PREDICTING SYRIATEL CUSTOMER CHURN

OVERVIEW

The SyriaTel Customer Churn dataset is a collection of data that focuses on customer behavior and churn patterns in the telecommunications industry. It contains various features such as account length, contract type, payment method, call details, customer complaints, and billing information. The dataset allows telecom companies to gain insights into customer behavior and identify factors that contribute to churn.By analyzing the dataset, telecom companies can identify patterns and trends that indicate customers who are likely to churn. This information helps in developing predictive models to accurately predict churn and implement targeted retention strategies. The dataset serves as a valuable resource for conducting predictive analytics, machine learning, and data mining tasks.The dataset's target variable is the churn status of each customer, indicating whether they have churned or not. This binary classification problem allows telecom companies to build models that classify customers as churned or not churned based on their characteristics and usage patterns.Overall, the SyriaTel Customer Churn dataset provides telecom companies with an opportunity to understand and predict customer churn, leading to improved customer retention, reduced revenue losses, and enhanced business performance.

BUSINESS PROBLEM

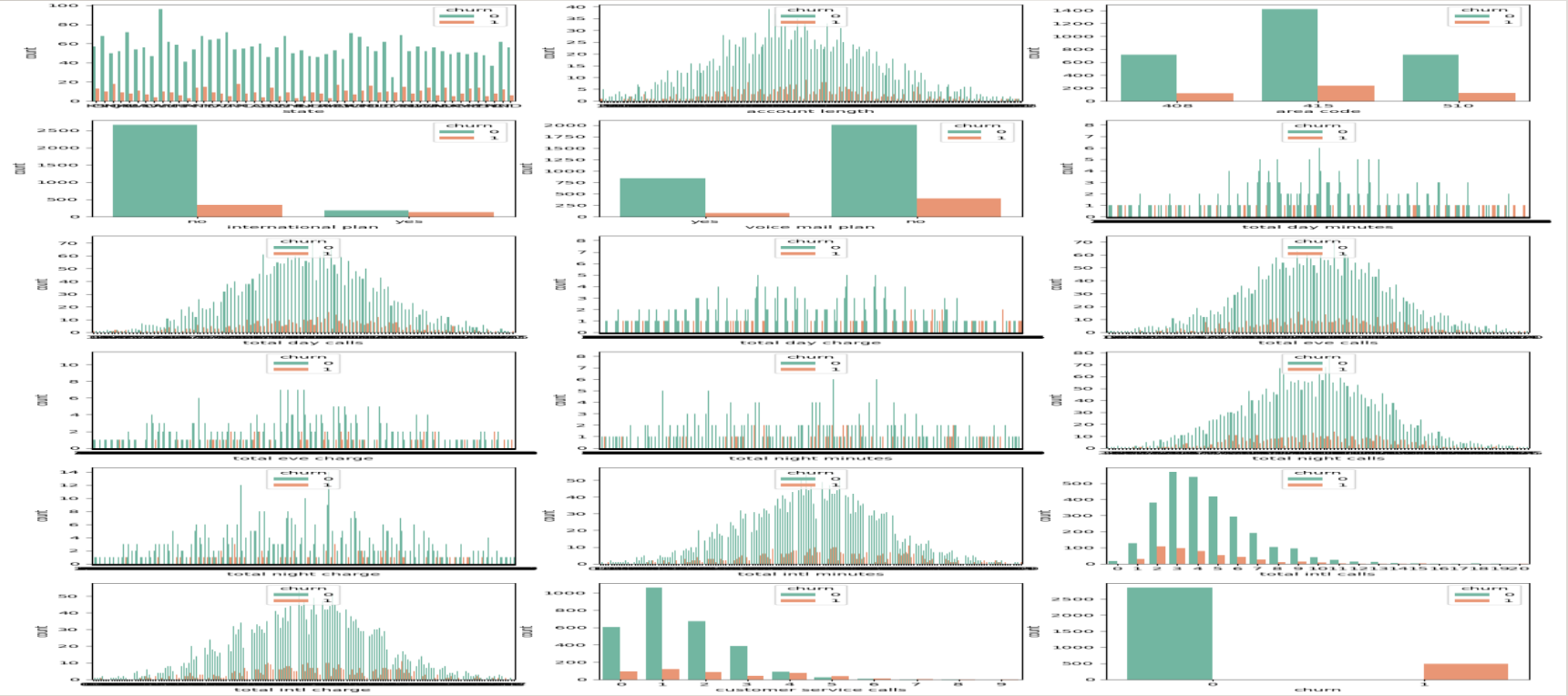
The business problem in the SyriaTel Customer Churn project is customer churn in the telecommunications industry. Churn refers to customers discontinuing services or switching to competitors, resulting in revenue loss and increased acquisition costs. The goal is to identify factors and patterns contributing to churn in SyriaTel. By understanding the reasons behind churn and building a predictive model, the company can implement targeted retention strategies, improve customer satisfaction, and maximize revenue. This helps retain valuable customers, prevent revenue loss, and maintain a positive brand image.

