SOUTHERN ALBERTA INSTITUTE OF TECHNOLOGY

SCHOOL FOR ADVANCED DIGITAL TECHNOLOGY

AN IN-DEPTH EXPLORATION OF BANK TELEMARKETING CAMPAIGNS: UNDERSTANDING PATTERNS AND OPTIMIZING STRATEGIES FOR SUCCESSFUL CLIENT ENGAGEMENT

By

Group 1

**Overview**

Our consulting firm has been engaged by a Portuguese banking institution to conduct a data-driven analysis of their direct marketing campaigns, specifically focused on phone calls. The primary objective is to predict the success of these campaigns by determining whether a client will subscribe to a term deposit (variable y). The dataset under consideration comprises information from various marketing campaigns, including client details and the outcomes of the campaigns.

**Dataset**

The raw data is related with direct marketing campaigns (phone calls) of a Portuguese banking institution. The classification goal is to predict if the client will subscribe to a term deposit (variable y).

<https://www.kaggle.com/datasets/henriqueyamahata/bank-marketing/data>

The dataset consists of four subsets:

Since our analysis will employ a data-driven approach, we will explore patterns and trends within the dataset to develop predictive models for the success of bank telemarketing campaigns.

**Project Objectives**

**General Objective**

The main objective is to predict the success of bank telemarketing campaigns by analyzing the provided dataset and developing models to forecast whether a client will subscribe to a term deposit.

**Specific Objectives**

1. Conduct an in-depth analysis of client data and campaign outcomes to identify patterns and trends.
2. Develop predictive models, leveraging machine learning algorithms, to forecast subscription likelihood based on historical data.
3. Investigate the impact of various features such as client demographics, contact details, and economic indicators on campaign success.
4. Understand the dynamics of the dataset, considering variations in inputs, and assess the performance of models across different subsets.
5. Provide actionable insights and recommendations for optimizing future telemarketing strategies.

**Business Questions**

The business questions guiding our analysis are as follows:

1. What is the main marketing campaign factor that can increase the customer’s decision to subscribe to a term deposit?
2. How accurate can we be in predicting the customer's decision to subscribe to a term deposit?
3. Business interpretation of the different models using Visualization
4. Business evaluation to convince that our model predicts the best.
5. What actionable insights can be derived from the analysis to enhance the effectiveness of future telemarketing efforts?

**Mission Statement**

Our mission is to provide the Portuguese banking institution with data-driven insights that enable informed decision-making in their telemarketing strategies. We aim to develop predictive models that enhance the efficiency and success rate of bank campaigns, ultimately contributing to the institution's marketing objectives.

**Stakeholder Analysis**

Understanding key stakeholders is crucial for effective engagement throughout the analysis process. The primary stakeholders and their levels of interest and influence include:

Table 1: Stakeholder Analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| # | Stakeholder | Interest | Influence | Remarks |
| 1 | Banking Institution | High | High | The institution seeks actionable insights to improve the success of telemarketing campaigns and optimize resource allocation. |
| 2 | Marketing | High | High | The marketing team is directly involved in campaign execution and will benefit from predictive models to enhance targeting strategies. |
| 3 | Data Analysts | High | Medium | Data analysts play a vital role in processing and interpreting the dataset, contributing to model development and optimization. |
| 4 | Regulatory  Authorities | Medium | Medium | Regulatory authorities may be interested in campaign outcomes impacting consumer financial decisions. |
| 5 | Clients | Medium | Low to Medium | Clients may have a general interest in  campaign outcomes, although their influence is more indirect. |