TELECOM CUSTOMER CHURN

By Elena Burlando

SUMMARY

Objective:

to analyze Telecom Customer data in order to gain insights on what is contributing to customer churn.

Projected Outcome:

Factors contributing to customer churn

Recommendations on preventive churn measures

OUTLINE

BUSINESS PROBLEM

DATA AND METHODS

RESULTS

CONCLUSIONS

BUSINESS PROBLEM

14.5% CUSTOMER CHURN

COMPETITION

LACK OF BUSINESS KNOWLEDGE

DATA & METHODS

DATA

21 columns (including the target column)

3,333 rows of data entries.

DATA SOURCES:

Telecom Churn Data

FEATURES

Features created:

'Total minutes', 'Total calls', 'Total charges', and Daily Averages in used minutes, calls, and charge.

CLASSIFIERS

Decision Tree, Random Forest, and Logistic Regression were used to calculate a model to predict whether a customer will churn.

Absolute Feature Average Impact on Model

Features contributing to model output:

- **Total charges**
- **Customer service calls**
- **International plan**
- **Total international calls**
- **Voice mail plan**
- **Number vmail messages**
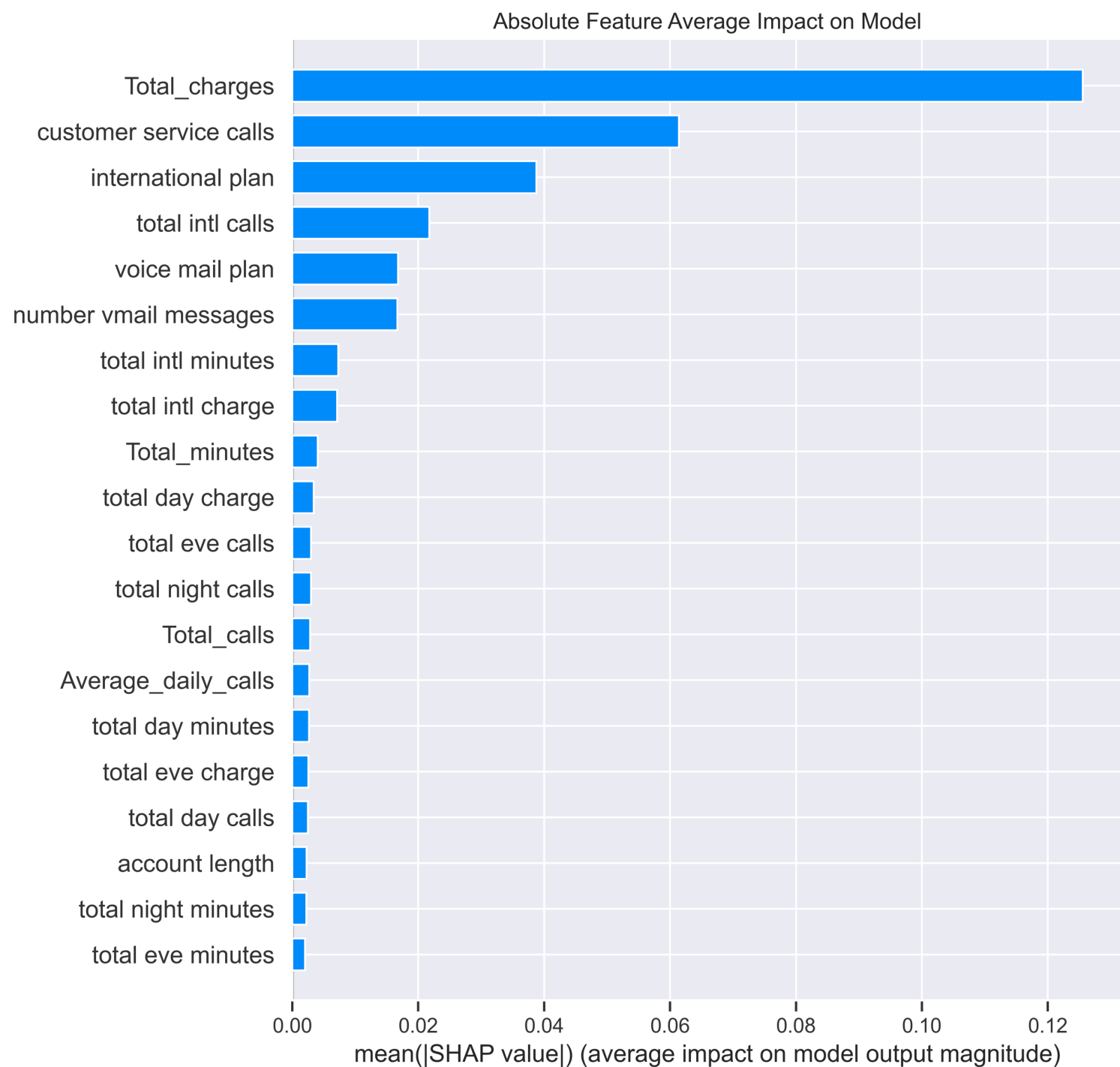
Global Importance of Each Feature: Violin Plot
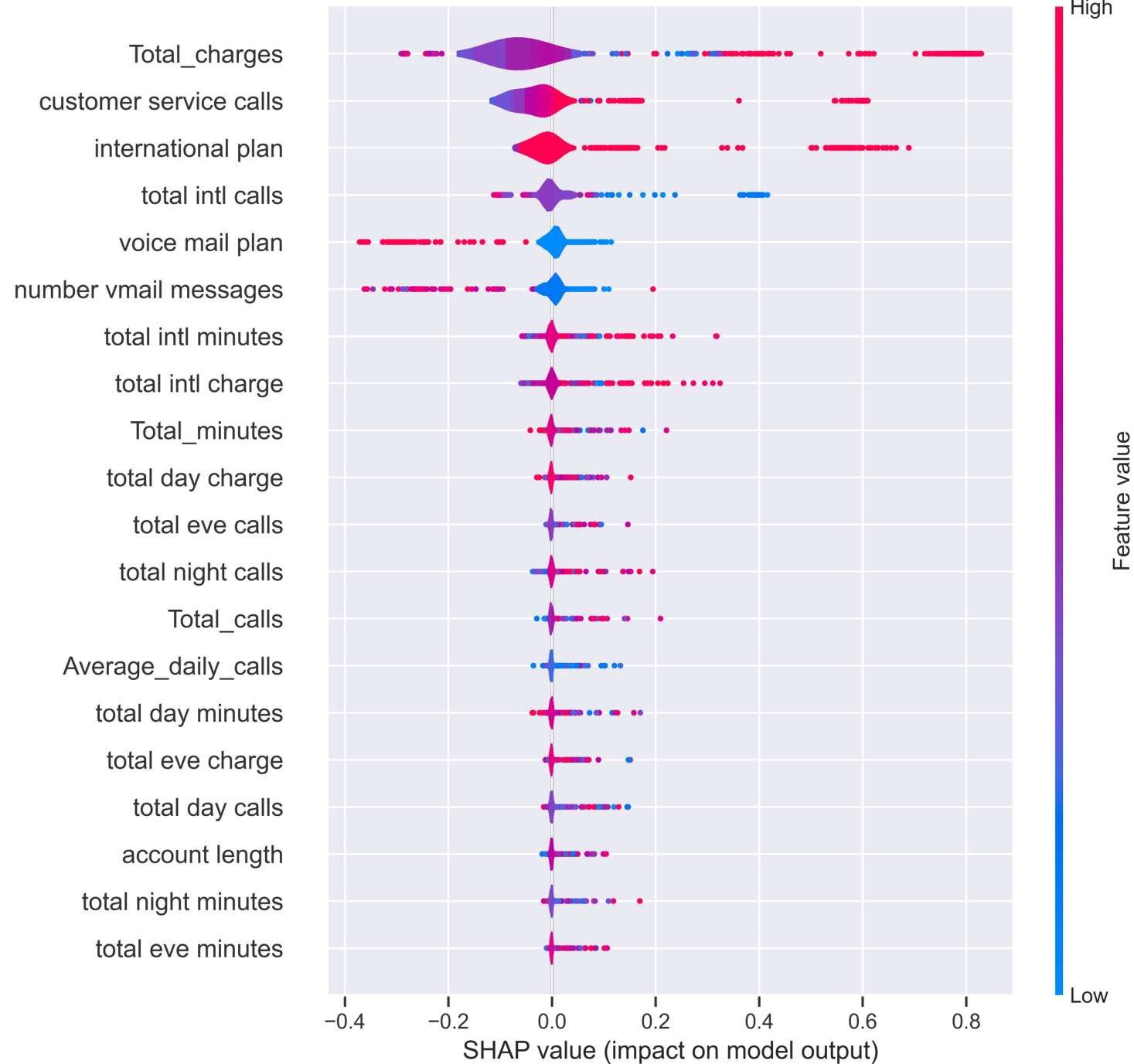
Insights from Global Importance of SHAP values:

High 'Total_charges' have a high positive impact on model.