OBJECTIVES

- The objectives of the SyriaTel Customer Churn project are:

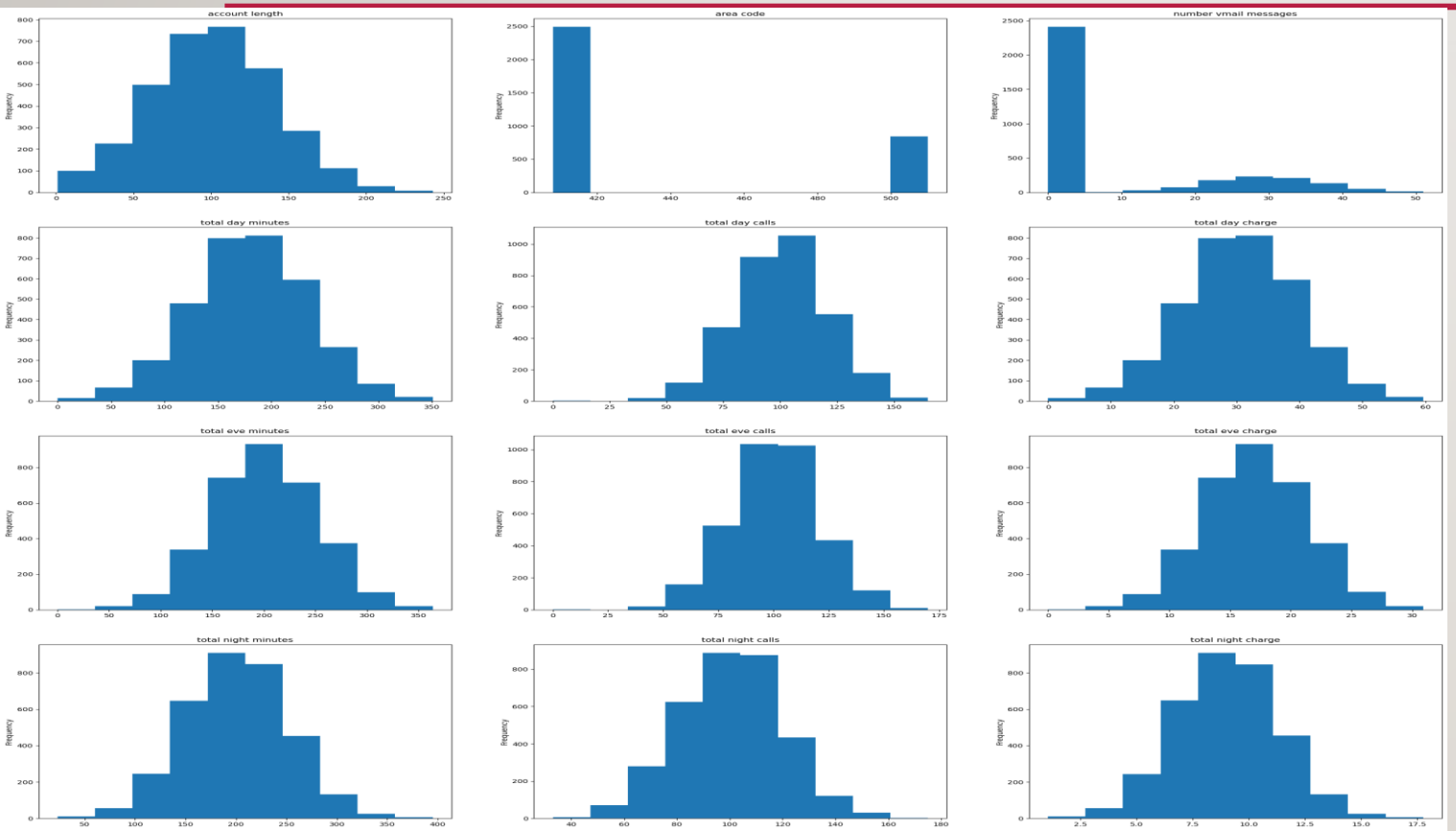
1. Build a classifier model to predict customer churn.
2. Identify patterns and factors associated with customer churn.
3. Select and engineer relevant features for the model.
4. Evaluate the model's performance using appropriate metrics.
5. Provide actionable insights to reduce customer churn.
6. Make recommendations for retention strategies.
7. Outline future steps for implementation and improvement.

