Understanding and Reducing Customer Churn at Zencom

Leveraging Data to Improve Customer Retention

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01 Introduction

Zencom, a leading telecom company offering mobile, internet, and landline services, is facing a rising customer churn rate. To address this, Zencom seeks to identify the causes and develop strategies to retain its customers.

02 Problem statement

Problem statement

Zencom wants to analyze the churn rate among its customers over a period to identify the key factors that influence churn behavior. The company aims to develop actionable insights to reduce churn and improve customer retention.

Key Objectives

- Analyze historical churn data to identify trends and patterns.
- Identify demographic or behavioral factors associated with higher churn rates.
- Build predictive models to forecast future churn and prioritize at-risk customers.

03 Methodology

Data

Data used was from kaggle
Churn in Telecom's dataset (kaggle.com)

Data analysis

- Explore data to uncover trends and patterns.
- Use visualizations to identify correlations and insights.

Model Building

- Split data into training and test sets.
- Apply various classification models to identify the best model to predict churn.

Model Evaluation

Assess model performance using metrics:- Accuracy, Recall, Precision and F1 Score

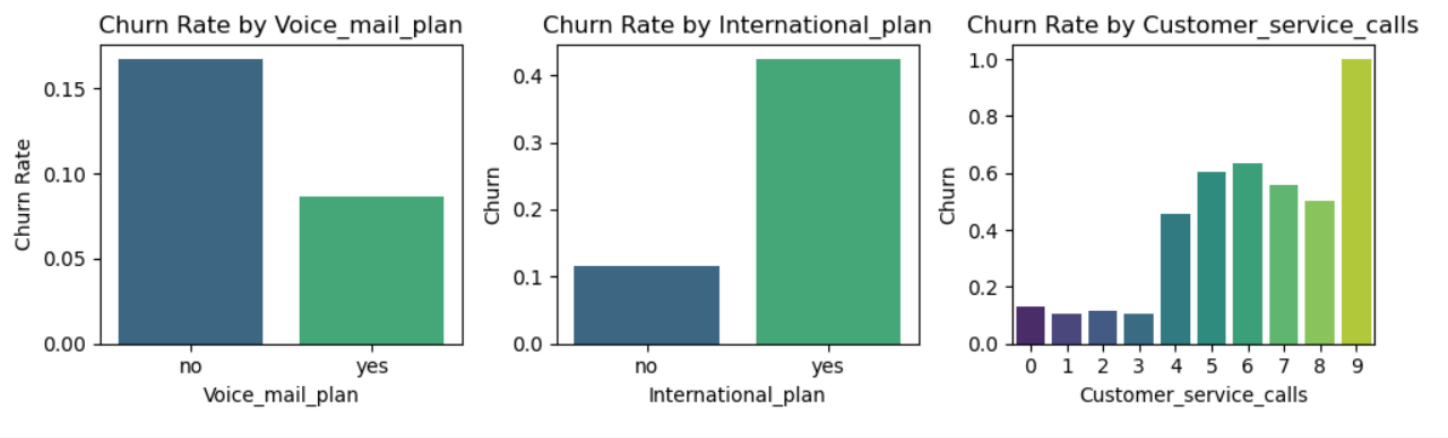
04 Results

Data analysis

- The data set was check for missing records and duplicates.
- The data was then visualised to understand the various relationship that exist amoungs the features.
- A correlation matrix was generated and visualised to enable select the fetures that have a high correlation with whether the customer stays or leaves.

Results cont.

