**Ad Campaign Performance Analysis (Facebook)**

**Project Overview**

This repository contains the data and Power BI dashboard for analyzing the performance of Facebook ad campaign. The goal of this project is to provide a comprehensive view of campaign effectiveness, engagement, and return on investment, enabling data-driven optimization decisions.

**Dashboard Features**

The Power BI dashboard allows for in-depth analysis of ad campaign data across various dimensions. Key features include:

* Overall Performance Metrics: KPI cards display total clicks, impressions, spend, conversions, approved conversions, CTR, ROAS, and ROI.
* Performance Trends: A line chart visualizes clicks, impressions, and spend over time to identify daily/weekly trends and anomalies.
* Audience Insights: Bar charts break down clicks by age group and gender, helping to understand demographic engagement.
* Campaign-Level Deep Dive: A detailed table provides performance metrics (impressions, clicks, spend, conversions, CTR, ROAS, ROI) for each individual Facebook campaign ID, allowing for direct comparison and identification of top/bottom performers.
* Interest-Based Analysis: A bar chart shows clicks by interest group, helping to gauge the effectiveness of interest-based targeting.

**Key Metrics Calculated**

The following key performance indicators (KPIs) and metrics were calculated to provide deeper insights:

* Click-Through Rate (CTR): $$ CTR = Clicks/ Impressions |times| 100 $$

*Calculated using DAX in Power BI to prevent division by zero.*

* Revenue from Ads: $$ Revenue from Ads = Approved Conversions |times| Average Revenue per Conversion $$

*For this analysis, an average revenue of $100 per approved conversion was assumed.*

* Return On Ad Spend (ROAS): $$ ROAS = Revenue from Ads/ Spend $$

*Indicates how much revenue is generated for every dollar spent on ads.*

* Return On Investment (ROI): $$ ROI = (Revenue from Ads - Spend)/ Spend |times| 100 $$

*Measures the percentage of profit generated relative to the ad spend.*

**Data Source**

The analysis is based on ad campaign data from Facebook, provided in the cleaned\_data.csv file. The dataset has been retrived from kaggle. The data contains details such as ad IDs, campaign IDs, demographics, impressions, clicks, spend, and conversion metrics.