Telcom Churn Prediction

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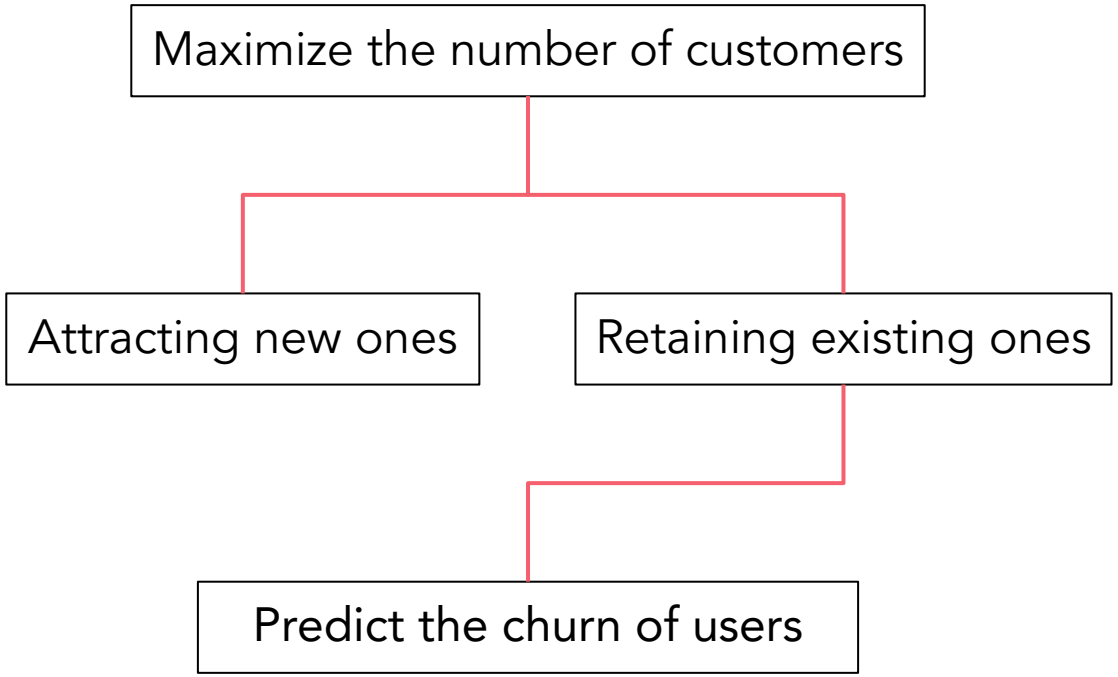
Client Background | Why

Telecom Sector

Customer churn

- The average churn rate 1.9% per month (67% annually prepaid services)
- Cost of acquiring new customers 25 times higher -> cost of retaining them