Customer service calls have positive moderate to high impact.

Having international plan have positive low to high impact.

Low # of intl calls has positive moderate impact on model.

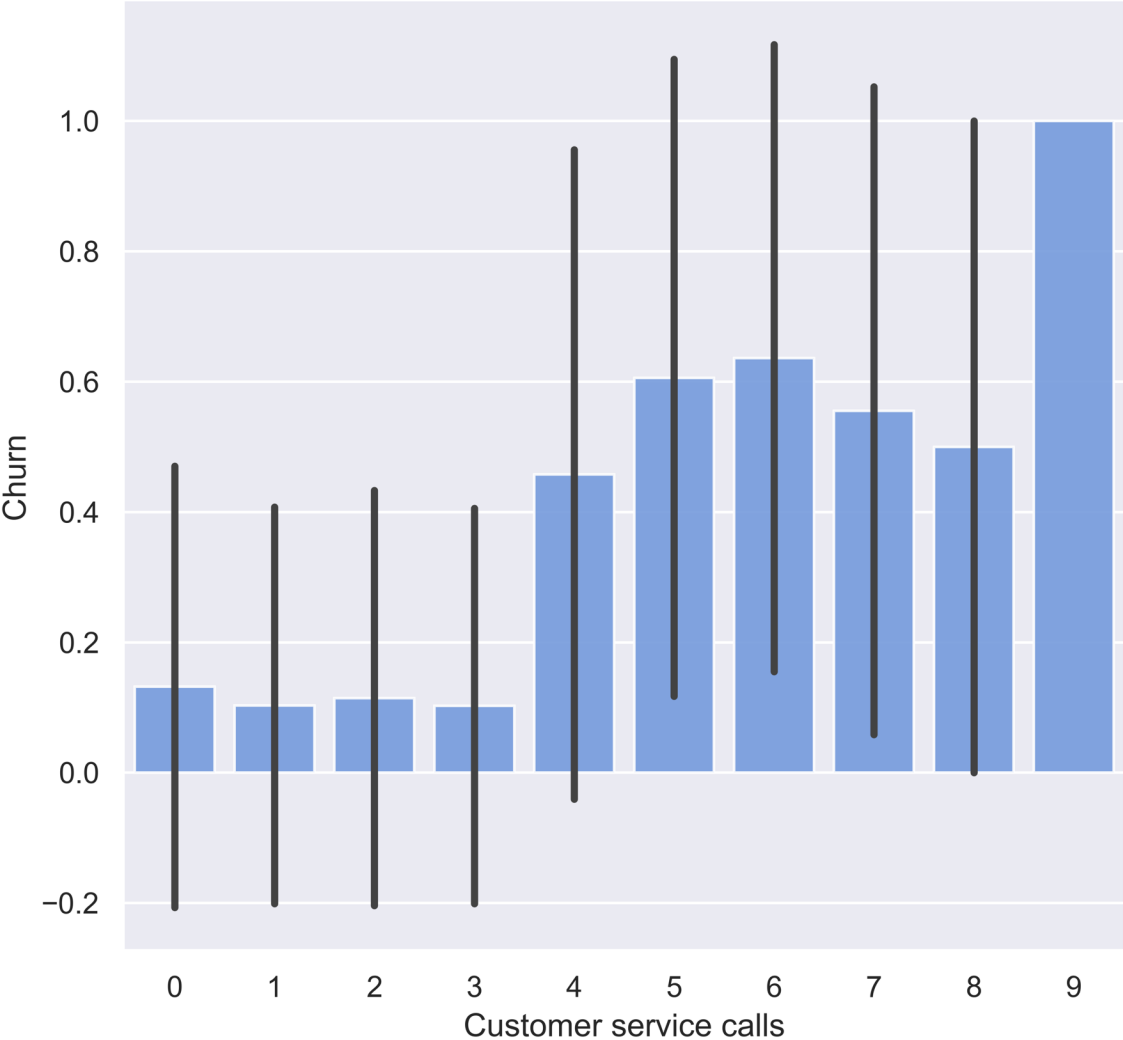High total of intl minutes has positive medium impact.

