
Analytics Case Exercise

Scenario: You are campaign analyst for IMO Fashion. IMO Fashion, a national retailer, has recently acquired another regional retail chain and added its offerings to their existing product line. The marketing team has been trying to capitalize on the acquisition by offering this new, enhanced product line to the combined customer base. To do so, they've run both in-store flyers and mailers, but the conversion rate has remained low, leading some to question the acquisition decision.

Business Problem: The Vice President of Marketing has instructed you, the campaign analyst, to figure out how to optimize marketing campaigns by focusing only on prospects and customers who are most likely react positively and show high propensity to buy the products. You need to come with up with solution using data analysis & create a presentation that you will demonstrate to VP

Deliverables: Working R/Python Code along with Presentation

Key Data points and Metrics: Data Shared in excel file

- **Data Sets**

1. **Customer profile data (DS#1)**

Single dataset combining customer data for different subject areas including demographics for 5000 customers (10 attributes + 2 metrics = 12)

- I. Customer ID (Unique Identifier)
- II. Age (numeric)
- III. Job - Type of Job (Categorical: 'admin', 'blue-collar' etc.)
- IV. Marital Status - Marital Status (Categorical: 'single', 'married' etc.)
- V. Ethnicity - Race (Categorical: 'Asian', 'Caucasian' etc.)
- VI. Education - Education (Categorical: 'High School', 'Professional Degree', 'Illiterate' etc.)
- VII. Previous Default Flag - Has credit in default (Categorical: 'Yes', 'No')
- VIII. Loan Aailed Flag - Has Personal Loan (Categorical: 'Yes', 'No')
- IX. House Owned Flag - Owns a house (Categorical: 'Yes', 'No')
- X. Employment - Type of Employment (Categorical: 'Unemployed', 'Self-Employed', 'Retired' etc.)
- XI. Credit rating – Credit Score (Categorical: 'High', 'Critical' etc.)
- XII. Life Stage Code – Situation of Customer based on family, age and marital status (Categorical: 'Gen X', 'Gen Y' etc.)

XIII. Income USD - Income Range (Continuous)

2. Past purchase data (DS#2)

Single dataset summarizing sales data by item, date, campaign and customer for past one year for 5000 customers (1 attribute + 5 metrics = 6)

- I. Customer ID (Unique Identifier)
- II. Loyalty Tier: Indicates Customer Loyalty Category (Categorical: 'Gold', 'Bronze' etc.)
- III. Reward Points Earned: Reward Points Earned history (Numeric)
- IV. Avg Basket Size: Number of Items purchased during each transaction (Numeric)
- V. Count of Transactions: Number of Transactions based on past history (Numeric)

3. Campaign coverage data (DS#3)

Single dataset summarizing characteristics and customer response for previous campaign (for sake of simplicity, it is assumed that one customer responds to one campaign at a time)

Details related with the last contact of the previous campaign (14 attributes + 1 metrics = 15)

- I. Customer ID: Unique Identifier
- II. mode of contact: contact communication type (categorical: 'mail', 'in-store flyers')
- III. month last contacted : last contact month of year (categorical: 'jan', 'feb', 'mar', ..., 'dec')
- IV. day of week last contacted : last contact day of the week (categorical: 'mon', 'tue',...)
- V. duration last contact: duration, in seconds (numeric)
- VI. duration last contact type: Call duration classification (categorical: Long, Medium, Short)
IF(duration last contact >180,IF(360> duration last contact,"Medium","Long"),"Short")
- VII. num of contact campaign: number of contacts performed during this campaign and for this client (numeric, includes last contact)
- VIII. num of contact campaign type: number of contacts during campaign classified (categorical: Often,Once,Average,Very Frequent)
IF(num of contact campaign =1,"Once",IF(num of contact campaign >10,"Very Frequent",IF(num of contact campaign >5,"Often","Average")))
- IX. days elapsed last contact: number of days that passed by after the client was last contacted from a previous campaign (numeric; '999' means client was not previously contacted)
- X. num contact before campaign: number of contacts performed before this campaign and for this client (numeric)
- XI. num contact before campaign type: number of contacts before campaign classified (categorical: Often,Once,Average,Very Frequent)

IF(num contact before campaign =1,"Once",IF(num contact before campaign >10,"Very Frequent",IF(num contact before campaign >5,"Often","Average")))

- XII. outcome last campaign: outcome of the previous marketing campaign (Categorical: 'failure','nonexistent','success')
- XIII. buy decision flag: Target Variable – tells whether customer bought particular product (Binary: 'Yes', 'No')
- XIV. Target Buy: whether customer purchased the product (Binary: 1,0)
- XV. Campaign Start Date : Start date for the campaign

4. Month Level Customer data (DS#4)

Transaction level data by item, date, campaign and customer at month level for past 12 months for 5000 customers (2 attributes + 3 metrics = 5)

- I. Customer ID (Unique Identifier)
- II. Month : Base unit to record sales (Categorical)
- III. Revenue : Net Revenue based on past purchases (Numeric)
- IV. Net Profit : Net Profit for each customer (Numeric)
- V. Net Margin: Indicates Profitability level of customer based on purchase history (Numeric)

5. Socio-Economic data (DS#5)

Single dataset summarizing characteristics of overall economy performance and consumer spending confidence for past 3 months

Details related with the social and economic indicators (5 metrics+ 2 attribute =7)

- I. Customer ID : Unique Identifier
- II. Month last contacted: last contact month by which economic factors vary (categorical: 'jan'..)
- III. Qtrly Emp variation rate: employment variation rate - quarterly indicator (numeric)
- IV. Monthly Consumer price idx: consumer price index - monthly indicator (numeric)
- V. Monthly Consumer conf idx: consumer confidence index - monthly indicator (numeric)
- VI. US Fed 3 mnth rate: Federal 3 month interest rate - daily indicator (numeric)
- VII. Quarterly num of emp: number of employees - quarterly indicator (numeric)