# Task: Marketing Campaign Performance Analysis

**Objective**: Evaluate the effectiveness of various marketing campaigns to optimize future marketing strategies and budgets.

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## Requirements

### 1. Campaign Metrics Calculation

- **Conversion Rate**
- **Cost per Click (CPC)**
- **Cost per Conversion (CPA)**
- **Return on Ad Spend (ROAS)**

### 2. Channel Comparison

- Compare campaign performance across channels based on CTR, conversion rate, CPC, and ROAS.
- Highlight top-performing channels based on conversion rate and ROAS.
- Identify channels with high costs but low ROAS to review and adjust budgets.

### 3. Demographic Analysis

- Segment campaign performance by demographics such as **age, gender, and location** to identify high- and low-performing segments.
- Analyze which demographic groups respond best to specific channels or campaign types.
- Provide recommendations for future targeting based on demographic insights.

### 4. Time-Based Analysis

- Track campaign performance over time (weekly or monthly) to identify trends or seasonal peaks.
- Examine if certain times of the year yield higher conversions or better ROAS.

### 5. Dashboard Requirements

- **KPIs Summary**: Include total impressions, total clicks, total conversions, total spend, total revenue, average CTR, and ROAS.
- **Campaign Performance Overview**: Bar or line charts comparing key metrics (CTR, conversion rate, ROAS) across campaigns.

- **Channel Performance Breakdown**: Visualization (e.g., pie or stacked bar chart) to show distribution of total spend, impressions, and conversions by channel.
- **Demographics Insights**: Charts showing the breakdown of conversions and revenue by age, gender, and location.
- **Trend Analysis**: Line or area chart showing campaign metrics over time (impressions, clicks, conversions).

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## Expected Insights

1. **Top-Performing Campaigns and Channels**: Identify which campaigns and channels generate the most conversions and revenue for the budget.
2. **Demographic Insights**: Determine which customer demographics are most responsive to the campaigns.
3. **Seasonal or Temporal Trends**: Find patterns in campaign success tied to specific times of the year.

**Budget Allocation Recommendations**: Suggest reallocations to high-performing channels and campaigns with a high ROAS, while reducing spend on underperforming segments.

There is the database [link](#)