Maven Marketing Campaign Data Analysis Report

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Problems and Background

The dataset includes marketing campaign data for 2,240 customers of Maven Marketing, encompassing customer profiles, product preferences, campaign successes/failures, and channel performance. The analysis aims to address several key questions and insights related to this data.

Project Scope

The project scope involves analyzing Maven Marketing's campaign data to derive actionable insights that can enhance marketing strategies and improve campaign effectiveness. Key aspects include:

- Identifying and handling data quality issues such as null values and outliers.
- Analyzing factors influencing web purchases.
- Evaluating the success of marketing campaigns.
- Profiling the average customer based on demographic and behavioral attributes.
- Assessing product performance and identifying top-performing products.
- Evaluating channel performance to optimize marketing channel investments.

Methodology

- **Data sources :** Dataset Link:

https://www.kaggle.com/datasets/deepaksaw/marketing-dataset

- **Data wrangling**

1.Data understanding

2.Data cleaning

3.Data merging and joining

4.Data manipulation

- **Data analysis**

1.Finding the trends and patterns

- **Data visualization**

Technical Processes

- Utilize Pandas Data Frame for data manipulation and analysis.
- Use Matplotlib and Seaborn for data visualization.
- Apply statistical techniques.
- Handle missing data using Pandas methods like fillna()
- Detect and manage outliers using statistical methods with Pandas and NumPy.

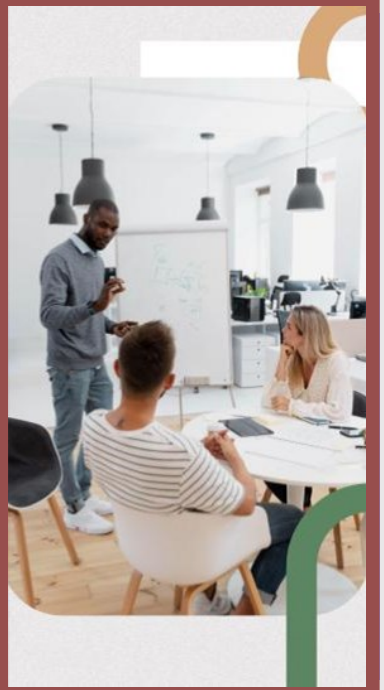
Key Findings

1.Null Values and Outliers:
•Identified 24 null values in the *Income* column, which were imputed using the mean value to maintain data consistency and avoid bias in the analysis.
2.Factors Influencing Web Purchases:
•**Income:** A positive correlation was found between income and the number of web purchases, indicating that higher-income customers tend to shop online more.
•**Education:** Higher education levels (especially PhDs and Masters) correlated with higher web purchases, suggesting that this group could be targeted in web-based marketing campaigns.
•**Age:** Customers aged between 46 and 63 years demonstrated the highest number of web purchases, pointing to middle-aged consumers as a key demographic for online shopping.
3.Most Successful Campaign:
•The *Response* campaign was the most successful, with 334 successful responses, outperforming the more targeted campaigns (AcceptedCmp1 to AcceptedCmp5).
4.Average Customer Profile:
•The average customer is typically around 56 years old, holds a graduation degree, and falls within a moderate to high-income bracket, representing a stable and engaged target group.
5Top Performing Products:
•*MntWines* (Wine) topped the sales with 680,816 units sold, followed by *MntMeatProducts* and *MntGoldProds* (luxury items), highlighting that both food and luxury products drive the most significant sales.
6.Underperforming Channels:
•Channels like *NumDealsPurchases* and *NumCatalogPurchases* showed poor performance, with only 5,208 and 5,963 purchases, respectively.
•While *NumStorePurchases* and *NumWebVisitsMonth* had better numbers, they still fell below expectations, signaling room for improvement in channel performance

Recommended Analysis

- Are there any null values or outliers? How will you handle them?
- What factors are significantly related to the number of web purchases?
- Which marketing campaign was the most successful?
- What does the average customer look like?
- Which products are performing best?
- Which channels are underperforming?

Conclusion



The analysis of Maven Marketing's campaign data has provided valuable insights into customer behavior, campaign effectiveness, product performance, and channel efficiency. By identifying key factors influencing web purchases, profiling the average customer, and evaluating the success of various marketing campaigns, we have highlighted areas for improvement and optimization. The data revealed that higher-income customers, those with advanced education, and middle-aged individuals are more likely to make online purchases, while certain marketing campaigns and product categories, such as wines and meat products, are more successful than others. Additionally, underperforming channels like catalog and in-store purchases suggest a shift toward enhancing digital and web-based strategies. These findings will help Maven Marketing make informed decisions, optimize future campaigns, and improve overall business outcomes.

Thanks!

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