

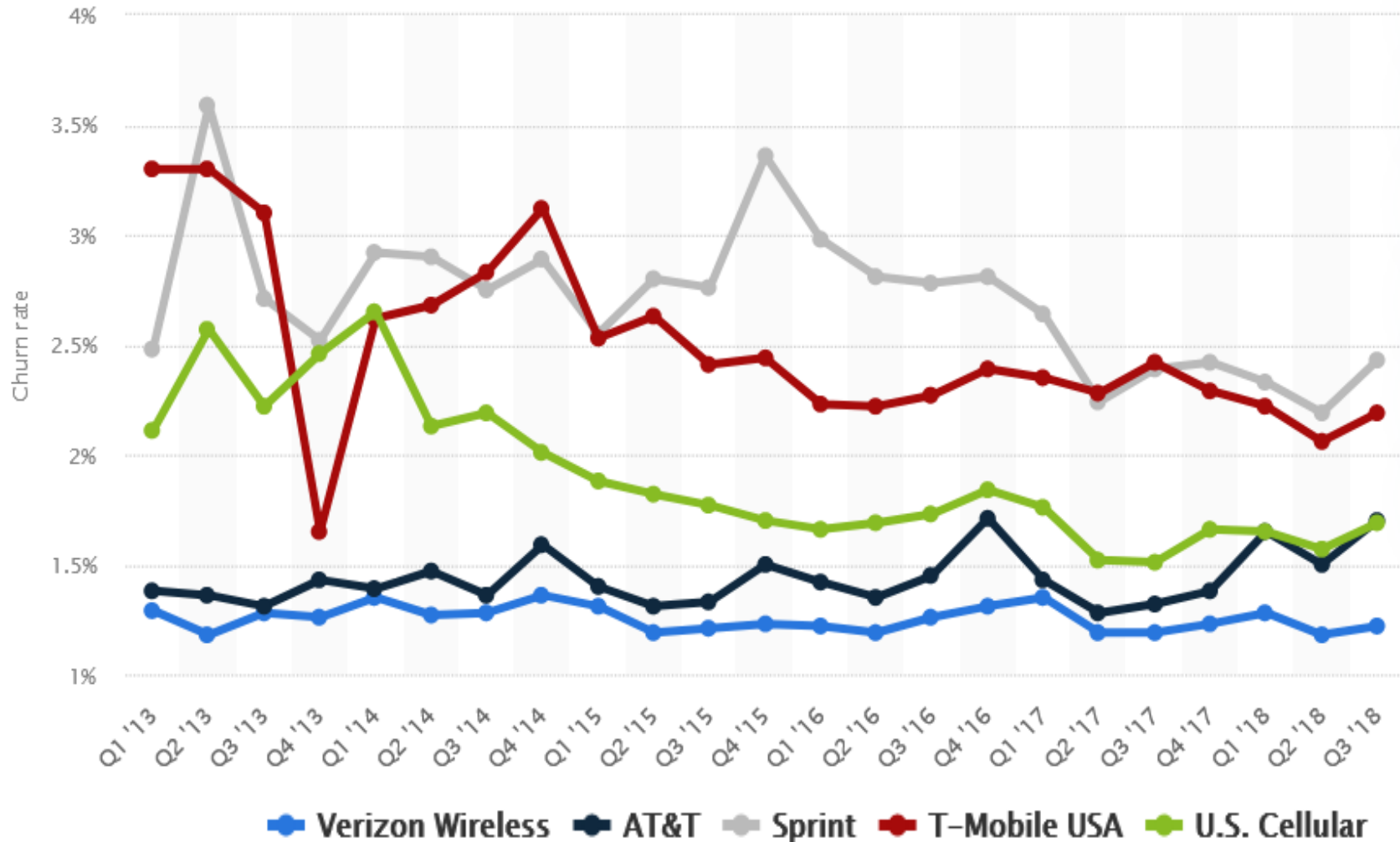


Predicting customer churn at Syriatel

Presenter: Tai Bui

BUSINESS OVERVIEW

Average monthly churn rate for wireless carriers in the United States
from Q1, 2013 to Q3 2018



- The average monthly churn rate for U.S. telecom companies: 1.9% for wireless carriers and around 1.6% for broadband services.
- Costs U.S. telecom companies billions of dollars each year.
- Common causes: pricing, customer service, network performance, etc.

