Data Science Project

Bank Marketing(Campaign)

Group Name: Team Winning Mode

Team Members:

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Problem Description:

ABC Bank is planning to launch a new term deposit product and wants to identify potential customers who are more likely to purchase the product. They aim to develop a machine learning (ML) model based on customers' past interactions with the bank or other financial institutions. The purpose of this model is to assist in shortlisting customers with a higher probability of buying the term deposit, allowing the bank's marketing channels to focus their efforts and resources on those customers. By targeting the right customers, ABC Bank aims to optimize their marketing campaigns and save valuable resources and time.

Business Understanding:

ABC Bank recognizes the potential benefits of using an ML model for customer segmentation and targeted marketing. By analyzing customers' past interactions and behavior, the bank can identify patterns and indicators that are associated with a higher likelihood of purchasing the term deposit product. The ML model will leverage this historical data to predict the probability of a customer buying the product in the future.

The inclusion of the duration feature in the model is debatable. While the duration of the last contact with a customer can provide some insights, it is not recommended for two main reasons. Firstly, interpreting the results based on the duration feature may be challenging for the business, potentially leading to confusion or misinterpretation. Secondly, incorporating the duration feature may complicate the marketing campaign planning process, as the bank would need to design strategies based on different duration ranges.

To address these concerns, it is suggested to develop two models: one without the duration feature and another considering the duration feature. This will allow a comparison of the model performance and its impact on campaign planning. By evaluating the models using appropriate metrics such as accuracy, precision, recall, and F1-score, ABC Bank can determine which model provides better predictions and aligns with their business goals.

The ultimate aim of developing the ML model is to optimize the marketing efforts by targeting customers with a higher chance of buying the term deposit product. This targeted approach can significantly improve the conversion rate and reduce

costs associated with resource billing, as the marketing channels can focus their resources on the most promising leads.

By adopting a data-driven approach and leveraging the power of ML, ABC Bank intends to increase the efficiency and effectiveness of their marketing campaigns, ultimately leading to higher customer acquisition and a successful launch of their term deposit product.

Project Lifecycle:

1. The initiation phase of the project involves defining the objectives and scope of the Bank Marketing Campaign project. The team members, Pooja Honneshwari Ravi, Guru Guha Narayanan Muthunarayanan, Joyeta Saha, and Darshan Patil, have been identified, and their roles and responsibilities are established. The problem description provided by ABC Bank is analyzed, and the potential benefits of developing a machine learning (ML) model for customer segmentation and targeted marketing are understood. The team agrees on the importance of optimizing marketing efforts and increasing customer acquisition. The project is officially initiated, and the team moves forward to the planning phase.

2. During the planning phase, the team works on developing a detailed project plan for the Bank Marketing Campaign. They define the specific tasks, milestones, and timelines required to complete the project successfully. The team identifies the data requirements, including customers' past interactions and behavior, and discusses the potential inclusion of the duration feature in the ML model. The advantages and disadvantages of incorporating the duration feature are carefully considered, and it is decided to develop two models for comparison. The evaluation metrics, such as accuracy, precision, recall, and F1-score, are selected to assess the model's performance. The planning phase concludes with a comprehensive project plan and a clear roadmap for the execution phase.

3. In the execution phase, the team starts implementing the project plan. They gather the necessary data from the ABC Bank's past interactions and behavior records and store it in the GitHub repository. The team members collaborate to develop the ML models, one without the duration feature and another considering the duration feature. They train and validate the models

using appropriate techniques and evaluate their performance based on the selected metrics. The team continuously communicates and coordinates their efforts to ensure the project progresses smoothly. Once the models are developed and their performance is assessed, the team prepares for the closure phase.

4. The closure phase marks the final stage of the Bank Marketing Campaign project. The team reviews the outcomes of the ML models and compares their performance. They analyze the results based on the evaluation metrics to determine which model provides better predictions and aligns with ABC Bank's business goals. The team prepares a comprehensive report summarizing the project's findings, including recommendations for optimizing marketing efforts. They share the report with ABC Bank and other stakeholders for their review and feedback. The project is formally closed, and the team members reflect on the lessons learned and the success achieved in increasing the efficiency and effectiveness of ABC Bank's marketing campaigns.

Data Intake Report:

Document added to GitHub Repository

GitHub Repo Link:

https://github.com/poojaravi05/Bank-Marketing-Campaign-