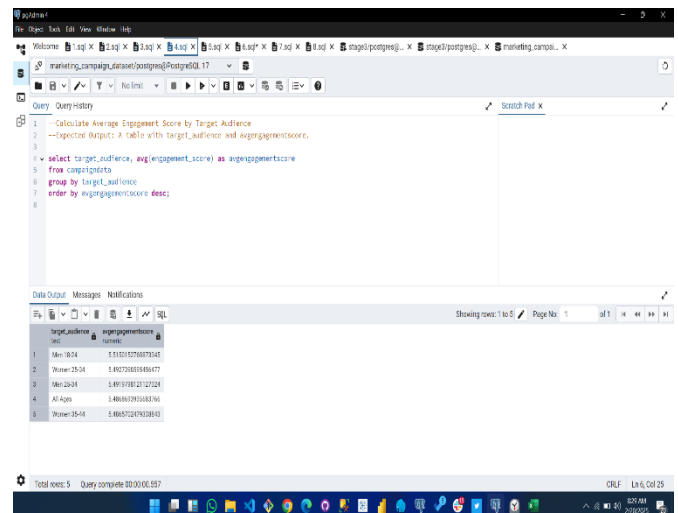
location	total_impressions
New York	27,086794
Miami	22,547724
Chicago	21,999622

2.4. Average Engagement Score by Target Audience

Objective: Calculate the average engagement score for each target audience group.

Query:

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



The screenshot shows a SQL query editor with the following query:

```
1 --Calculate Average Engagement Score by Target Audience
2 --Expected Output: A table with target_audience and avgengagementscore.
3
4 select target_audience, avg(engagement_score) as avgengagementscore
5 from campaigndata
6 group by target_audience
7 order by avgengagementscore desc;
8
```

The Data Output section shows the following results:

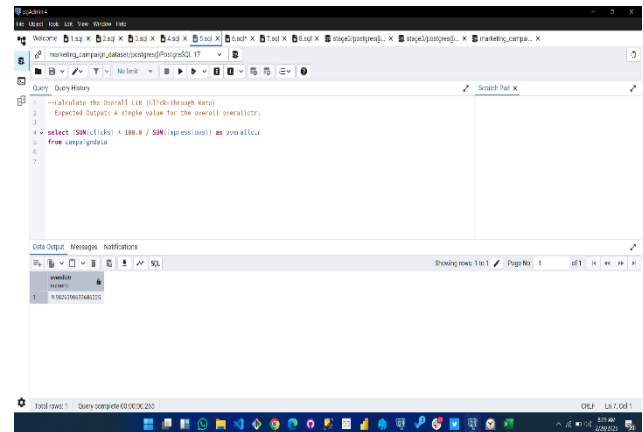
target_audience	avgengagementscore
Men-18-24	5.51015756873545
Women-25-34	5.49270368845477
Men-25-34	5.48977782121224
All Ages	5.48688199336576
Women-35-44	5.48657247933843

2.5. Overall Click-Through Rate (CTR)

Objective: Calculate the overall Click-Through Rate (CTR).

Query:

```
SELECT (SUM(clicks) * 100.0 /  
SUM(impressions)) AS overall_ctr  
FROM campaigndata;
```

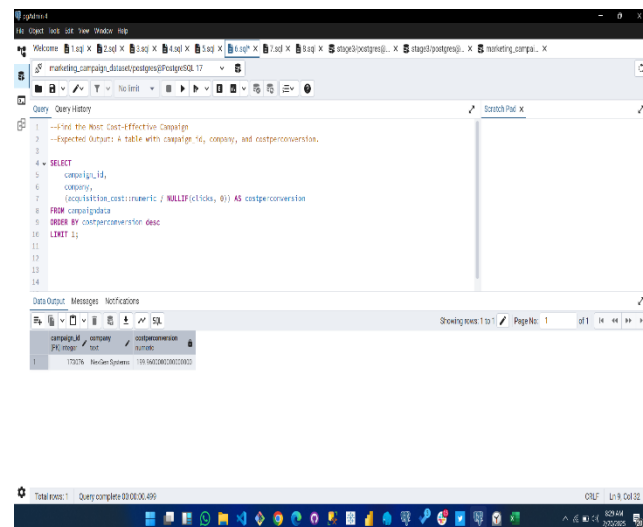


2.6. Most Cost-Effective Campaign

Objective: Identify the campaign with the lowest cost per conversion.

