Project

Domain: HBFC Bank (Personal Loans)

This case is about a bank (HBFC Bank) which has a growing customer base. Majority of these customers are customers having deposits (Saving, Current) and Term Deposit (including Fixed Deposits and Recurring deposit accounts) in the bank. The number of customers who are also borrowers (customers having loan accounts) is quite small, and the bank is interested in expanding this base rapidly to bring in more loan business and in the process, earn more through the interest on loans. In particular, the management wants to explore ways of converting its customers having deposits to personal loan customers (while retaining them as depositors).

The bank wants to build a model that will help them identify the potential customers who have a higher probability of purchasing the loan. For doing that, the first step in this regard is to explore the previous data and drill insights.

You have been provided with a dataset of 5000 customers. The data include customer demographic information (age, income, etc.), the customer's relationship with the bank (mortgage, securities account, etc.), and the customer response to the last personal loan campaign (Personal Loan).

You are brought in as a consultant and your job is to explore the data to understand the variables and the impact they have had on Personal Loans so that the bank can leverage the insights to reach out to the right customers who have a higher probability of purchasing the loan.

Data Dictionary: The data consists of the following variables (columns).

ID	Customer ID
Age	Customer's age in years
Experience	Years of professional experience
Income	Annual income of the customer ($000)
ZIP Code	Home Address ZIP code.
Family Members	Family size of the customer
CCAvg	Avg. spending on credit cards per month ($000)
Education	Education Level. 1: Undergrad; 2: Graduate; 3: Advanced/Professional
Mortgage	Value of house mortgage if any. ($000)

Personal Loan	Did this customer accept the personal loan offered in the last campaign?
Securities Account	Does the customer have a securities account with the bank?
TD Account	Does the customer have a Term deposit (Including Fixed and Recurring Deposits) account with the bank?
Online	Does the customer use internet banking facilities?
Credit Card	Does the customer use a credit card issued by the bank?

Additionally, a column Income Categorical has already been created for your reference.

Deliverables:

1. What percentage of the bank's customers (according to the data) have availed Personal Loans?
2. Generate a table with min, max, median & average for all numeric variables (age, experience, income, family members, CCAvg, Mortgage). What are your observations?
3. Create a new categorical variable for Experience using 4 categories –
   a. 0 to 10 years
   b. 11 to 20 years
   c. 21 to 30 years and
   d. 30+ years.

   Plot a bar graph for this new categorical variable

   [Hint – You may make use of if else/nested if statements to accomplish this tasks. You can refer how Income_Category has been created in the dataset]

4. Create a scatter plot of the Age and the Experience variable. What do you observe?
5. What are the top 3 areas (ZIP Codes) where the bank's customers are located?
6. How many customers have a combination of Fixed Deposits and Credit Cards but not Personal Loan?

7. What is the median income of the customers who have availed personal loans and compare it with the median income of those customers who have not availed personal loans? What do you infer?
8. Create 4 separate Pivot Tables. Summarise your data by percentages.

   • Education vs Personal Loan

- TD Account Vs Personal Loan
- Online vs Personal Loan
- Income_Category vs Personal Loan

[Hint: Please drag Personal Loan to the Columns area while creating the Pivot Table to get the required values]

9. Analyse the Pivot tables created in the previous question and state any anomaly that you observe. Which categorical variables appear most important for your further study if you want to analyse which customers are most likely to take personal loans and why?

10. In the last campaign, bank reached out to 5000 customers out of which 480 customers accepted the personal loan offer. The bank incurred a huge cost in running a marketing campaign to reach out to so many customers. This is where you as a strategic business consultant step in. You are tasked to optimise the cost of this campaign by identifying the correct target base (without significant reduction in number of acceptance of offers). The bank can then send Personal Loan offers to these target customers who have a higher chance of accepting the offer. Based on your analysis, what strategy would you suggest to the management of HBFC bank?

Important:

Reflect on what you learnt while working on this project and fill the Reflection Report (Non Graded) –Reflection Report