High number of voice messages has low to moderate negative impact.

Having voice mail plan has negative low moderate effect.

High charges lead to high probability
of customer churn.

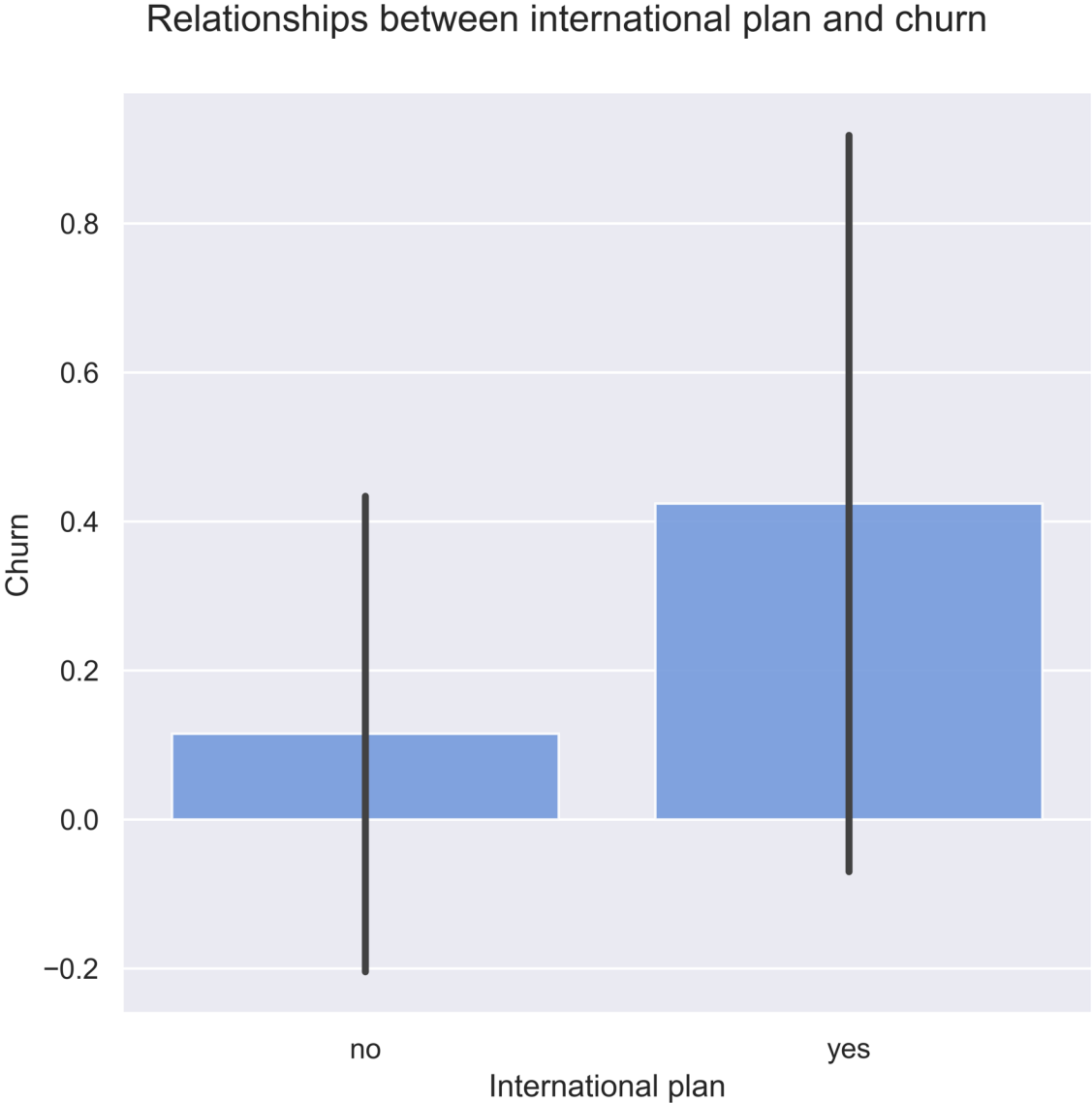Relationships between Total_charges and churn
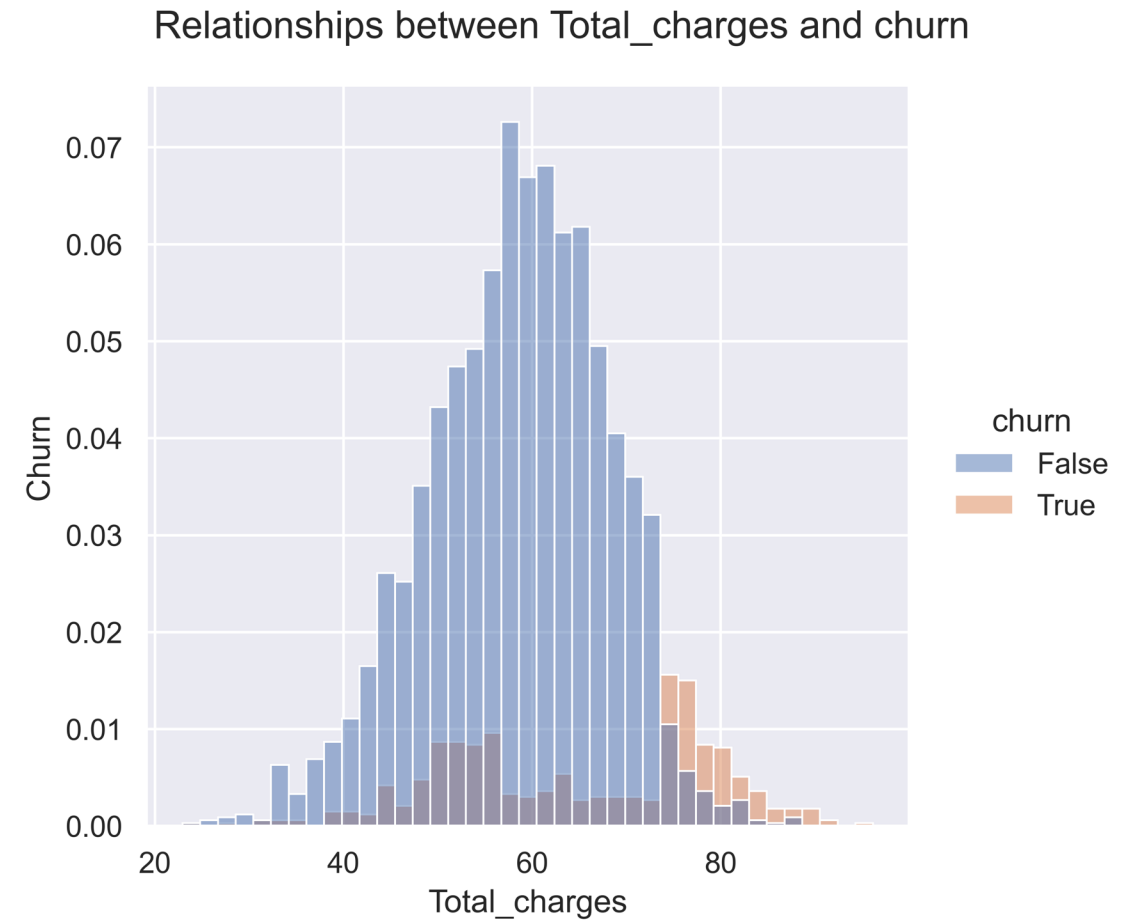
Relationships between customer service calls and churn