Objectives | How



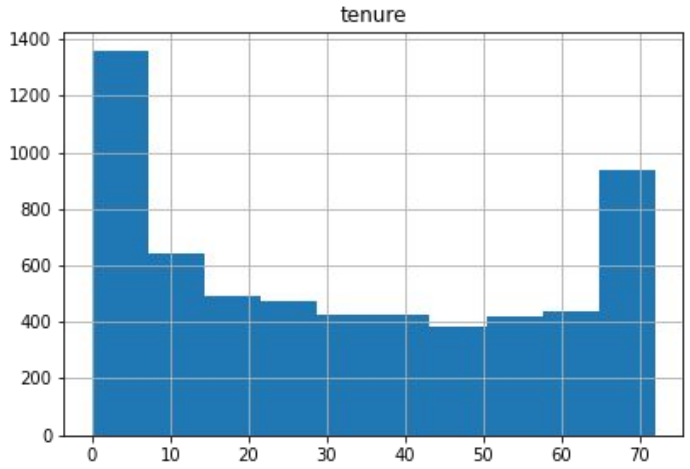

Data

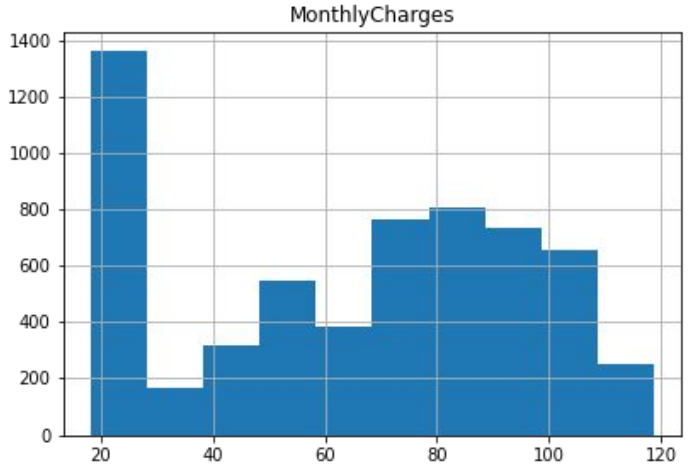
Data | Features

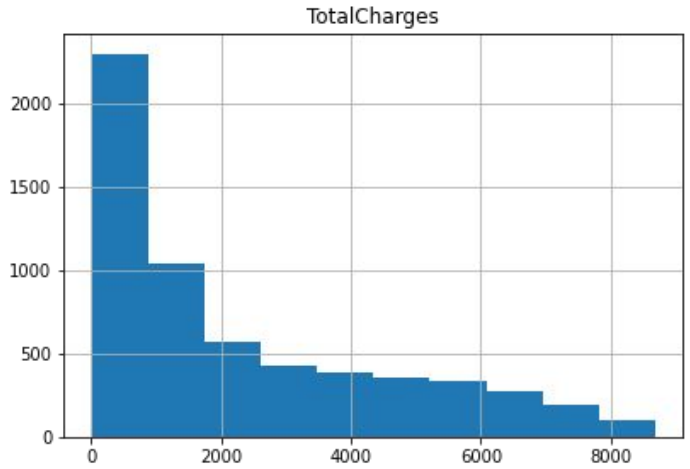
Partner	Tenure	Multiple Lines	Internet Service
Contract	Payment Method	Monthly Charges	Total Charges

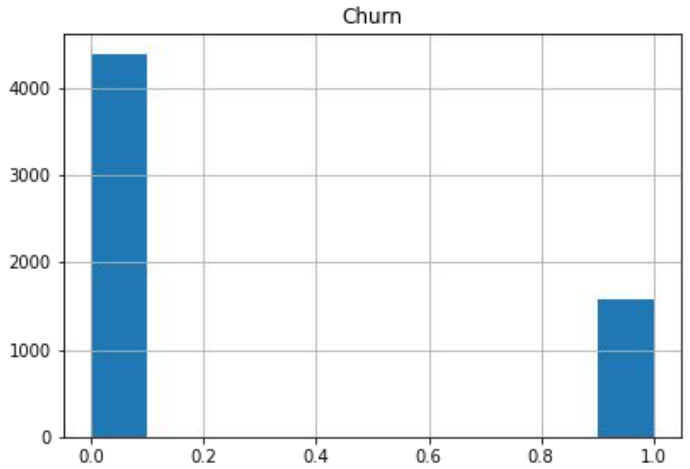
Senior Citizen, Gender, Phone Service, Online Security, Online Backup, Device Protection, TechSupport, Streaming TV, Streaming Movies, Paperless Billing