PROJECT OBJECTIVES

- 1. Develop a predictive model to determine churn
- 2. Identify key factors influencing customer churn
- 3. Provide actionable insights to reduce churn



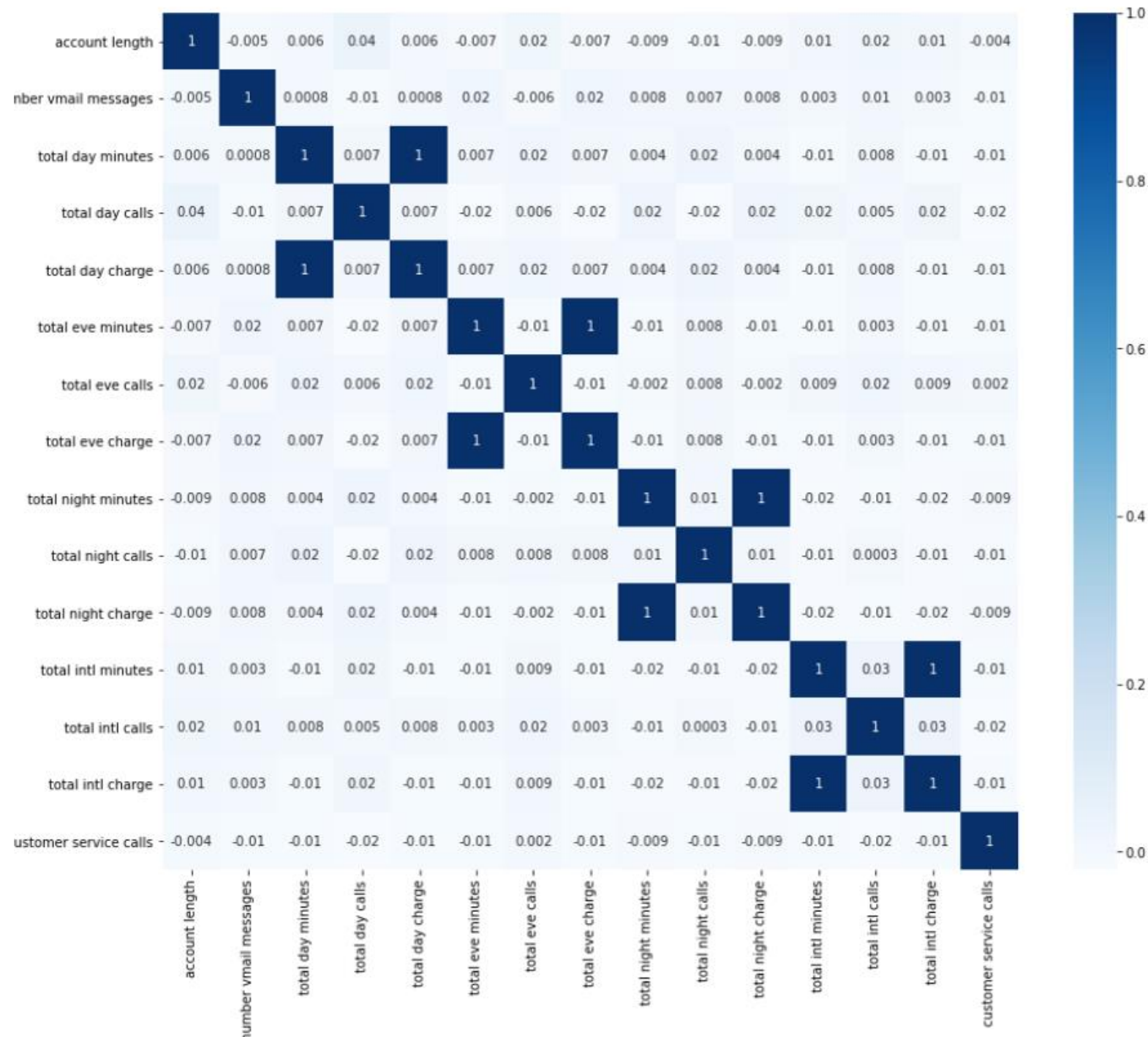


DATA OVERVIEW

- Dataset is provided by the Kaggle community
- 20 predictor variables, 3333 records
- The ratio of churners in this dataset is 14%
- Feature instances (customer usage patterns) such as account length, total day charge, customer service call, etc.

