

Moringa School



Syriatel Customer Churn

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Overview

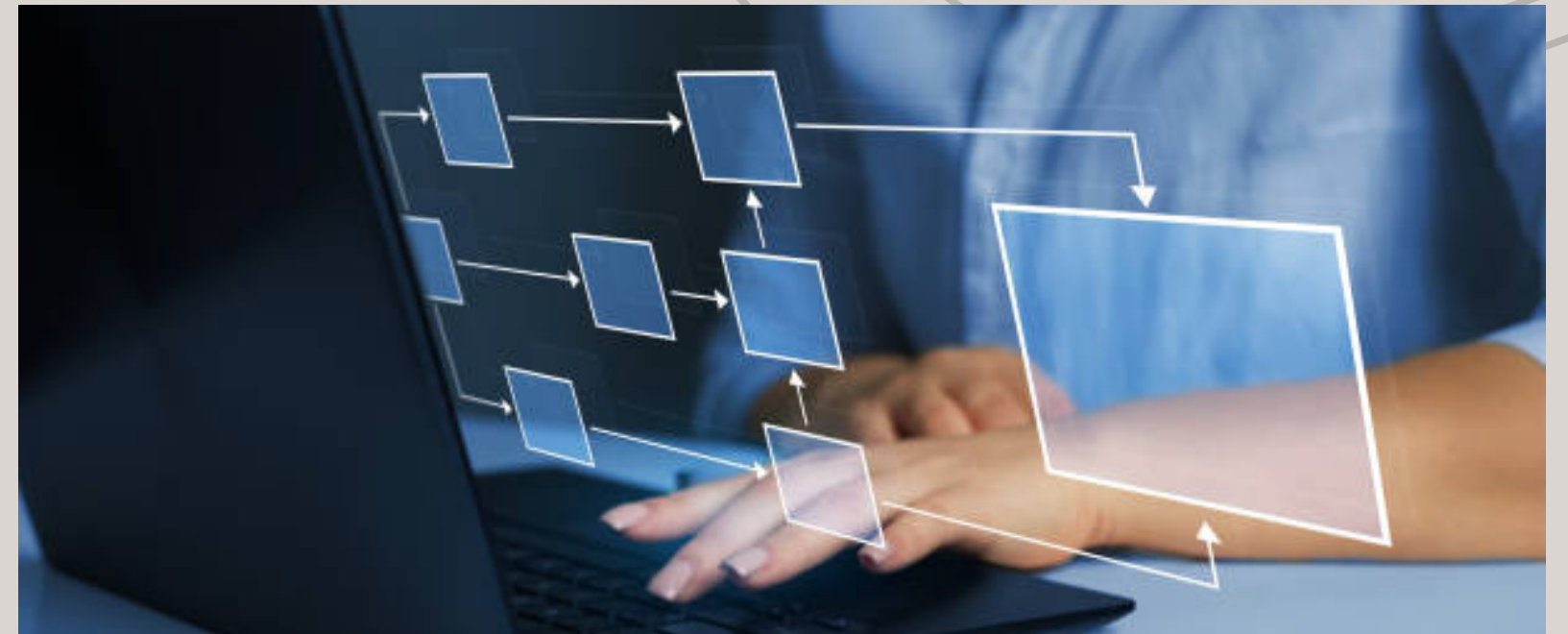
- SyriaTel, a leading telecommunications company, is facing challenges in retaining its customer base.
- Customer churn: where customers discontinue their services.
- Impacts revenue and company's reputation in a competitive market.

