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Abstract

Banks need to identify potential customers for new products, such as loans or credit cards, in order to increase revenue. Power BI will be used to predict which customers are more likely to accept offers for bank products. The project will involve data analysis and visualization to gain insight into the data and build a predictive model.

1 Introduction

1.1 Why this High-Level Design Document?

The purpose of this High-Level Design (HLD) Document is to provide a detailed model for the bank marketing project using Power BI. This document will help identify any potential issues prior to coding and serve as a reference manual for how the modules interact at a high level.

The HLD will:

- Present all of the design aspects and define them in detail
- Describe the user interface being implemented
- Describe the hardware and software interfaces
- Describe the performance requirements
- Include design features and the architecture of the project
- List and describe the non-functional attributes like:
 - o Security
 - o Reliability
 - o Maintainability
 - o Portability
 - o Reusability
 - o Application compatibility
 - o Resource utilization
 - o Serviceability

1.2 Scope

The HLD documentation presents the structure of the system, such as the database architecture, application architecture (layers), application flow (Navigation), and technology architecture. The HLD uses non-technical to mildly-technical terms which should be understandable to the administrators of the system.

2 General Description

2.1 Product Perspective & Problem Statement

Banks need to identify potential customers for new products, such as loans or credit cards, in order to increase revenue. In this project, Power BI will be used to predict which customers are more likely to accept offers for bank products. The objective of the project is to perform data visualization techniques to gain insight into the data, and to build a predictive model using machine learning algorithms.

2.2 Tools used

Power BI will be used to build the framework for the bank marketing project, along with the use of machine learning libraries such as Scikit-learn and Pandas.

3 KPIs

3.1 KPIs (Key Performance Indicators)

The success of the bank marketing project will be measured using the following KPIs:

Conversion Rate - This KPI measures the percentage of potential customers who accepted offers for bank products, out of the total number of offers made.

Average Age by Loan - This KPI measures the average age of customers who accepted offers for bank products, grouped by loan type.

Total Defaults - This KPI measures the total number of defaults on bank products.

Count of Married by Loan - This KPI measures the count of married customers who accepted offers for bank products, grouped by loan type.

Count of University Degree - This KPI measures the count of customers with university degrees who accepted offers for bank products.

Count of People by Housing Loan - This KPI measures the count of customers who have a housing loan and accepted offers for bank products.

Employment Variation Rate and Count of Term Deposit - This KPI shows the relationship between the employment variation rate and the count of term deposits.

Job and Count of House Owner - This KPI shows the relationship between job type and the count of customers who own a house.

Age and Count of Default - This KPI shows the relationship between age and the count of defaults on bank products.

Sum of Duration and Age - This KPI shows the relationship between the sum of the duration of calls and the age of customers.

Month and Count of Education - This KPI shows the relationship between the month of the year and the count of customers with a certain level of education.

Count of Term Deposit and Month - This KPI shows the relationship between the count of term deposits and the month of the year.

Outcome and Sum of Campaign - This KPI shows the relationship between the outcome of a marketing campaign and the sum of the campaign duration.

4. Deployment

The bank marketing project will be deployed on a cloud-based platform, such as Azure or AWS, to ensure scalability and reliability. The data will be stored in a secure and encrypted database. Power BI reports will be shared with authorized personnel through a web interface or mobile application. The project will be maintained and updated by a dedicated team of data analysts and IT professionals. Regular backups and security checks will be performed to ensure the safety and privacy of the data.