Customer Churn Prediction

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Introduction

Overview

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Goal

- Develop a model for the bank to determine customer churn
- Utilize the customer’s credit history
- Train classification algorithms and determine performance
- Create a simple website application

Overview

A machine learning project that uses classification algorithms to predict customer attrition for a bank.

- Kaggle
- The model is trained on features that include but is not limited to...
  - Age - Customer's Age
  - Months on Books - How many months with the bank
  - Total Transaction Amount - Total transactions made in the last 12 months

Data Visualization

Gain insights of the data

02

Tasks

Revolving Balance & Education

Anastasiya

Marital Status Distribution

Karandeep

Card Category vs. Customer Age

Nisha

Heatmap

Iskandar

Distribution of Total Transactions

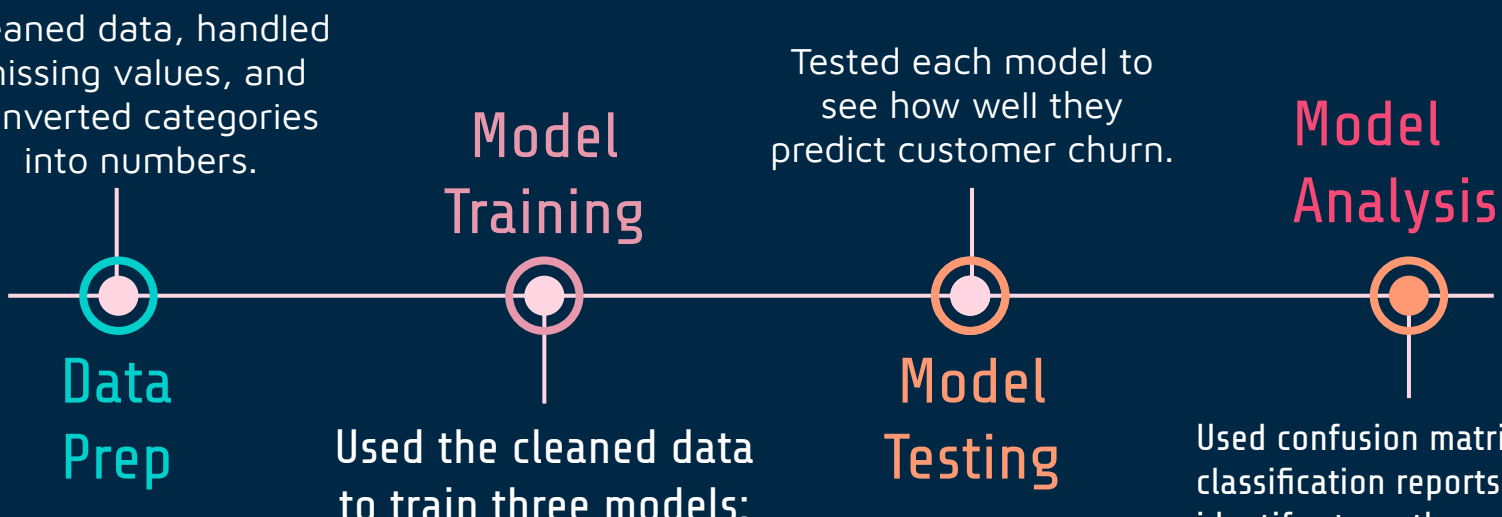
Felix

Modeling

Key metrics and evaluation techniques

03

Process


Cleaned data, handled missing values, and converted categories into numbers.
Data Prep
Used the cleaned data to train three models:
Logistic Regression
Decision Tree
Random Forest
Model Training
Tested each model to see how well they predict customer churn.
Model Testing
Used confusion matrices and classification reports to identify strengths and weaknesses.
Model Analysis

Key Metrics (Accuracy)

92.8%

Decision Tree

Asks a series of yes/no questions to determine the best splits.

88.3%

Logistic Regression

Calculates the probability that a customer will stay or leave.

95.9%

Random Forest

Trained on many decision trees to improve predictions by taking the majority vote.

Key Metrics (Confusion Matrix)

	Attrited	Existing
Attrited	384	112
Existing	50	2493

Next Steps

Future outlook

04

UPCOMING GOALS

Solve Class Imbalance

Top Priority

Find a solution to solve the imbalance of class.

Train a LightGBM

Medium Priority

Train a different model and examine the performance.

Feature Engineering

Low Priority

Discovering other features that impact the model.

Streamlit App

App Demo

https://mldschurnprediction.streamlit.app/

Do you have any questions?

THANK YOU