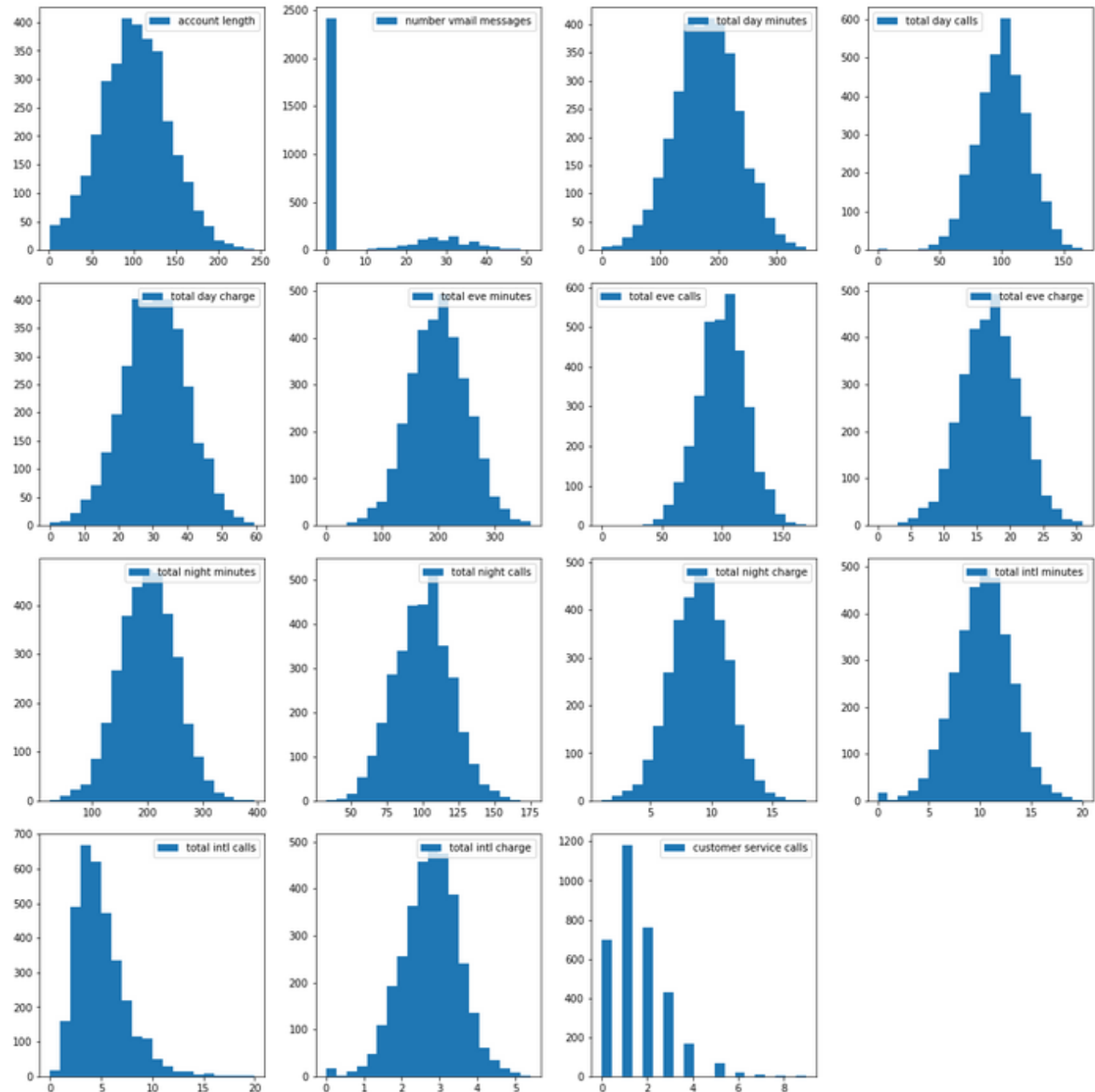
PREPROCESSING

Remove multicollinearity by dropping columns with perfect correlations



PREPROCESSING

- Apply one-hot encoding for categorical features
- Train – test split with test size set at 25% and validation split at 15% of test size
- Normalize both train and test separately with Standard Scaler for numerical features
- Using SMOTE library to reduce data imbalance