ANAYSIS OF TELECOMMUNICATION PROVIDERS



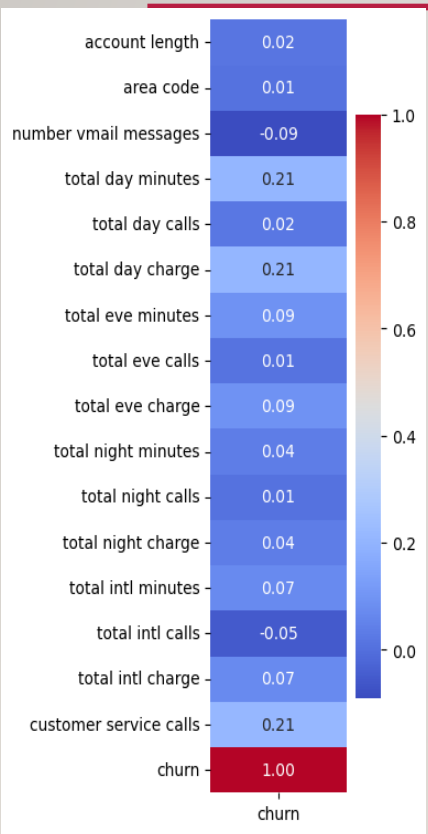
The insight we can gather from the analysis is that the state with state code WV has the highest number of total users for the telecommunications provider being analyzed, while the state with state code CA has the lowest number of users.

