



# DATA SCIENCE & ANALYTICS – TASK 2

## SOCIAL MEDIA CAMPAIGN PERFORMANCE TRACKER

By Future Interns

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### Project Overview

This project focuses on analyzing **social media advertising campaign data** (Facebook Ads) to evaluate campaign performance and user engagement.

The objective of this task is to transform raw digital marketing data into **actionable insights** using **Power BI dashboards**.

The dashboard helps businesses understand how effectively their ads are performing in terms of **reach, clicks, cost efficiency, and engagement**, enabling data-driven marketing decisions.

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### Objective

The main objectives of this task are:

- To analyze overall ad campaign performance
  - To measure user engagement through clicks and impressions
  - To calculate and interpret key marketing metrics such as **CTR** and **CPC**
  - To evaluate cost efficiency of advertising spend
  - To segment campaign performance by **age group** and **gender**
  - To create a professional and interactive dashboard for marketing analysis
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### Dataset Description

The dataset used in this project is a **Facebook Ads campaign dataset**, containing simulated real-world digital marketing data.

The dataset includes the following attributes:

- Ad ID & Campaign ID
- Impressions (ad reach)
- Clicks (user engagement)

- Ad Spend
- Age group targeting
- Gender targeting
- Interests
- Campaign start and end dates

The dataset reflects common structures used in real social media marketing analytics.

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## Tools & Technologies Used

- **Power BI Desktop** – Dashboard creation and data visualization
  - **Power Query Editor** – Data cleaning and transformation
  - **CSV Dataset** – Data source
  - **Excel / Spreadsheet tools** – Initial data understanding
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## Methodology

### Data Cleaning & Transformation

- Cleaned encoded demographic values (age & gender)
  - Converted raw demographic codes into meaningful categories
  - Created custom columns for:
    - **Gender\_Label (Male / Female / Other)**
    - **Age\_Group (18–29, 30–34, 35–39, Other)**
  - Verified numeric data types for impressions, clicks, and spend
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### Data Loading

- Imported cleaned dataset into Power BI
  - Validated data consistency and completeness
  - Ensured all KPIs were calculated using reliable measures
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## KPI & Metric Creation

The following key performance indicators were calculated:

- **Total Impressions**
- **Total Clicks**
- **Total Ad Spend**
- **Click Through Rate (CTR %)**
- **Cost Per Click (CPC ₹)**

These KPIs provide a clear overview of campaign effectiveness.

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## Dashboard Visualization

The Power BI dashboard includes:

- KPI cards displaying overall campaign performance
- Bar chart showing clicks by age group
- Donut chart showing click distribution by gender
- Scatter plot for ad spend vs clicks (efficiency analysis)
- Interactive slicers for:
  - Gender
  - Age Group
  - Campaign date range

## Dashboard Insights

### Campaign Performance

- The campaign generated **high impressions**, indicating strong visibility.
- Click engagement shows that the ads successfully attracted user interaction.

### Engagement Efficiency

- **CTR of 1.69%** indicates good audience engagement for social media ads.
- **CPC of ₹1.51** reflects cost-efficient ad performance.

## Demographic Insights

- Certain age groups demonstrated higher engagement levels.
  - Gender-based analysis helped identify audience interaction trends.
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## Key Metrics Summary

- **Total Impressions:** 79M
  - **Total Clicks:** 13K
  - **Total Ad Spend:** ₹20.11K
  - **CTR:** 1.69%
  - **CPC:** ₹1.51
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## Skills Gained

- ✓ Marketing Analytics
  - ✓ Data Cleaning with Power Query
  - ✓ KPI Design & Interpretation
  - ✓ Dashboard Storytelling
  - ✓ Power BI Visualization
  - ✓ Business Decision Support
  - ✓ Campaign Performance Analysis
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## Conclusion

This task provided hands-on experience in **marketing analytics** by analyzing real-world style advertising data.

The project demonstrates how data visualization can help marketing teams **optimize ad campaigns**, improve engagement, and control advertising costs.

The dashboard effectively converts raw campaign data into **clear, actionable business insights**.