Objectives

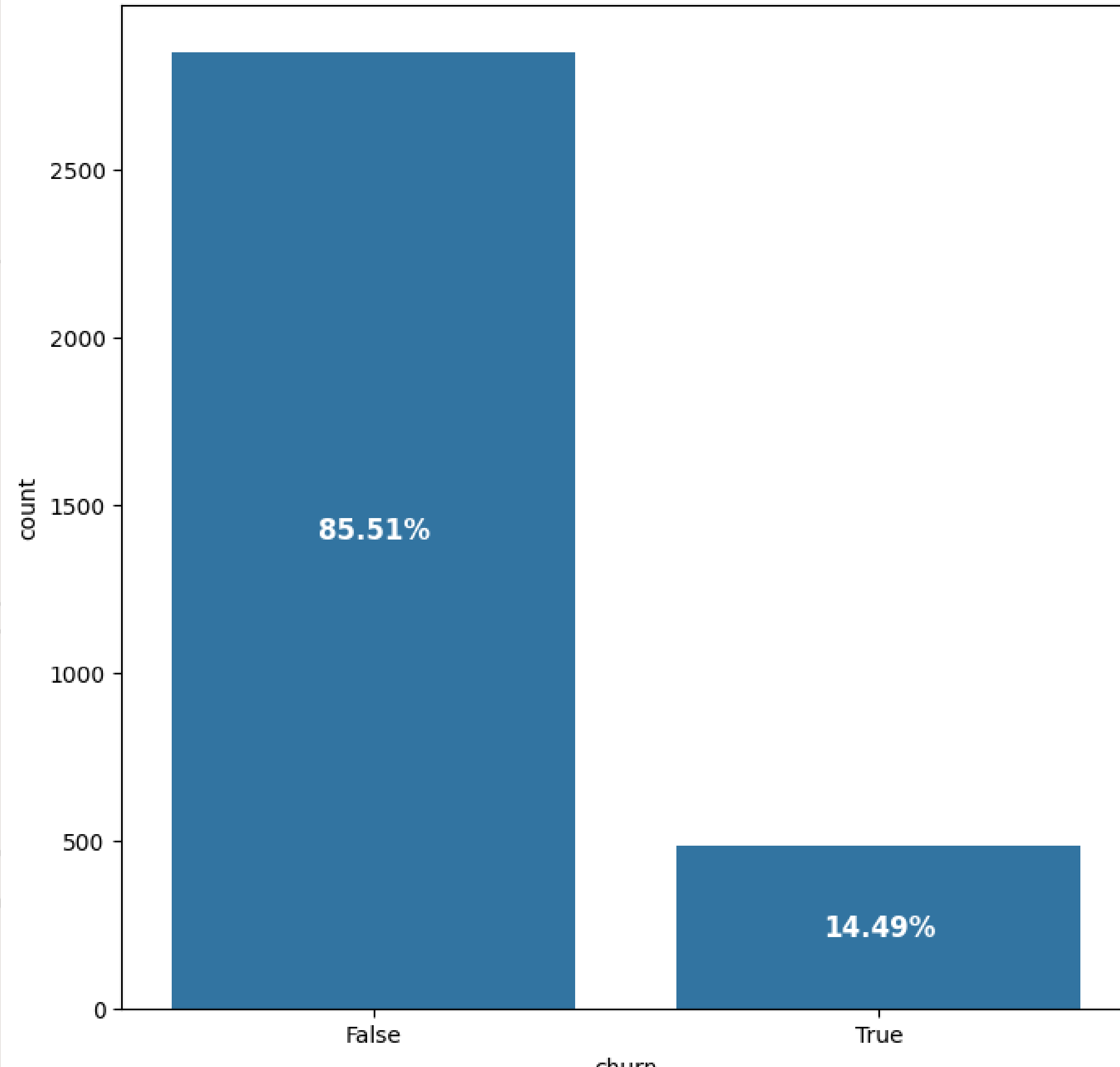
- **Prediction:** Develop a robust binary classification model to predict customer churn accurately.
- **Identify Key Factors:** Identify and analyze the key features contributing to customer churn.
- **Proactive Retention Strategies:** Provide actionable insights to the business to implement targeted retention strategies for at-risk customers.
- **Revenue Protection:** Minimize revenue loss by reducing the number of customers who discontinue services.

Data Understanding

- Data from Kaggle
- 3333 Rows and 21 Columns
- Data types;
 1. Boolean - 1
 2. Floats - 8
 3. Integers - 8
 4. Objects - 4
- Missing Values - None found



Churn Distribution with Percentages



Churn's Distribution

Dataset is imbalanced

Modelling

Models used are

1. Logistic Regression - baseline model.
2. K-Nearest Neighbors.
3. Hyperparameter Tuning - GridSearchCV and Decision Trees

Modelling

01

Logistic Regression:
baseline model

02

K-Nearest Neighbors

03

Hyperparameter
Tuning:
GridsearchCV and
Decision Trees
used.

