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# Data Analysis Project Bank Customers Churn

## Proposal

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# Data Analysis Project Proposal: Understanding Customer Churn in a Bank

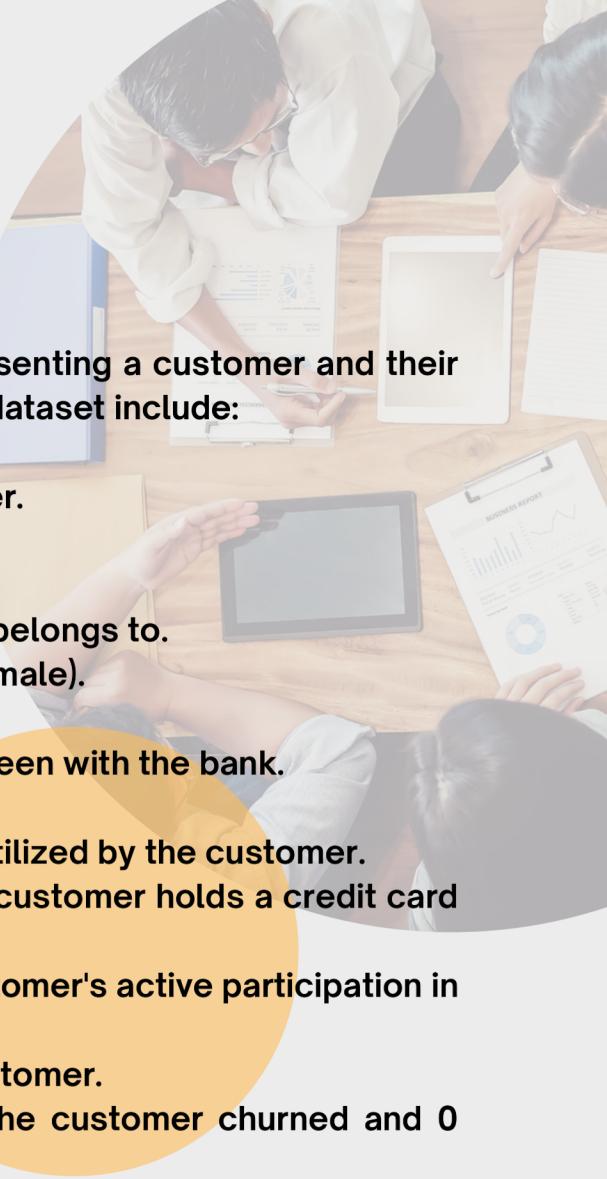
## 1. Introduction:

Customer churn is a critical concern for banks and financial institutions as it directly impacts revenue and customer retention. Understanding the factors that contribute to customer churn can help banks take proactive measures to retain valuable customers and improve their services. In this data analysis project, we will explore a dataset containing information about customers who have closed their accounts with a bank. The dataset provides valuable insights into various customer attributes, allowing us to investigate the relationship between these attributes and customer churn.

## 2. Project Objective:

The main objective of this data analysis project is to identify the key factors influencing customer churn and develop actionable insights for the bank to reduce customer attrition. By conducting a thorough analysis of the dataset, we aim to answer the following questions:

- Which customer attributes are most strongly associated with customer churn?
- Are there any specific demographics or banking behaviors that show a higher propensity for churn?
- How does credit score, balance, age, tenure, and other factors impact the likelihood of churn?



### 3. Dataset Description:

The dataset contains over 10,000 rows, each representing a customer and their associated attributes. The features available in the dataset include:

1. RowNumber: A unique identifier for each row.
2. CustomerId: A unique identifier for each customer.
3. Surname: The last name of the customer.
4. CreditScore: The credit score of the customer.
5. Geography: The country or region the customer belongs to.
6. Gender: The gender of the customer (Male or Female).
7. Age: The age of the customer.
8. Tenure: The number of years the customer has been with the bank.
9. Balance: The account balance of the customer.
10. NumOfProducts: The number of bank products utilized by the customer.
11. HasCrCard: A binary flag indicating whether the customer holds a credit card with the bank.
12. IsActiveMember: A binary flag indicating the customer's active participation in bank programs.
13. EstimatedSalary: The estimated salary of the customer.
14. Exited: The target variable, where 1 indicates the customer churned and 0 indicates the customer was retained.