Data | Distribution





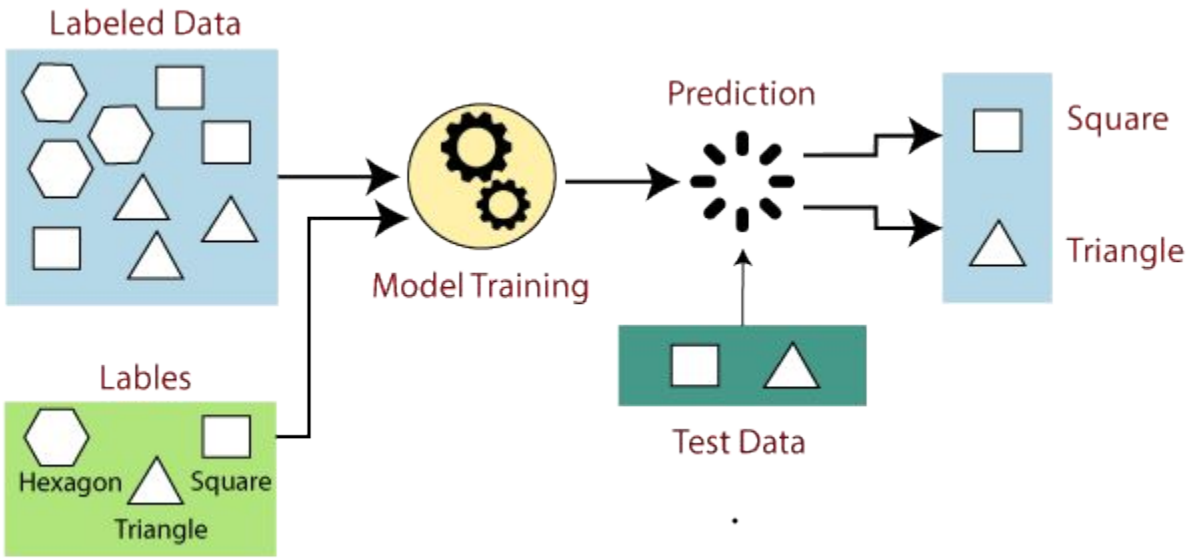




Methodology

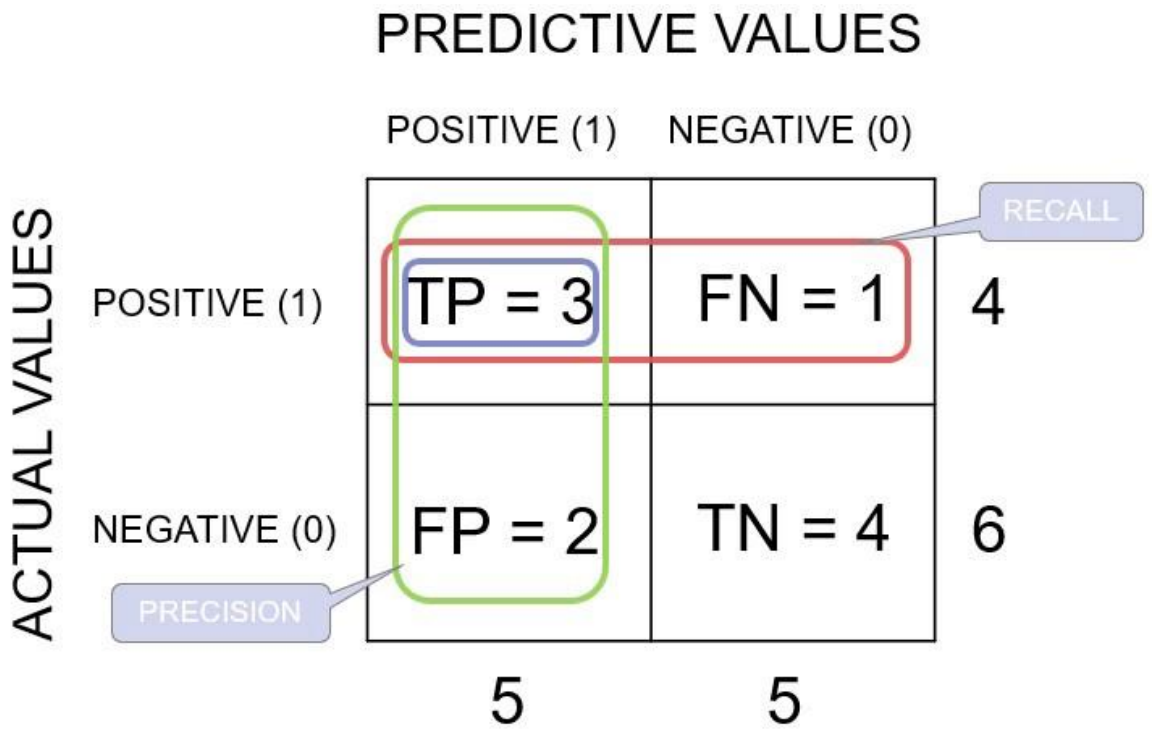
Methodology | Supervised Machine Learning Algorithm