Evaluation

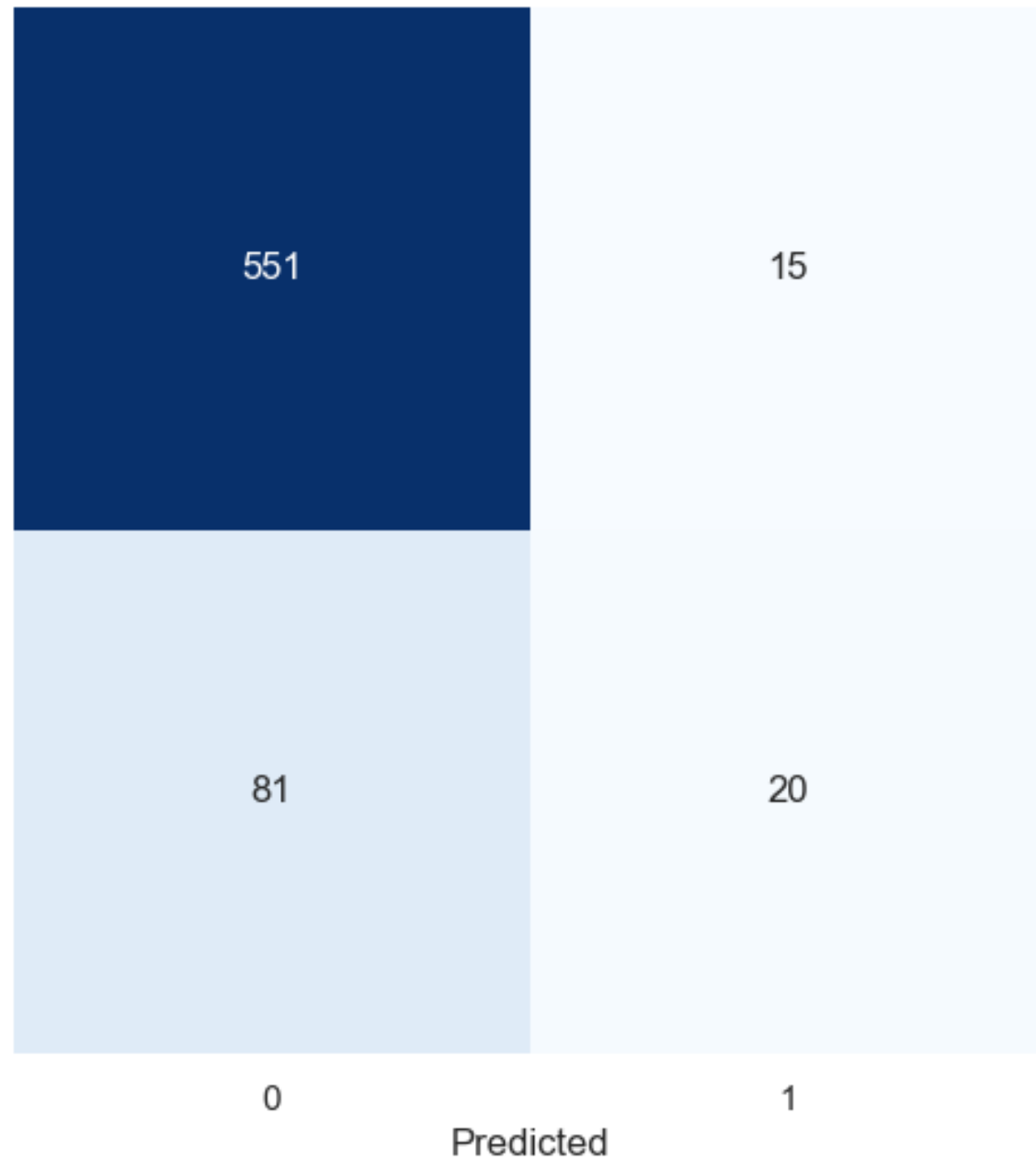
Model Scores

Model	Accuracy	Precision (Class 1)	Recall (Class 1)	F1-Score (Class 1)
Logistic Regression	0.856	0.571	0.198	0.294
Tuned Decision Tree	0.933	0.833	0.693	0.757
KNN	0.850	0.545	0.059	0.107

