SyRIALtEL CUSTOMER CHURN

PHASE 3 PROJECT

INtroduction

- SyrialTel wants to predict customer churn and estimate financial losses.
- Churn affects revenue hence predicting it helps in retention strategies.

Business understanding

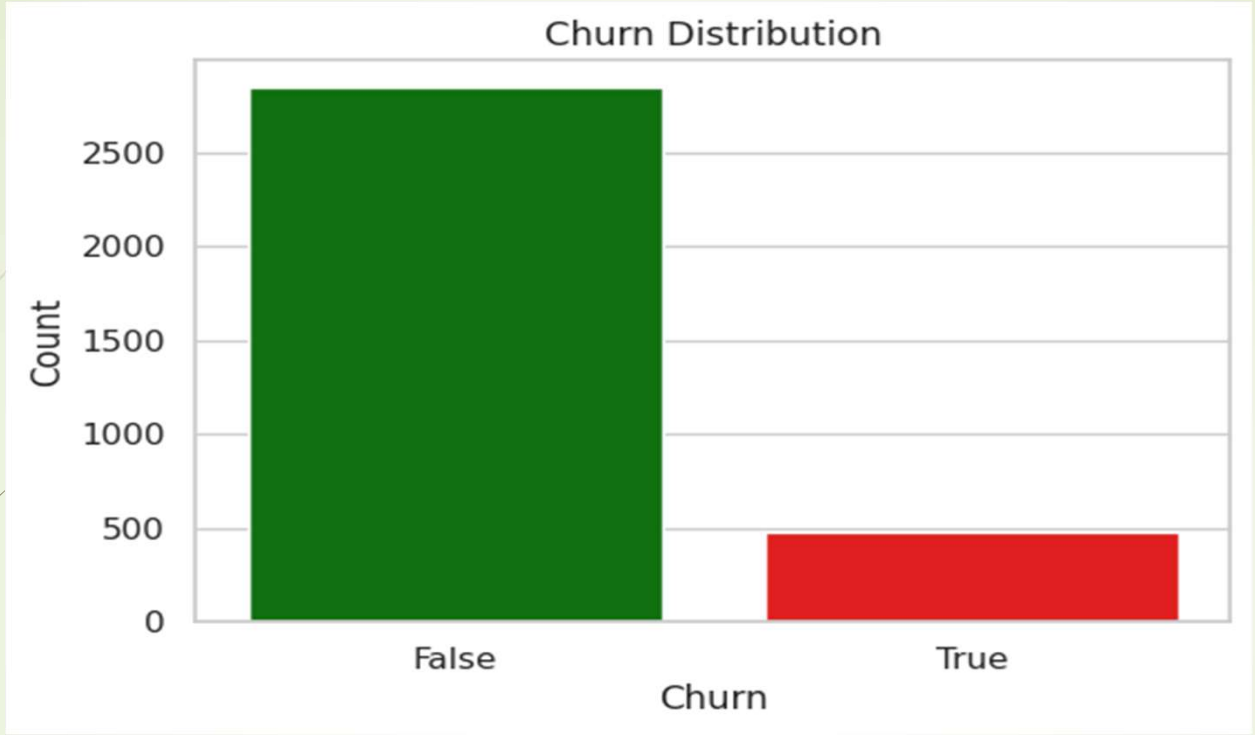
- Churn is when customers stops doing business with a company over a given period of time.
- The thing that can make the customers to leave is poor service, long contracts and pricing issues.
- The Objective is to churn and improve customer retention.

Data preprocessing

- The dataset used is BIGML dataset
- Steps taken:

