

TELCO

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1. INTRODUCTION

Customer retention is a primary focus for many businesses, as acquiring new customers generally incurs higher costs compared to retaining existing ones. "Customer churn" refers to the phenomenon of customers ending their relationship with a company, which can be a significant concern for subscription-based businesses or those that rely on recurring services. High churn rates can lead to substantial revenue losses and impact long-term sustainability.

In recent years, machine learning (ML) and neural networks have provided effective tools for churn prediction, enabling businesses to analyze historical data on customer behavior and identify early indicators of churn. These techniques allow companies to intervene with retention efforts before customers are lost.





2. PROBLEM STATEMENT

Customer churn poses a significant challenge across industries, especially for businesses with subscription models. Traditional, rule-based methods for identifying at-risk customers are often limited in accuracy, as they may not effectively capture complex relationships in customer behavior.

This project aims to develop a basic machine learning model using a neural network approach (Multi-Layer Perceptron, MLP) to predict customer churn with accuracy. The model will analyze customer interaction data, usage patterns, and demographic information to identify high-risk customers, enabling the business to take proactive measures to reduce churn.

3. GOALS

01

1. Build a churn prediction model: Develop a predictive model using a Multi-Layer Perceptron (MLP) neural network to classify customers as likely to churn or remain.

02

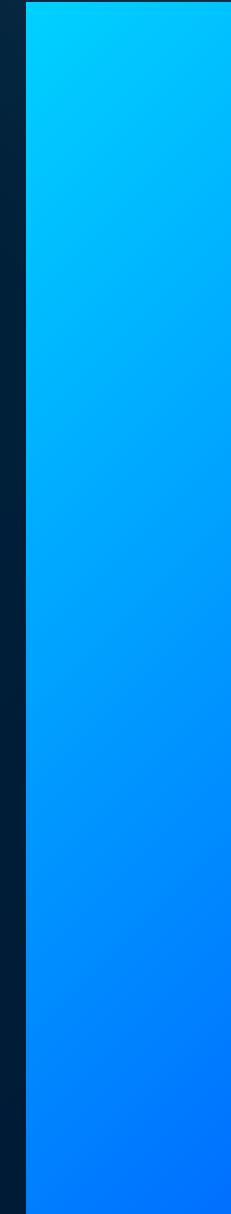
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03

1. Provide actionable insights: Enable businesses to address churn risks by identifying customers with high churn probabilities, allowing them to implement targeted retention strategies.

04

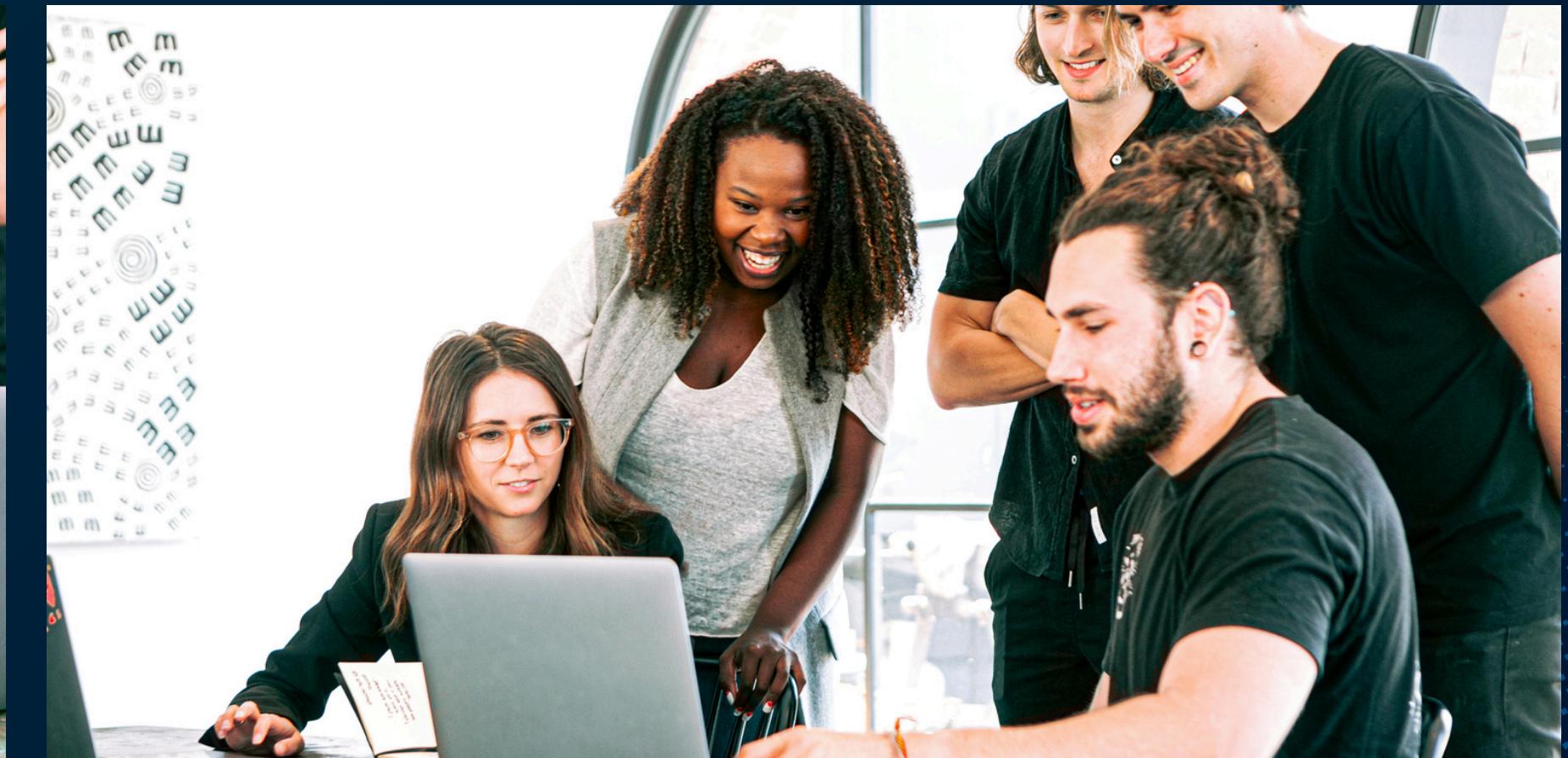
1. Evaluate model performance: Measure the model's accuracy, precision, and recall to ensure robust performance on unseen data and generalization to diverse customer profiles.



4. RELATED WORK

Many churn prediction studies have used machine learning methods, including logistic regression, decision trees, and support vector machines (SVMs). For instance, logistic regression is commonly used due to its simplicity and interpretability, but it may not capture complex relationships well. Decision trees and random forests improve interpretability while achieving relatively good accuracy, although they can lack predictive power for highly complex data.

Basic neural networks, such as Multi-Layer Perceptrons (MLPs), are also increasingly applied in churn prediction due to their ability to capture non-linear patterns within the data. MLPs can manage a range of input types, including numeric and categorical data, making them suitable for customer churn prediction. Studies indicate that MLP models often outperform traditional models, particularly when dealing with complex customer behavior data, thus offering more precise churn predictions.



THANK YOU