### 4. Methodology:

To achieve our project objective, we will follow the following data analysis process:

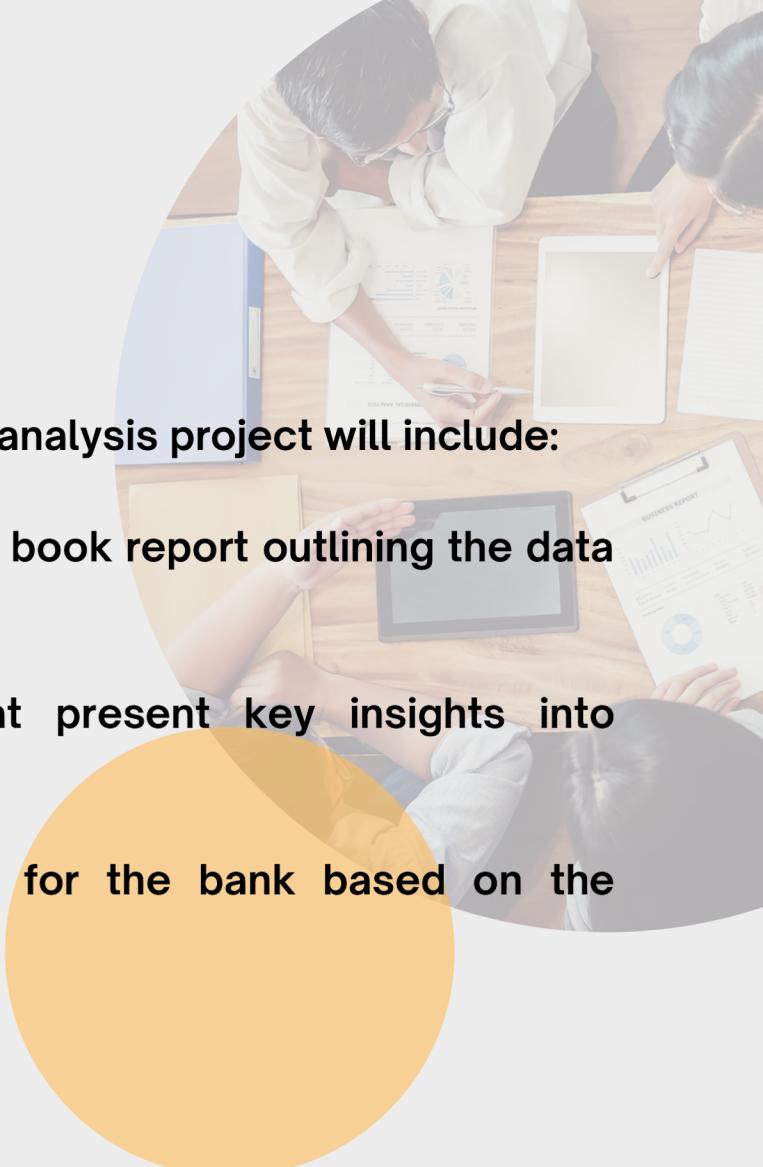
1. Data Cleaning: We will clean the dataset by handling missing values, removing irrelevant columns (e.g., RowNumber, CustomerId, Surname), and ensuring data consistency.
2. Exploratory Data Analysis (EDA): We will perform EDA to gain insights into the distribution of each feature and its relationship with the target variable (Exited). Visualizations such as histograms, bar plots, and correlation matrices will aid in understanding the data.
3. Feature Engineering: We will create new features or group existing ones to extract more meaningful information from the dataset.
4. Churn Analysis: We will analyze the impact of different features (e.g., CreditScore, Age, Tenure) on customer churn. This will involve comparing churn rates across various customer segments.
5. Interpretation and Recommendations: We will interpret the results from the analysis and provide actionable recommendations to the bank to reduce churn and improve customer retention.



## 5. Deliverables:

The final deliverables of this data analysis project will include:

- A comprehensive jupyter note book report outlining the data analysis process and findings.
- Visualizations and plots that present key insights into customer churn.
- Actionable recommendations for the bank based on the analysis.



## 6. Conclusion:

This data analysis project aims to provide valuable insights into customer churn in the bank, enabling the institution to take informed actions to improve customer retention. By understanding the drivers of churn, the bank can address customer needs and strengthen its customer relationships. Ultimately, this project will contribute to the bank's efforts in enhancing customer satisfaction and loyalty.