LOGISTIC REGRESSION

Without any regularization, achieve

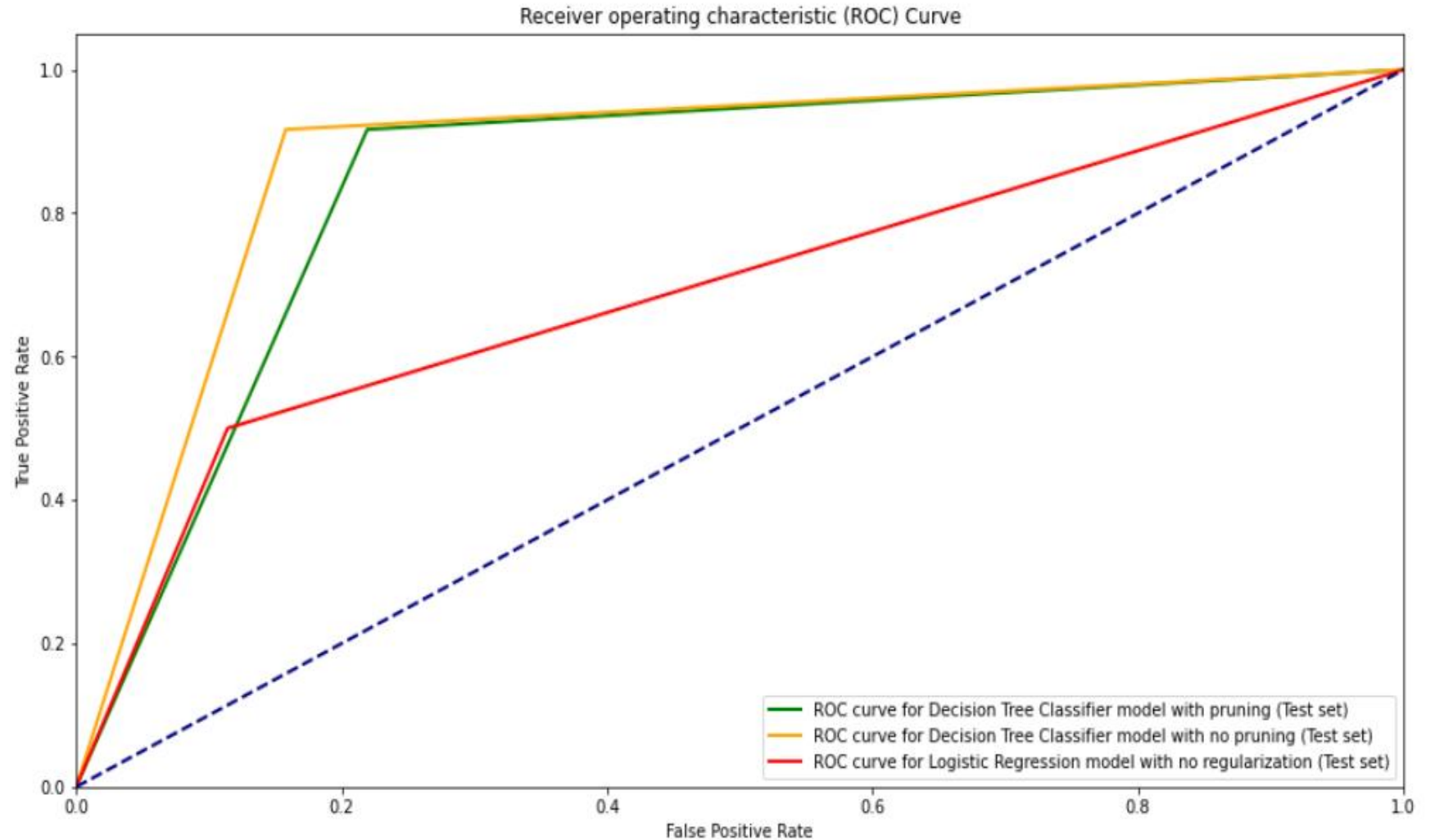
- 44.89% recall rate
- AUC ROC is 0.81.