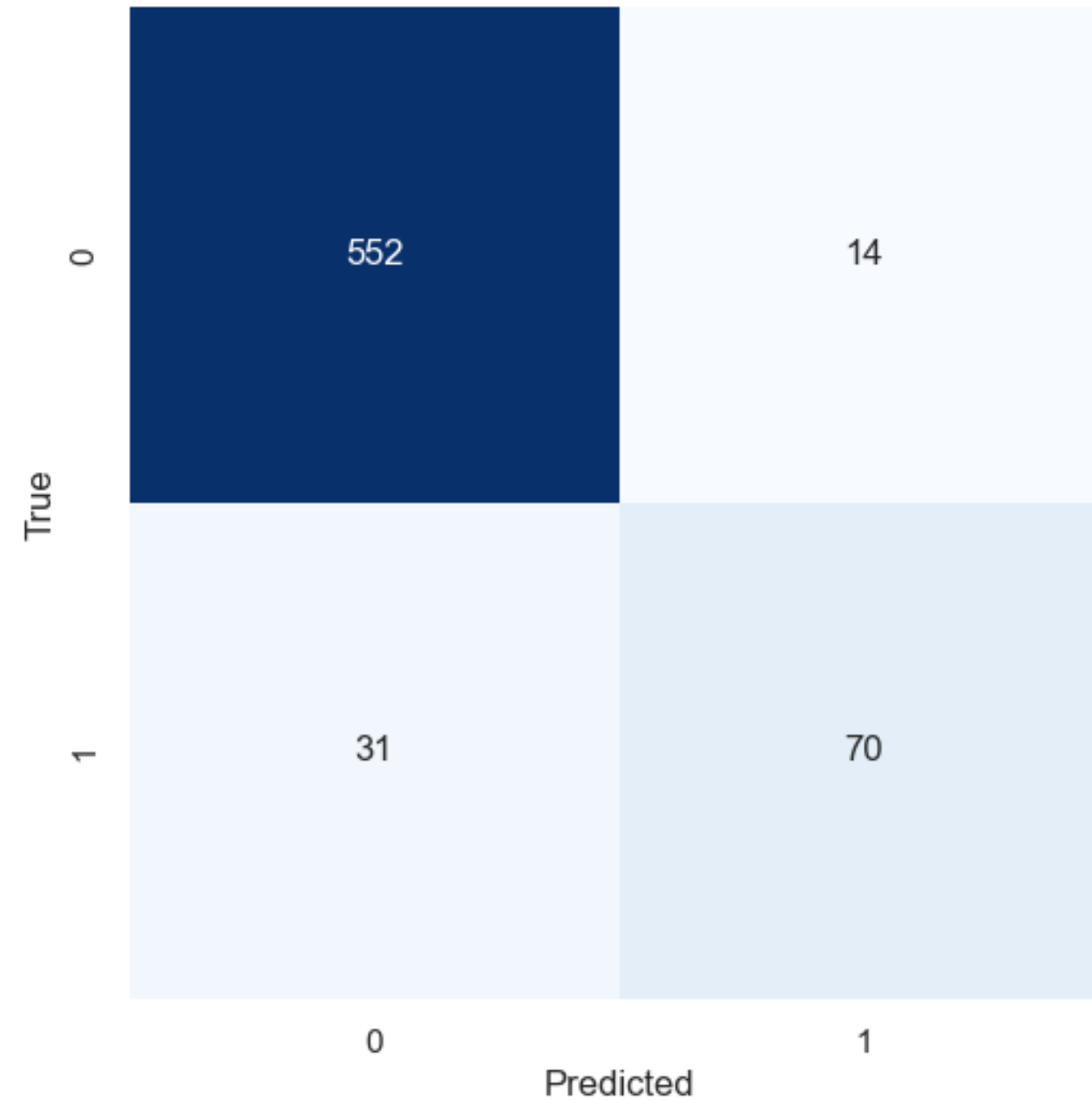
- Tuned decision tree model has significantly improved accuracy, precision, recall, and F1-score compared to logistic regression and KNN.
- Is recommended for predicting customer churn.