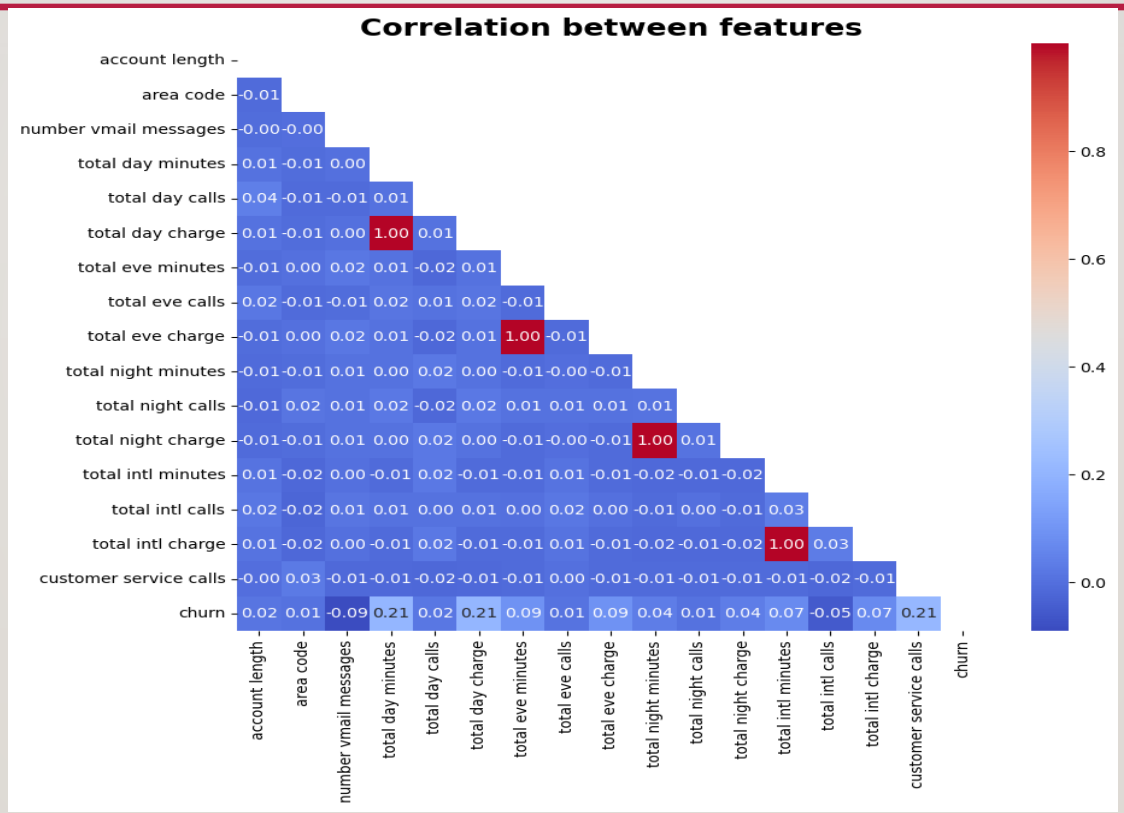
ANALYSIS NUMERICAL DATA



From the majority of the numerical data, it appears that most of the data follows a normal distribution and contains outlier values. However, in this case, the outlier values will not be removed because doing so may result in the loss of valuable information for training the machine learning model.

FEATURES CORRELATION WITH TARGET VARIABLES (CHURN)

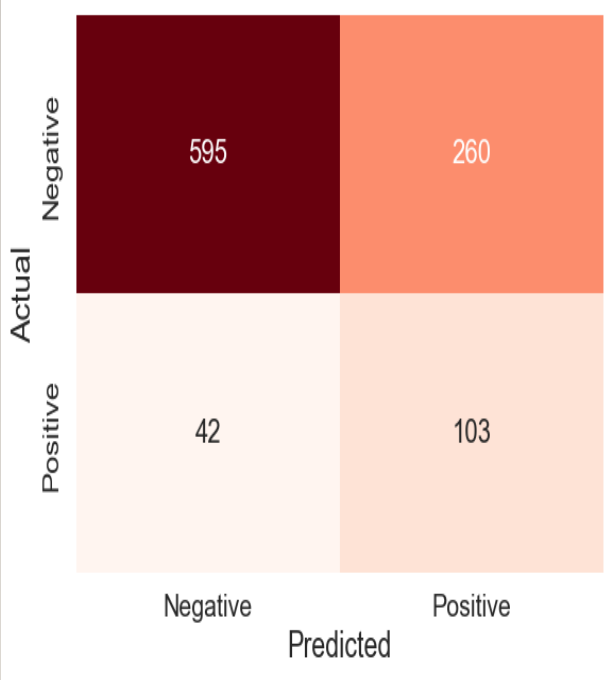




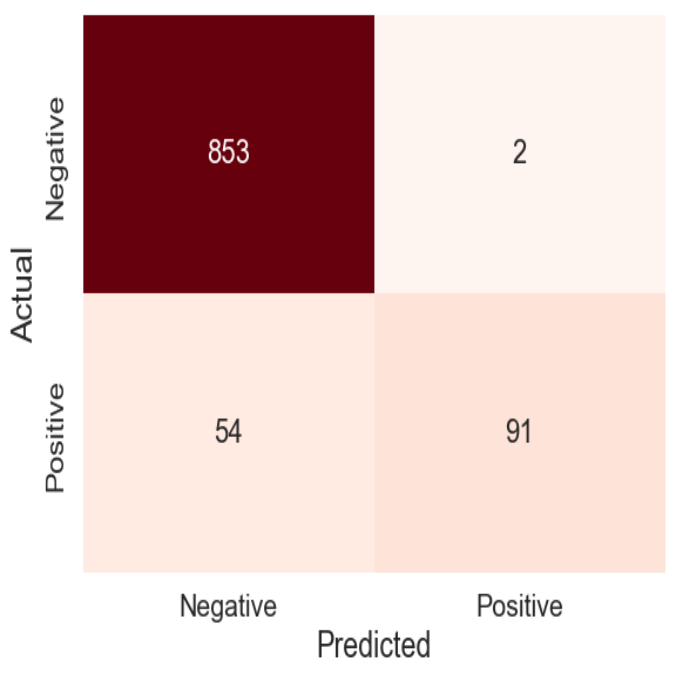
Overall, among the features, there are three features that exhibit strong correlation relationships, while the others do not have significant correlation with each other. Therefore, all of these features will be further analyzed using other statistical methods such as calculating mutual information.