DECISION TREE CLASSIFICATION

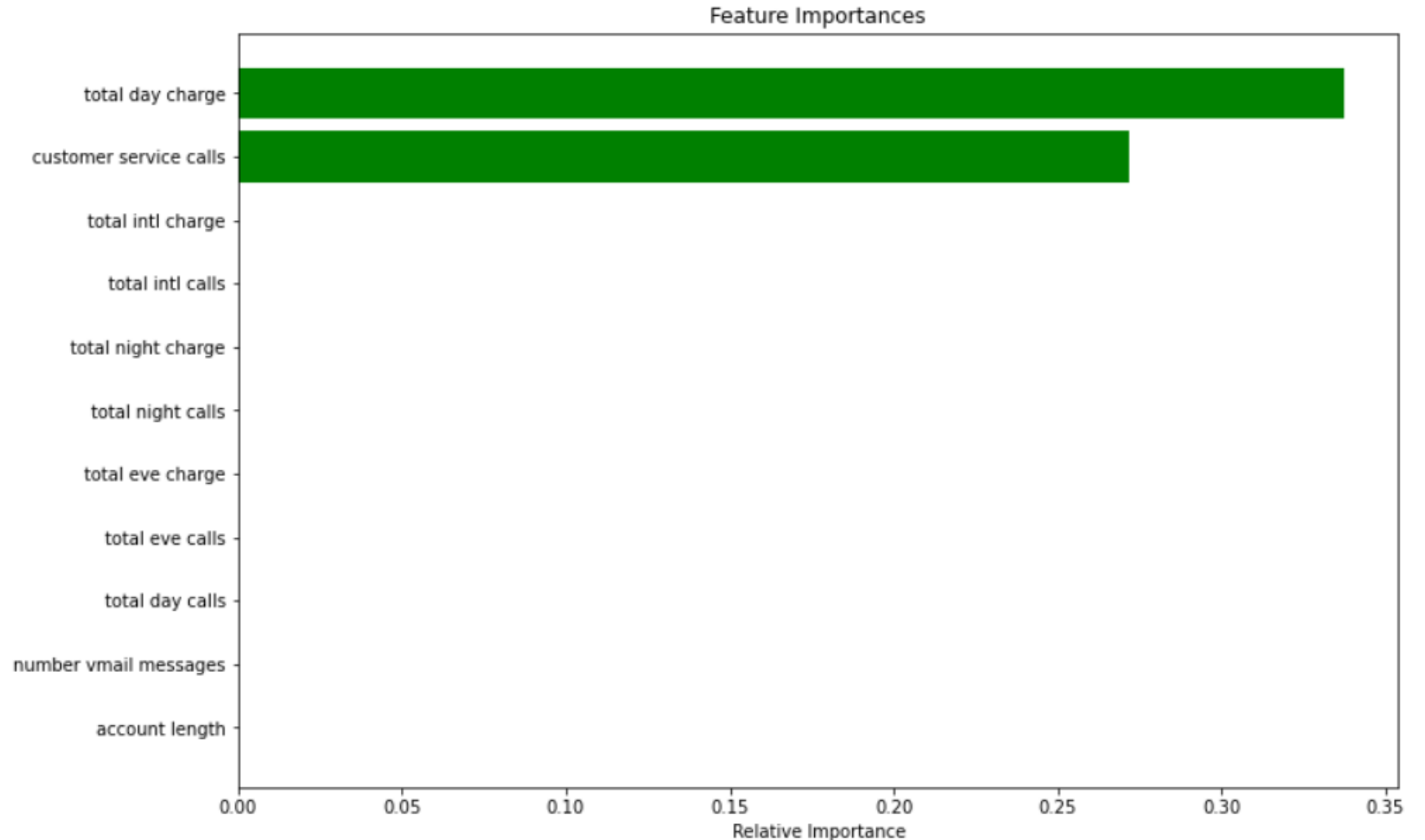
Final model with
max_depth = 3 and
min_sample_splits = 0.2

- 87.13% recall rate for test set and 91.66% for validation set
- AUC ROC is 0.84



RECOMMENDATIONS

- Reduce charges for day calls with campaigns or customer loyalty programs
- Improve customer service by reducing waiting times and providing extensive training





Thank you

Please send all questions to:
taingocbui@gmail.com

Contact:
<https://www.linkedin.com/in/tai-bui-ngoc/>