Model Confusion Matrices

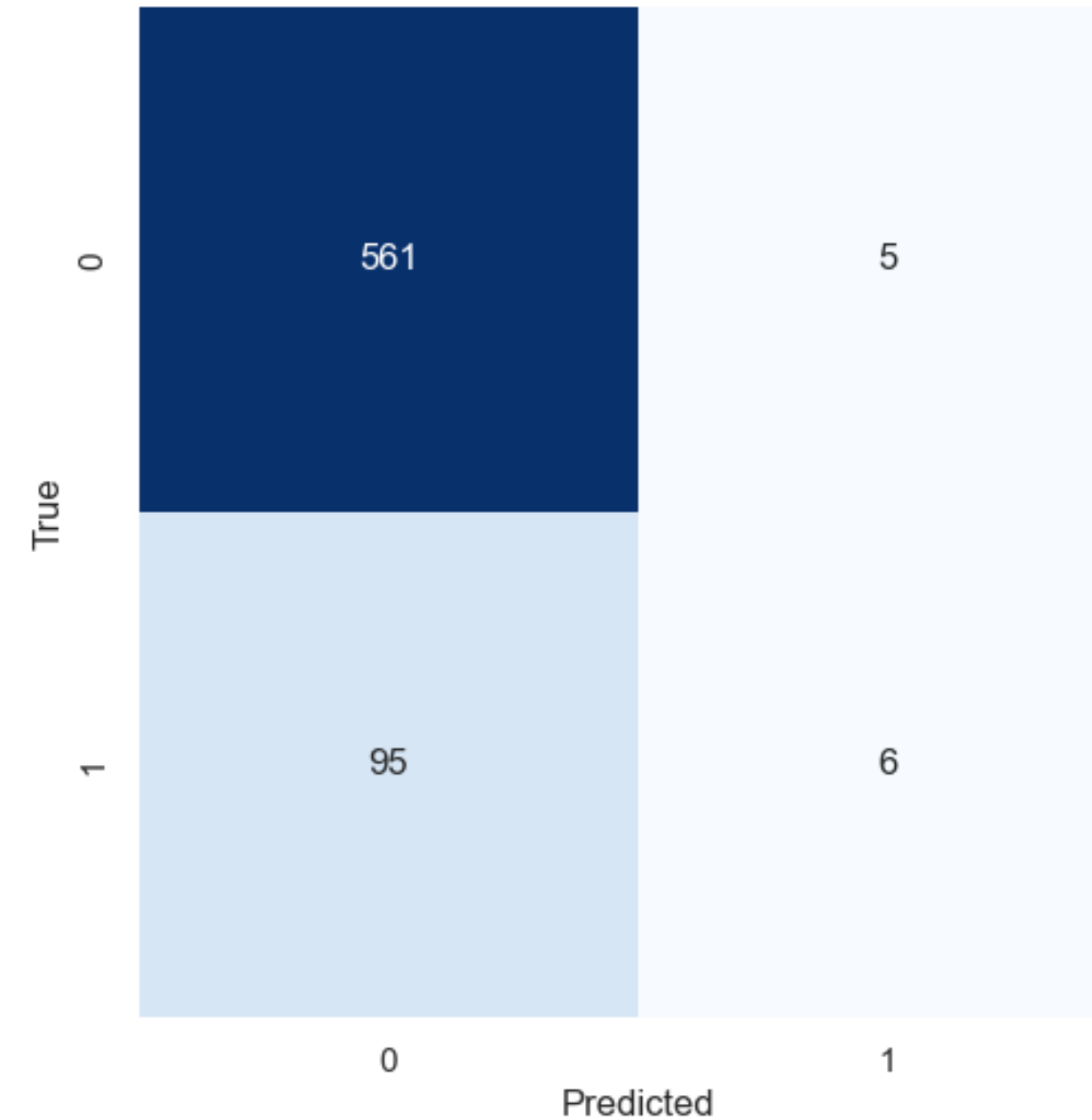
Confusion Matrix - Baseline Decision Tree



Confusion Matrix - Tuned Decision Tree



Confusion Matrix - KNN



- Tuned Decision Tree performed best.
- Has a better trade-off between true positives and false positives.