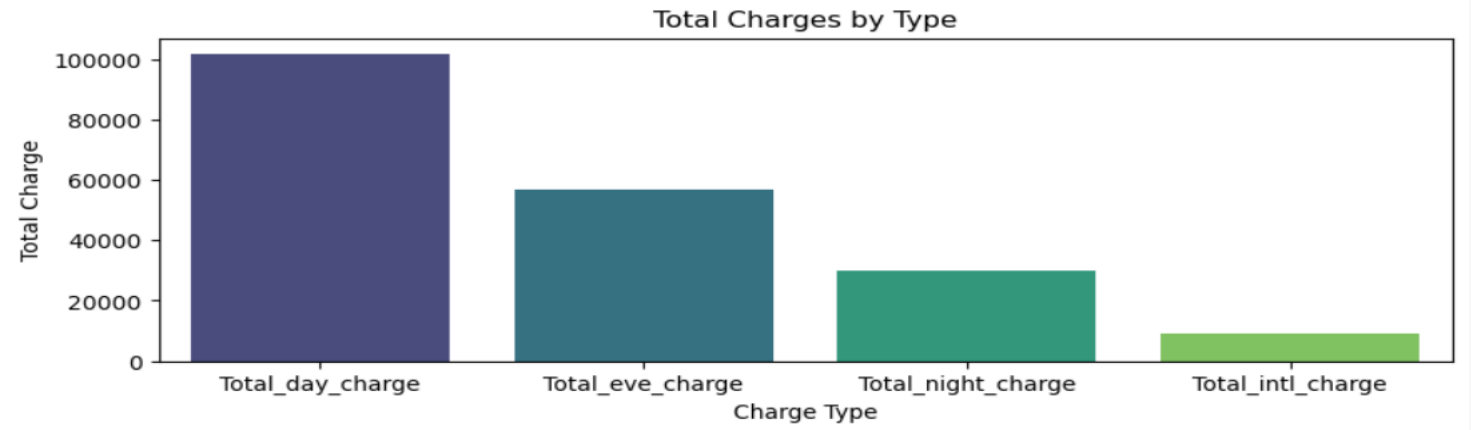
Visualisations



From the analysis of the customer care call, as the number of calls increases the churn rate also increases. Customers who had international plan had a high churn rate as compared to those who do not have.

Results cont.

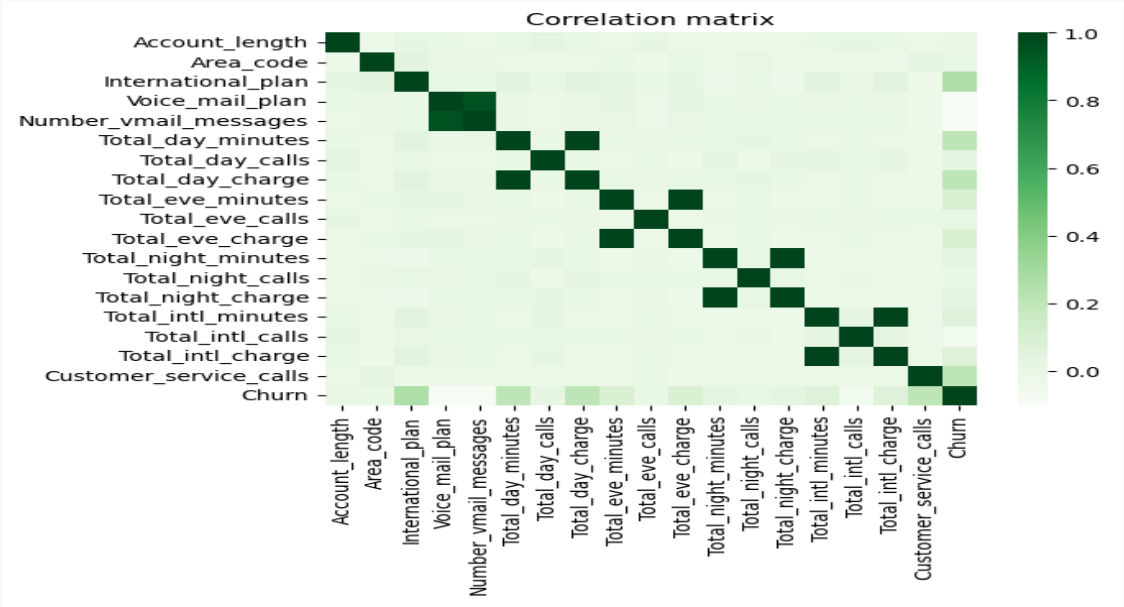
Visualisations



From the analysis Zencom generates most of its income from day calls and the least income is from international calls.

Results cont.

Visualisations



From the correlation hit map the features that have a relative high correlation to the churn rate are :-

- International plan,
- Total day minutes,
- Total eve minutes,
- Total night minutes,
- Total international minutes,
- Customer service calls

Results cont.

14.49%

The current Churn rate for Zencom is 14%. This is relatively high.

Results cont.

Key Model Metrics

Four models were fitted i.e.. Logistic regression, Decision tree classifier, Kneighbor classifier and a random forest classifier.
The Random Forest classifier achieved the highest accuracy among the four models. It also had a high precision, indicating a low false positive rate, and a relatively higher recall compared to the other models, suggesting better performance in identifying positive cases. The F1 score is also the highest, indicating a good balance between precision and recall.
Below is a summary of the results.

- **Accuracy**: 90%
  90% of predictions are correct
- **Recall**: 47.9%
  Identifies actual churn cases
- **Precision**: 76.4%
  Correctly predicted churn cases out of all predicted churn cases
- **F1 Score**: 58.1%
  Balances recall and precision

05 Conclusion

These predictors provide valuable insights into customer behavior, usage patterns, and potential pain points that may contribute to churn. Zencom should take proactive measures to retain customers, such as

- Targeted marketing campaigns,
- Personalized offers,
- Improving customer service experiences.

Thank You