4+ customer service calls lead to moderate to high likelihood of churn regardless if total charges are low or high.

Relationships between international plan and churn

Customers with current international plans and low international calls are more likely to churn.

Relationships between voice mail plan and churn
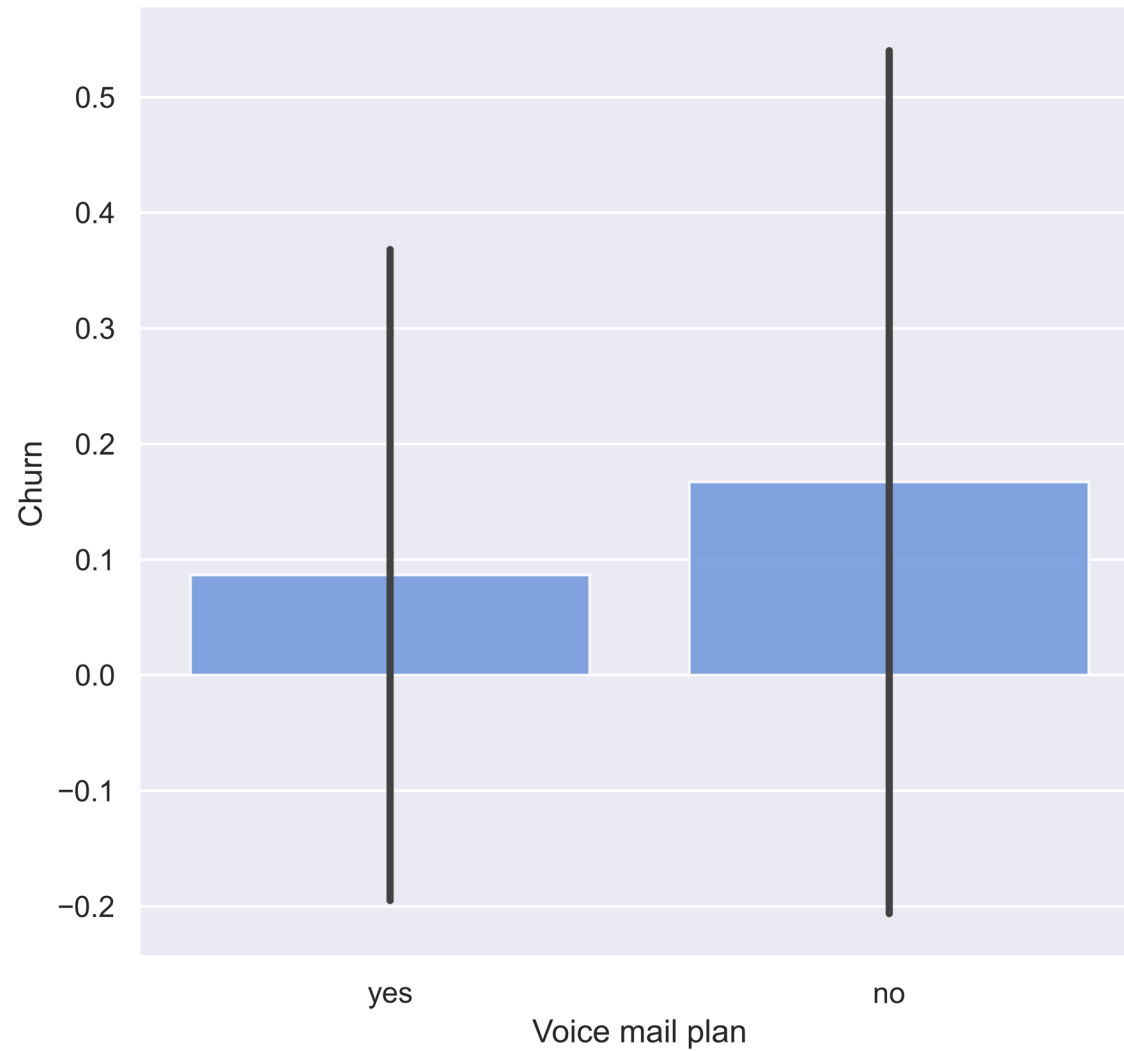
Clients without voice mail plan are 10% more likely to churn vs those with one.

BUSINESS RECOMMENDATIONS

TOTAL CHARGES:

Offer package plans for users with high usage. On a current plan high usage leads to high charges which are highly correlated with churn.

CUSTOMER SERVICE CALLS:

Improve customer service call experience by looking closely into customer service call support to gain a more granular understanding on what is driving customers to churn.

VOICE MAIL:

Offer voice mail plan. Clients without voice mail plan are 10% more likely to churn vs those with one.

INTERNATIONAL PLAN:

Offer different international plans based on usage: low, medium, high. Customers with current international plans and low international calls are more likely to churn.

NEXT STEPS

- To gain a better understanding of the Telecom plans through business stakeholders.

- Obtain more break down data on customer service calls such as waiting time, whether a customer issue has been resolved, what are the issues that customers called for, etc.

- To compare Telecom's pricing structure and plans with competitors.

Thank you!

Link to notebook