CUSTOMER CHURN PREDICTION

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Business Understanding

- SyriaTel is currently losing customers, which directly affects its revenue and long term growth. In the telecom industry, keeping existing customers is more cost-effective than constantly finding new customers.

- By building a model that can spot customers who are at risk of leaving, SyriaTel can take early action — such as offering discounts or improved service — to keep them. This will help reduce churn, increase customer loyalty, and improve profitability.

Data Understanding

- The dataset consists of customer information from SyriaTel, including both numerical and categorical features such as call minutes, charges, number of customer service calls, and subscription plans (like international and voicemail plans)

- The target variable is churn, indicating if a customer left the service, which helps us identify patterns linked to customer dropout.

Class Distribution: No Churn vs Churn
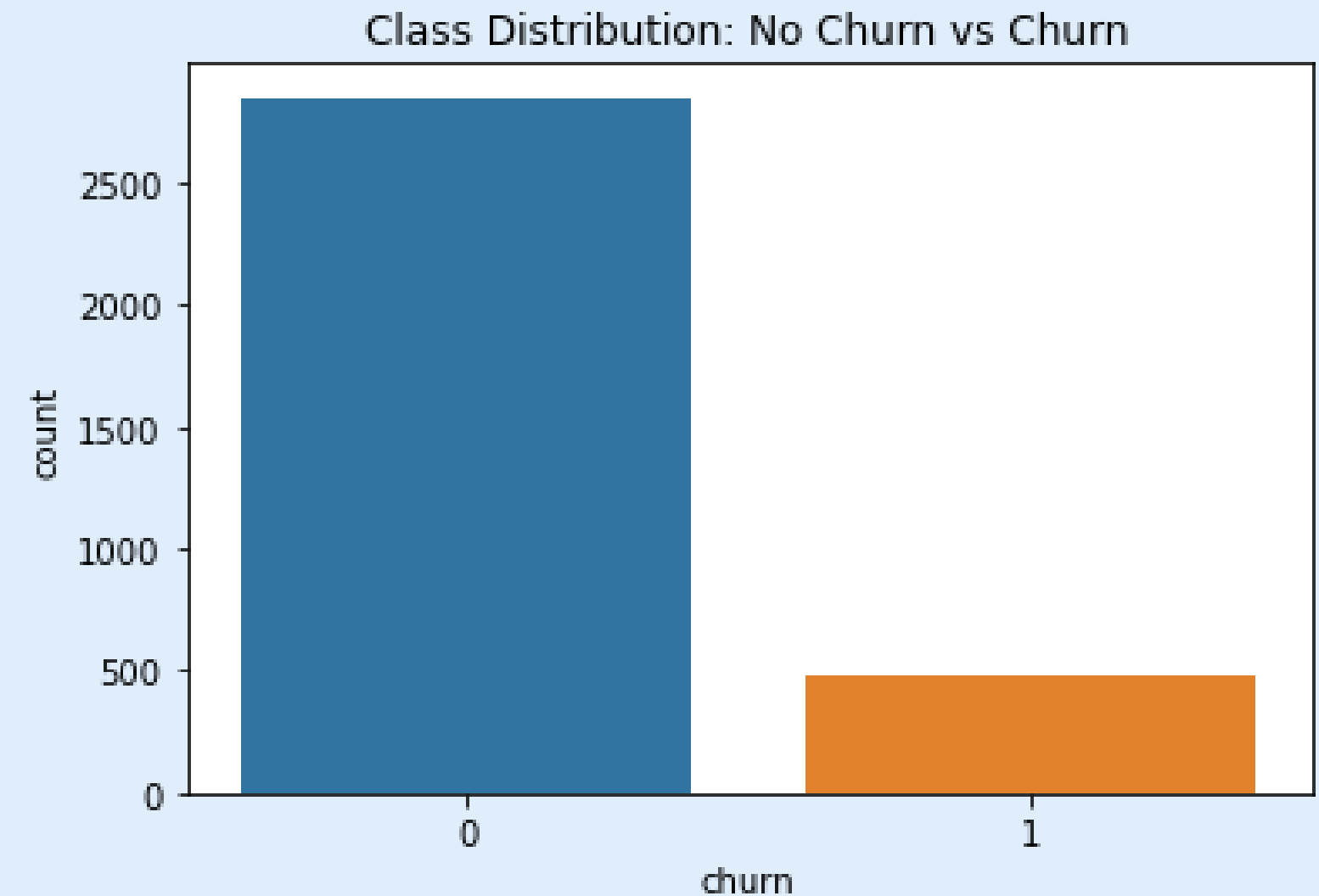
Modelling

I used three models to get the best performing:

- Logistic Regression
- Tuned Decision Trees Classifier
- Gradient Boosting Classifier

Evaluation

Logistic Regression Results

Accuracy = 75%   ROC-AUC score = 0.82

The logistic regression model correctly predicted 75% of cases with good performance of 0.82.