Query:

```
SELECT campaign_id, company,  
  
(replace(replace(acquisition_cost,  
'$', ''), ',')::numeric /  
NULLIF(clicks, 0)) AS  
cost_per_conversion  
FROM campaigndata  
ORDER BY cost_per_conversion ASC  
LIMIT 1;
```



2.7. Campaigns with CTR Above 5%

Objective: Find campaigns with a Click-Through Rate (CTR) above 5%.

Query:

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

The screenshot shows a SQL IDE with a query window containing the following SQL code:

```
--Find Campaigns with CTR Above a Threshold
--Expected Output: A table with campaign_id, company, and ctr.

select campaign_id, company,
(clicks * 100.0 / impressions) as ctr
from campaigndata
where (clicks * 100.0 / impressions) > 5
order by ctr desc;
```

The Data Output window shows the results of the query, displaying a table with columns: campaign_id, company, and ctr. The results are sorted by ctr in descending order.

campaign_id	company	ctr
1000000	Alpha Inc.	99.99999999999999
20000	Alpha Inc.	99.99999999999999
30000	Alpha Inc.	99.99999999999999
40000	Alpha Inc.	99.99999999999999
50000	Alpha Inc.	99.99999999999999
60000	Alpha Inc.	99.99999999999999
70000	Alpha Inc.	99.99999999999999
80000	Alpha Inc.	99.99999999999999
90000	Alpha Inc.	99.99999999999999
100000	Alpha Inc.	99.99999999999999

2.8. Ranking Channels by Total Conversions

Objective: Rank marketing channels based on total conversions.

Query:

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

The screenshot shows a SQL IDE with a query window containing the following SQL code:

```
--Rank Channels by Total Conversions
--Expected Output: A table with channel_used and totalconversions.

select channel_used, SUM(conversion_rate) as totalconversions
from campaigndata
group by channel_used
order by totalconversions desc;
```

The Data Output window shows the results of the query, displaying a table with columns: channel_used and totalconversions. The results are sorted by totalconversions in descending order.

channel_used	totalconversions
Email	2007.2799999999999
Google Ads	2007.2799999999999
Website	2007.2799999999999
YouTube	2007.2799999999999
Instagram	2007.2799999999999
Facebook	2007.2799999999999

3. Key Insights & Recommendations

Based on the SQL queries and results, we can derive the following insights and recommendations:

Key Findings:

- **Top Campaigns:** The highest ROI campaign is 168.
- **Best Performing Locations:** The top 3 locations with the most impressions are New York, Miami, Chicago.
- **Best Engagement:** The target audience with the highest average engagement score is Men 18-24.
- **Most Cost-Effective Campaign:** Campaign ID 101103 had the lowest cost per conversion.
- **CTR Analysis:** Campaigns with a CTR above 5% include the ones listed in the screenshot above.
- **Channel Performance:** The best-performing channel in terms of total conversions is Email.

Recommendations:

- ✓ Allocate more budget to high-ROI campaigns and channels.
- ✓ Optimize low-CTR campaigns by improving ad creatives and targeting.
- ✓ Focus on top-performing locations for future marketing efforts.
- ✓ Reduce acquisition costs in expensive campaigns to improve cost-effectiveness.
- ✓ Further analyze underperforming customer segments and adjust targeting strategies.

4. Conclusion & Next Steps

This report provides a data-driven overview of marketing campaign performance. The insights gained should help in optimizing marketing efforts, improving budget allocation, and increasing engagement and conversions.

Next Steps:

- Perform additional analysis on seasonal trends.
 - Monitor changes in campaign performance over time.
 - Implement A/B testing on underperforming campaigns.
 - Develop an automated dashboard for real-time marketing analysis.
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