**Objective**Assess the effectiveness of various marketing campaigns to optimize future marketing strategies and budget allocations.

**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 metrics such as CTR, conversion rate, CPC, and ROAS.
   * Highlight the top-performing channels based on conversion rate and ROAS.
   * Identify channels with high costs but low ROAS to review and adjust budget allocations.
3. **Demographic Analysis**
   * Segment campaign performance by demographics, including 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**
   * Monitor 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:** Create bar or line charts comparing key metrics (CTR, conversion rate, ROAS) across campaigns.
   * **Channel Performance Breakdown:** Use visualizations (e.g., pie or stacked bar chart) to show the distribution of total spend, impressions, and conversions by channel.
   * **Demographics Insights:** Display charts showing the breakdown of conversions and revenue by age, gender, and location.
   * **Trend Analysis:** Implement a line or area chart illustrating campaign metrics over time (impressions, clicks, conversions).

**Expected Insights**

* **Top-Performing Campaigns and Channels:** Identify which campaigns and channels generate the most conversions and revenue relative to the budget.
* **Demographic Insights:** Determine which customer demographics are most responsive to the campaigns.
* **Seasonal or Temporal Trends:** Identify patterns in campaign success related to specific times of the year.
* **Budget Allocation Recommendations:** Suggest reallocating funds to high-performing channels and campaigns with a high ROAS while reducing spend on underperforming segments.