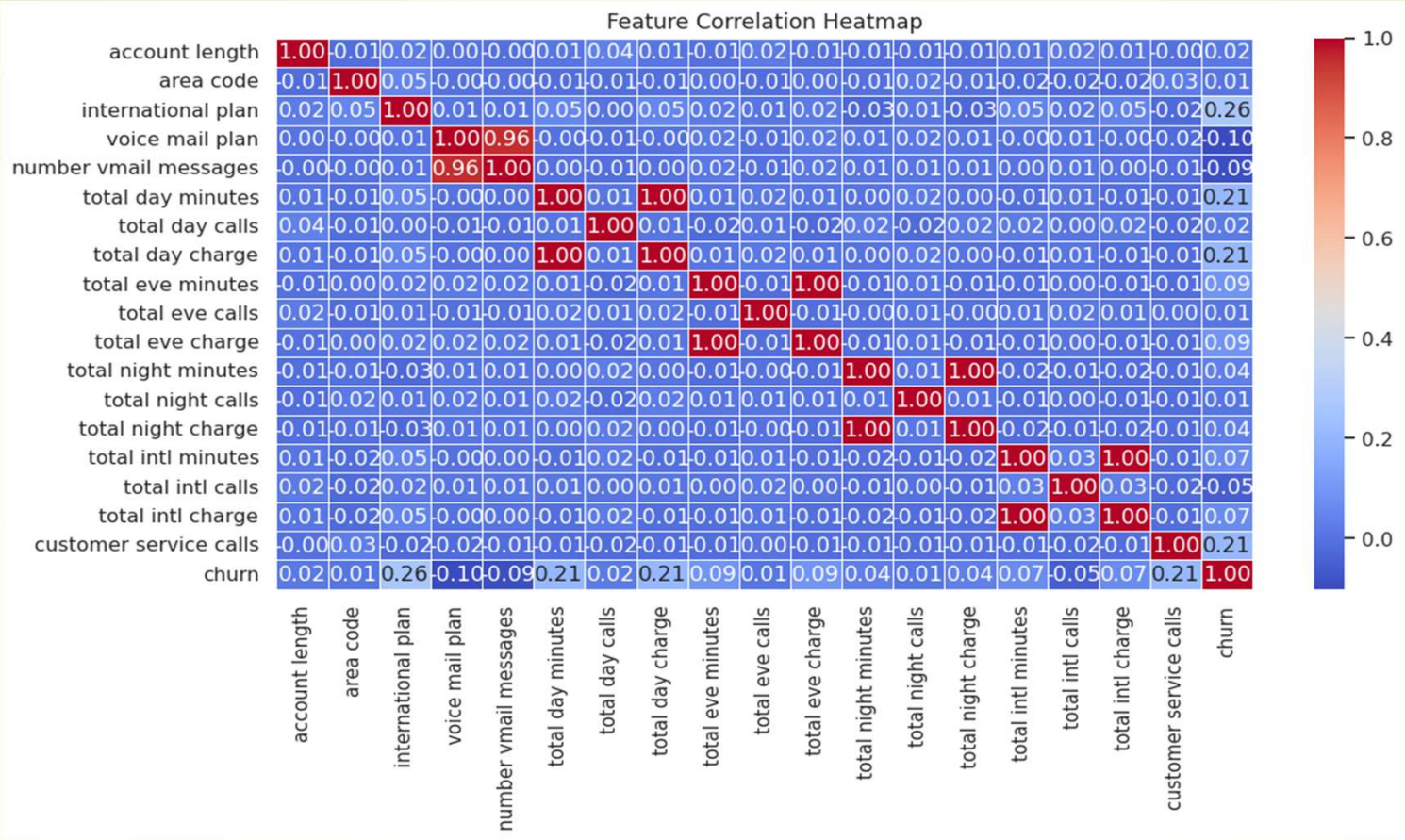
  Handling missing values

  Data cleaning



Churn Distribution

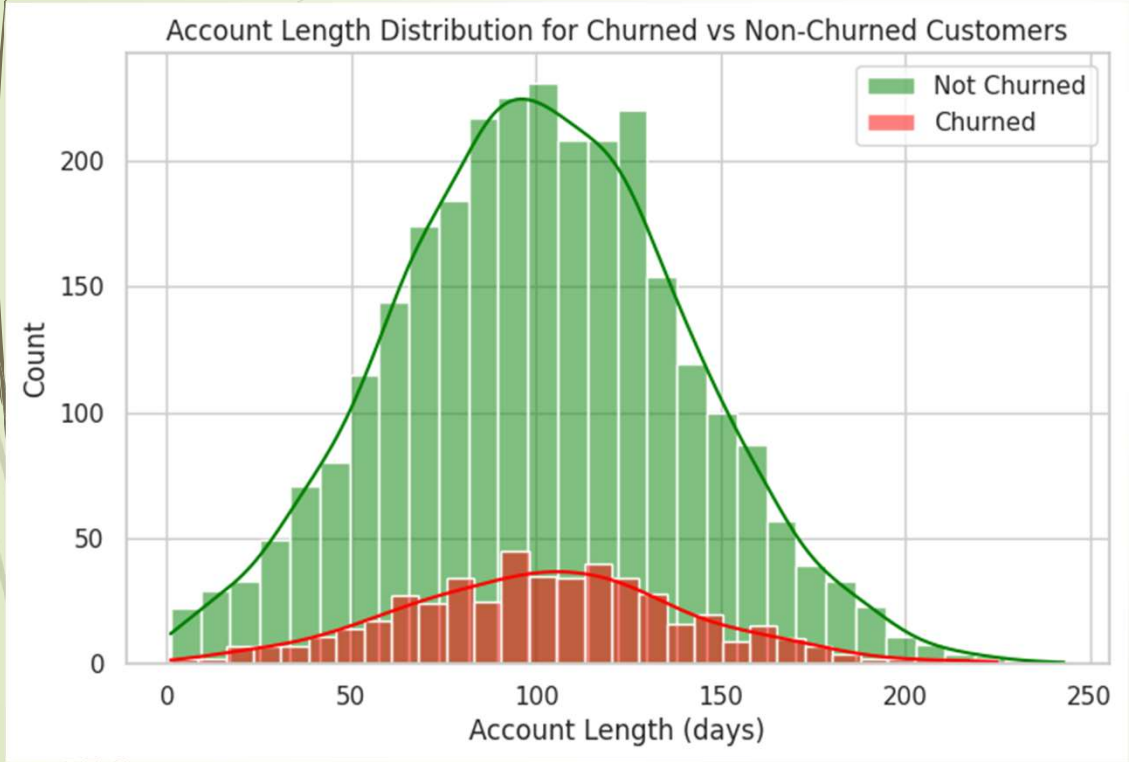
Show imbalance in the dataset.



Correlation Heatmap

Customer service calls churned

Data analysis



Account length vs churn

Longer accounts also churn

Model and performance

- **Models Tested: L**ogistic regression, Decision Tree and K-NN
- **Best Model:** Random Tree with 94% accuracy and 96% precision.
- **Key Metric: Recall =** 74% detects most churners.

	Accuracy	Recall	F1-Score	Precision	Pros	Cons
Logistic Regression	85%	74%	19%	52%	Simple interpretable.	Low f1 meaning the model is not balancing
Random Forest	94%	74%	76%	96%	Easy to intepret	Prone to overfitting
SVM	85%	74%	23%	93%	simple	Imbalanced model
Decision Tree	92%	74%	74%	74%	Easy to interpret	Prone to overfitting
K-NN	86%	74%	34%	59%	simple	Model is not balancing

recommendation

- Improve customer support
- Engage Customers Proactively
- Handle class imbalance.
- Boost model Recall to 80-90%.

cONCLUSION

- Customer service calls are a strong churn indicator.
- Random Tree is the best model.
- Better support and engagement can reduce churn.

- **Next Steps:** Implement retention strategies and Improve predictions.