**Marketing Campaign Analysis Report**

**1. Introduction**

This report presents an exploratory data analysis (EDA) of a marketing campaign dataset to understand customer spending behavior and purchasing trends. The goal is to extract meaningful insights to optimize marketing strategies and enhance customer engagement.

**Dataset Source** : Kaggle

**Link to Dataset** : https://www.kaggle.com/datasets/rodsaldanha/arketing-campaign

**2. Data Cleaning & Preparation**

* Handled missing values and verified data consistency.
* Created two new columns **Total Amount Spent** (sum of all product purchase amounts) and **Total Purchases** (sum of all product purchase).
* Filtered outliers in income distribution for better visualization.
* Used Excel’s **Data Analysis Toolpak** and Pivot Tables for calculations.

**3. Exploratory Data Analysis (EDA)**

**Descriptive Statistics**

* Spending-related columns (*MntFishProducts, MntMeatProducts, etc.*) exhibit **left-skewed distributions**, meaning a few customers spend significantly more than others.
* Income distribution shows most values clustered below $200,000, with a few extreme outliers.

**Key Visualizations & Insights**

**1. Relationship Between Spending and Demographics**

* Married individuals and people who stay ‘Together’ spend the most, while single, divorced and other customers spend comparatively less.
* Highest spending observed on **Wines and Meat Products** across all categories.

**2. Website Visits vs Purchases vs Customer count**

* Higher website visits **do not always** translate to higher spending.
* Customers with **1-6 website visits** show the highest total spending, indicating an optimal engagement window.
* After **9-10 website visits**, the no. of people visiting the website drops significantly.

**3. Education Level vs Income & Spending**

* Higher education levels correlate with **higher income**.
* Also, spending increases proportionally with income. Customers with **Master’s, graduation degree and PhD degrees** spend the most compared to an individual holding a basic education degree.

**4. Spending habit compared to the recency of last purchase**

* Customers who purchased within 1-90 days range, usually **spend the most**.
* Customers who purchased something before 90-120 days spend less.

### 5. Effect of Discounts on Total Spending

* Customers who purchased **only 1 deal spent the most** (698,725 total amount spent).
* As the **number of deals purchased increases, total spending decreases**.
* Customers purchasing **5 or more deals tend to have significantly lower spending**.
* **Customers who purchased 15 deals spent only 6,332**, indicating that excessive deal usage does not lead to higher spending.

### 6. Year wise spending habit

* Customers enrolled in **2013 spent the most**, followed by **2012**, with **2014 having the least spending**.

### 7. Total Accepted vs. Number of Customers

* A majority of customers (1,631 out of 2,240) **did not accept any offers**.
* Only **370 customers accepted 1 offer**, and this number decreases as the number of accepted offers increases.
* Very few customers (only 10) accepted **5 offers**, showing that multiple accepted offers are rare.
* This suggests that **most customers either do not engage with promotions or accept only a single offer**.

### 8. Income vs. Total Purchases (Scatter Plot with Trendline)

* A **linear trendline** was fitted to analyze the relationship between income and total purchases.
* The equation of the trendline: **y = 0.0002x + 2.461**, with an **R² value of 0.4429**.
* This indicates a weak-to-moderate positive correlation, meaning higher-income customers tend to make slightly more purchases, but income alone does not strongly determine purchasing behavior.

### 9. Number of Purchases by Category

* **In-store purchases** were the highest, totaling **12,970**.
* **Website purchases** followed, with **9,150** transactions.
* **Catalog purchases** accounted for **5,963** transactions.
* **Discounted purchases** were the lowest at **5,208**.
* This indicates that customers prefer in-store shopping over other channels, with online and catalog purchases being secondary choices.

**4. Conclusion**

This analysis provides insights into customer behavior, showing that **income, education, and purchasing channels significantly impact total spending**. Additionally, **discount strategies should be optimized**, as heavy deal users do not necessarily contribute more revenue.

**5. Recommendations**

* Target high-income, high-education customers with premium product promotions.
* Encourage store purchases, as they generate the highest revenue.
* Optimize discounting strategies to attract more spending from deal-seeking customers.
* Focus marketing efforts on customers enrolled in 2013 and 2012, as they show the highest spending trends.