Tuned Decision Trees Results

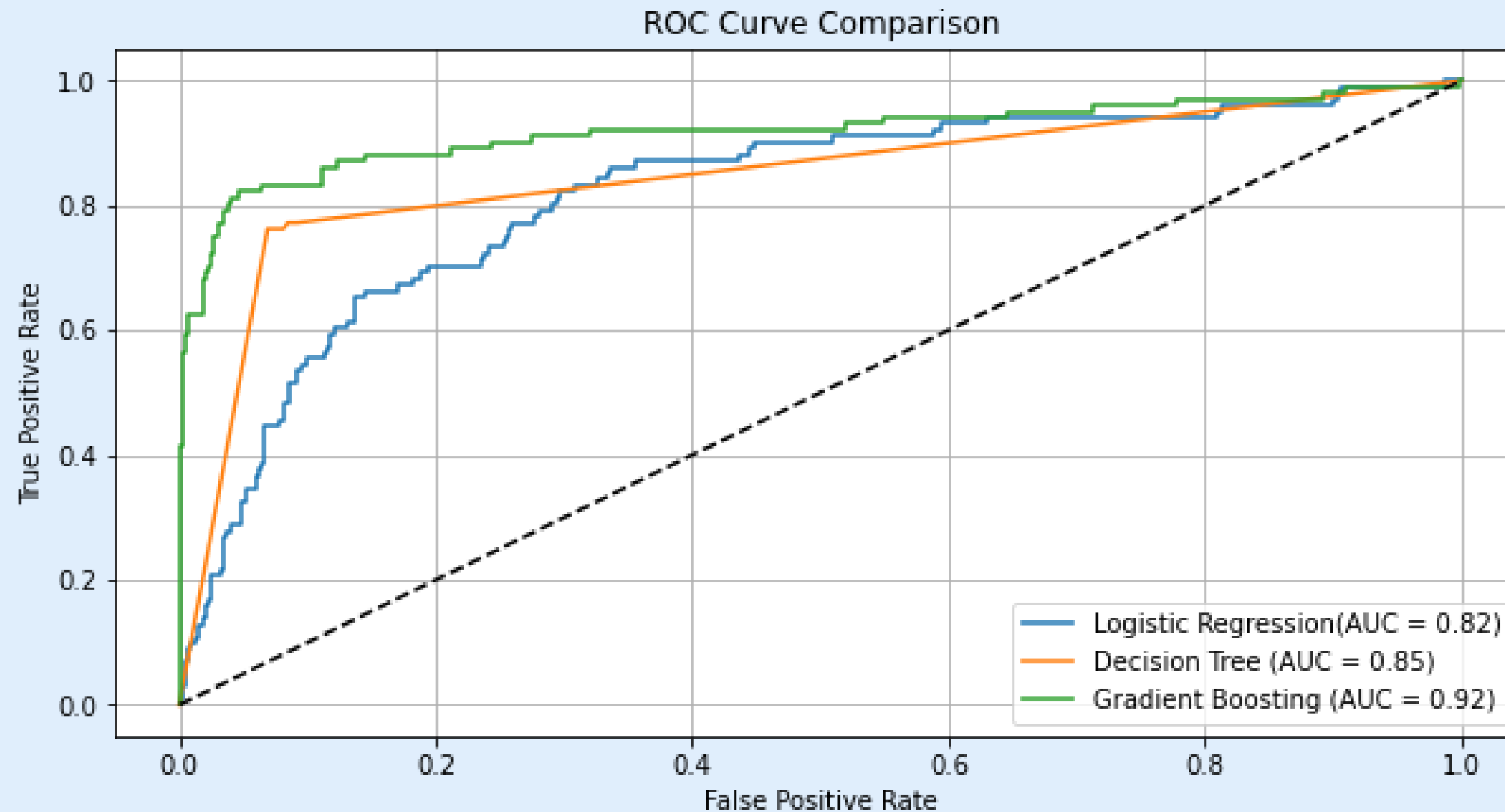Accuracy = 90%   ROC-AUC score = 0.85

The model performed better, reaching 90% accuracy and a score of 0.85.

Gradient Boosting Classifier Results

Accuracy = 92%   ROC-AUC score = 0.92

The model gave the best results, with 92% accuracy and a top performance score of 0.92

Evaluation

The closer the ROC curve is to the top left corner, the better the model's performance.

Recommendations

- **Gradient Boosting** had the best performance and is ideal for accurately identifying customers at risk of leaving.
- Pair Gradient Boosting with a simple model like Logistic Regression to help business teams understand predictions while ensuring strong performance.

Some of the limitations are:

- Model performance may drop if not updated with fresh data.

Recommendations

On the features that affect churn:

- **Focus on Customers with International Plans:** They are more likely to churn—consider offering special deals or improved service to retain them.
- **Enhance Customer Support**: High customer service call volume signals dissatisfaction—invest in faster, more effective support.

Next Steps

- Deploy the Gradient Boosting model in a test environment.
- Collaborate with the customer retention team to design interventions for high-risk customers.

Thank You!

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