Contents

[Introduction 1](#_Toc148195125)

[Dataset summary 1](#_Toc148195126)

[Business Description 2](#_Toc148195127)

[Hypothesis 2](#_Toc148195128)

[General Goal 2](#_Toc148195129)

[Success Criteria/Indicators 2](#_Toc148195130)

# Introduction

The tendency of customers to switch to another competitor or stop using a service is the main and major challenge faced by businesses across the industries, including the banking sector.  
The ability to predict whether a customer will exit or not the bank can help banking institutions to take measures to retain them by reducing the costs of acquiring new clients and improving the customer service and satisfaction.

For this purpose, we have decided to work with a dataset called Bank Churners that was taken from Kaggle, which contains private and sensitive information about customers of an anonymous and unknown a bank and their transaction history. The dataset includes the behaviour of the clients in relation to bank transaction history, as well as, demographic features, such as age, gender, marital status, income level, education level and so on.

Our objective is to build a predictive machine learning model that can accurately classify customers either churn or not churn based on these features, among other techniques we will apply.

In summary, the idea of this project is to provide insights and recommendations to help the banks to reduce customer churn, increase customer retention, and improve their overall performance.

## 

## Dataset summary

This dataset contains more than 10,000 observations and 23 attributes, with the attrition column indication the Existing Costumers and Attrited Customers.  
Specifically, there are 8,500 customers who will stay while 1,627 customers want to leave the bank.

https://www.kaggle.com/datasets/thedevastator/predicting-credit-card-customer-attrition-with-m

# Business Description

Our project is focused on the banking industry, with the main goal of improving and retaining the customers to reduce churn rates. To achieve this objective, we will train, test, and develop Machine Learning models that predict whether a customer is likely to churn or not, based on his/her demographic features and transaction history.

## Hypothesis

As a starting point, we would like to investigate and analyse why the customers, who hold bank accounts, will churn or not from the banks based on his/her demographic features and transaction history. This will enable banking institutions to take proactive measures to retain their customers, improve customer satisfaction, and reduce the costs of new clients. By applying Machine Learning models on the Bank Churners dataset, we will try to accurately predict whether a customer will exit or not based on their banking data.

## General Goal

Our general goal is to develop a predictive Machine Learning model which can accurately classify customers as either churn or not based on their demographic features and transaction history. By achieving this goal, we aim to provide banking institutions with useful findings and recommendations to reduce customer churn rates and improve overall performance.

## Success Criteria/Indicators

The success of our project will be measured by the accuracy of our Machine Learning Models in predicting customer churn.  
We will use metrics such as accuracy, precision, recall and confusion matrix to evaluate the performance across the seven Machine Learning Models. Additionally, GridSearchCV will be applied to find the hyperparameter and Cross Validation will ensure the authenticity of the modelling results.