Results and Findings

01

Customer Service Calls
(Importance: 23.79%)

02

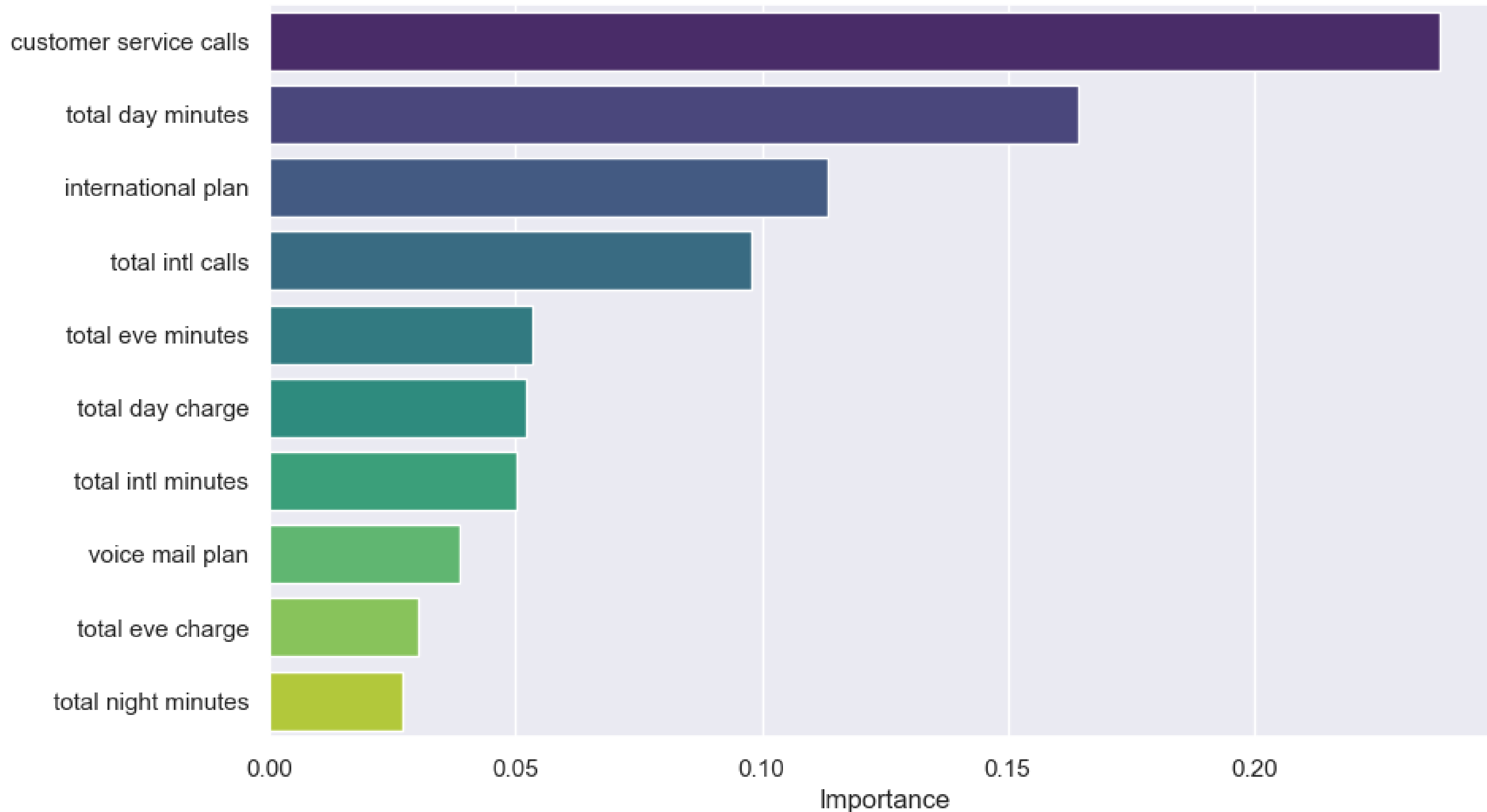
Total Day Minutes
(Importance: 16.42%)

03

International Plan
(Importance: 11.34%)

Top 10 Feature Importances in Tuned Decision Tree Model

Feature



Recommendations

1
Enhance
Customer Service

2
Personalized
Plans and Offers

3
International
Plan
Optimization



**Thank
You**