MODEL RESULTS

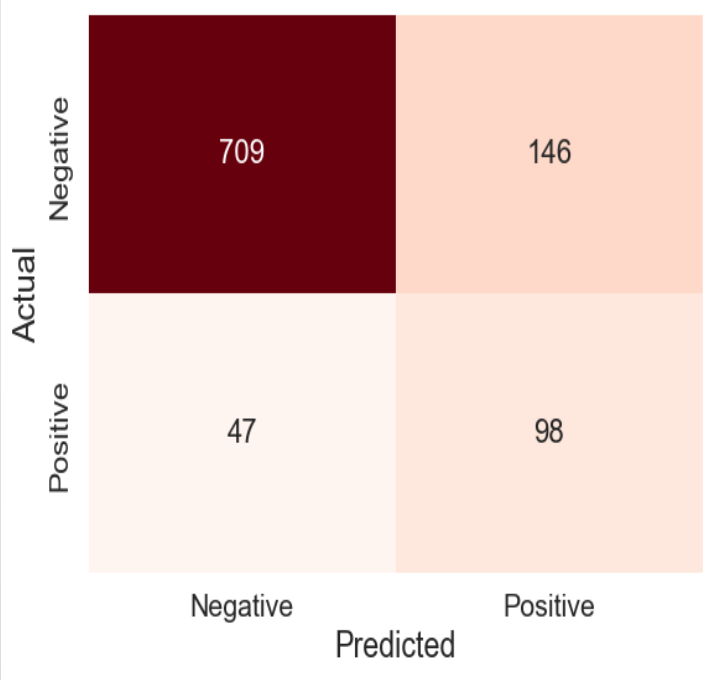
Logistic Regression



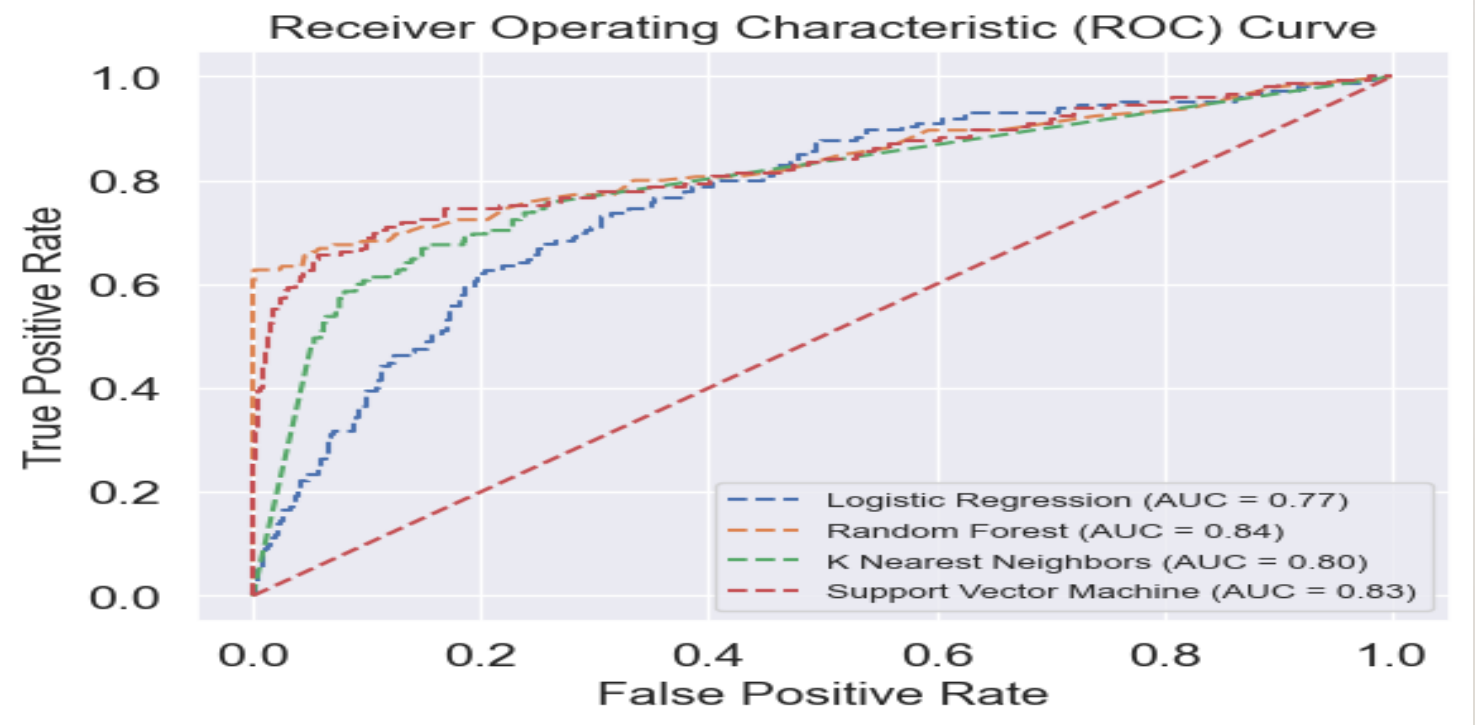
Random Forest



K-Nearest Neighbors (KNN)



COMPARING MODELS USING ROC CURVE ANALYSIS



Based on the ROC-AUC scores comparison of the 4 machine learning models, it can be concluded that the Random Forest model performed the best. Therefore, this model will be chosen to make predictions on new data in the future.

CONCLUSION

In conclusion, the analysis conducted to predict customer churn for SyriaTel, a telecommunications company, has provided valuable insights and recommendations to improve customer retention strategies. Through the modeling and evaluation process, a predictive model was developed to identify customers who are likely to churn. The analysis revealed that several factors contribute to customer churn in the telecom industry. By analyzing the dataset and building the predictive model, it was found that features such as call duration, customer complaints, billing issues, and contract type play a significant role in predicting churn. The model showed promising performance in accurately identifying potential churners.

RECOMMENDATIONS

1. Enhance customer satisfaction and address complaints promptly.
2. Offer incentives for long-term contracts to promote customer loyalty.
3. Proactively reach out to customers to address concerns and provide support.
4. Design targeted marketing campaigns to engage and retain high-risk customers.
5. Continuously improve product and service offerings based on market trends and feedback.
6. Provide exceptional customer service and empower customer service representatives.
7. Monitor customer behavior and usage patterns to identify early signs of churn.
8. Foster customer loyalty and engagement through various channels.
9. Regularly evaluate and refine the churn prediction model for improved accuracy.
10. Foster collaboration between departments to ensure a holistic approach to customer retention.

NEXT STEP

1. Deploy Model: Deploy the churn prediction model in a live environment to start generating predictions for new customer data.
2. Monitor Performance: Continuously monitor the performance of the deployed model, tracking key metrics such as accuracy, precision, recall, and F1 score. Identify any issues or changes in performance that may require adjustments or retraining.
3. Implement Retention Strategies: Utilize the predictions from the model to implement targeted retention strategies for customers at high risk of churn. Develop personalized offers, loyalty programs, and proactive customer support to improve customer satisfaction and loyalty.
4. Evaluate Strategies: Regularly evaluate the effectiveness of the implemented retention strategies. Monitor customer feedback, retention rates, and customer satisfaction scores to assess the impact of the strategies and make necessary adjustments.
5. Iterate and Improve: Continuously improve the churn prediction model by incorporating new data, exploring additional features, and experimenting with different algorithms or techniques. Regularly retrain the model to ensure its accuracy and relevance.

THANK YOU