**Marketing Campaign Report: Workflow, Methodology & Comprehensive Findings**

**1. Project Overview**

This project establishes a robust analytics pipeline, transforming raw marketing campaign data into validated insights and interactive dashboards. Leveraging Alteryx for data preparation and exploratory analysis, followed by Power BI for visualization and stakeholder reporting, the deliverables include clean datasets, aggregated metrics, and actionable recommendations.

**2. Data Ingestion & Cleaning in Alteryx**

**2.1 Source Data**

* **File**: Marketing-Campaign-Dataset.xlsx
* **Sheet**: marketing\_data
* **Records**: 54,000+ transactions spanning customer demographics, purchase history, and campaign responses.

**2.2 Cleaning Steps**

1. **Income Validation & Capping**
   * Null or nonpositive values set to NULL; incomes >₹200,000 capped at ₹200,000
2. **Age Derivation & Validation**
   * Converted birth year to age; retained ages 18–100, others flagged NULL
3. **Categorical Standardization**
   * Unified Education entries into numeric Education\_Level (1–5)
   * Standardized Marital\_Status values and corrected typos
4. **Dependents Calculation & Quality Flag**
   * Total\_Dependents = Kidhome + Teenhome
   * Records with >5 dependents labeled High\_Dependents for review
5. **Output**: Cleaned dataset “02\_Cleaned\_Data” containing 2,237 unique customer records with validated, standardized fields (ID, Age, Income\_Segment, Education\_Level, Country, Total\_Spend placeholder).

**3. Exploratory Data Analysis & Aggregation**

**3.1 Derived Metrics**

* **Total\_Spend**: Sum of product category spends (MntWines…MntGoldProds)
* **Days\_Since\_Last\_Purchase**: DateTimeDiff(DateTimeToday(), Dt\_Customer, "days")

**3.2 Aggregation Streams**

1. **Spend by Education Level**
   * Group by Education\_Level; compute Sum\_Spend\_By\_Edu, Count\_ID; derive Avg\_Spend\_By\_Edu
   * Output: Edu\_Spend.csv
2. **Campaign Conversion Analysis**
   * Unpivot AcceptedCmp1–AcceptedCmp5 and Response flags
   * Group by campaign name; sum responses and count invitations (2,237 per campaign)
   * Derive Conversion\_Rate = Responses / Invitations
   * Output: Conversion.csv
3. **Recency vs. Spend by Income Segment**
   * Group cleaned data by Income\_Segment; compute Avg\_Recency\_Segment, Avg\_Spend\_Segment, Count\_ID
   * Output: Recency\_Spend.csv
4. **Geographic Spend Summary**
   * Group by Country; compute Spend\_By\_Country, Count\_By\_Country; derive Avg\_Spend\_By\_Country
   * Output: Geography\_Spend.csv
5. **Channel Performance**
   * Map each purchase channel (NumWebPurchases, NumStorePurchases, NumCatalogPurchases) to a primary channel classification
   * Aggregate by channel: total spend and total campaign responses
   * Output: Channel\_Performance.csv

**4. Power BI Dashboard Development**

**4.1 Data Model Design**

* **Fact Tables**: Imported all Alteryx output CSVs
* **Dimension Tables**: Created via DAX DISTINCT() for Education\_Level, Income\_Segment, Country, Channel, Age\_Group
* **Relationships**: One-to-many from each dimension to fact tables, enabling unified filtering and cross-visual interactions.

**4.2 Visual Layout & Elements**

1. **Executive KPI Panel**
   * Total Customers (2,237 distinct IDs)
   * Total Campaign Responses (666)
   * Total Spend (₹1,355,048)
   * Overall Conversion Rate (29.77%)
   * Top Spending Country (Spain)
   * Top Performing Campaign (Campaign 4: 7.46%)
2. **Segment Analysis**
   * Bar charts for Spend by Education Level and Spend by Income Segment [Edu\_Spend.csv][Recency\_Spend.csv]
   * Combo chart: Total Spend by Age Group with line for Average Spend per Customer
3. **Geographic Insights**
   * Choropleth map of Spend\_By\_Country [Geography\_Spend.csv] with tooltip showing count and average spend
4. **Campaign & Channel Performance**
   * Clustered bar for Conversion\_Rate by campaign [Conversion.csv]
   * Pie chart for Conversion\_Rate by channel [Channel\_Performance.csv]
5. **Recency vs. Spend Scatter**
   * Scatter plot of Avg\_Recency\_Segment vs Avg\_Spend\_Segment by Income\_Segment, with point size = Count\_ID; trend line disabled due to negligible correlation [Recency\_Spend.csv]

**4.3 Interactivity Features**

* **Slicers**: Income Segment, Education Level, Country, Channel
* **Drill-through**: From KPI cards to detailed segment pages showing underlying data
* **Tooltips**: Enhanced with customer count, recency, and average spend for context

**5. Comprehensive Findings**

1. **High Income** customers (826) drive ~74% of total spend with ₹1,216.95 avg spend.[[3]](#fn3)
2. **Campaigns 3–5** (7.29%–7.46% conversions) outperform others; campaign 2 underperforms at 1.34%.[[4]](#fn4)
3. **Spain** and **Saudi Arabia** lead in total spend; **Mexico** scores highest avg spend per customer (₹1,040.67) but needs volume growth.[[1]](#fn1)
4. **Age Groups 50–64 and 65+** constitute 75% of total spend, highlighting mature demographics.
5. **Recency** is uniform (~4,440 days) across segments, indicating potential opportunity for re-engagement campaigns targeting at-risk cohorts.

This detailed methodology and implementation report documents each transformation, aggregation, and visualization step, ensuring transparency, reproducibility, and clear alignment with business objectives.