- Supervised Machine Learning Algorithm: we had historical data about the churn
- Binary classification model: churn Yes/ No
- Training of different classification models



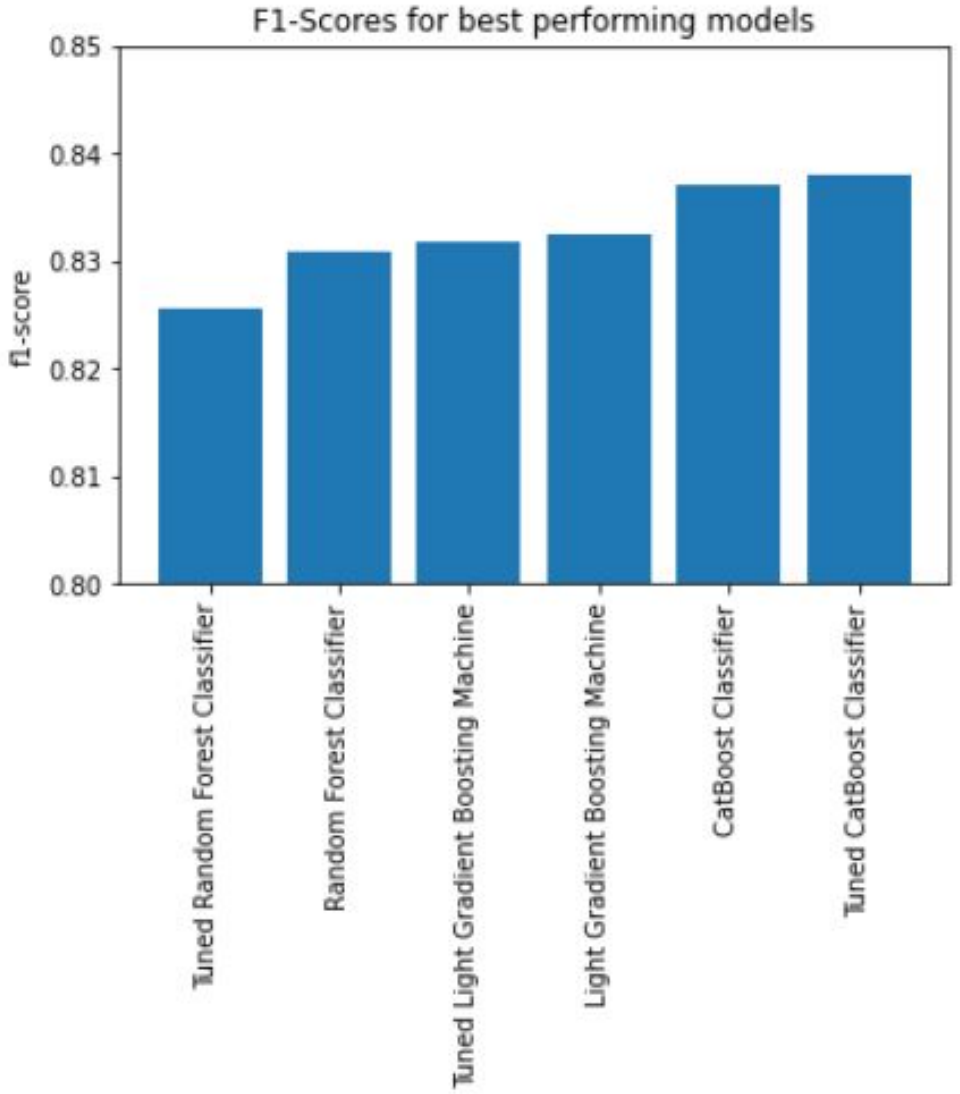
Methodology | Metric

- Model Selection based on the highest performance
- Performance Measure F1: combination of Recall and Precision
- Confusion Matrix: Recall vs. Prediction



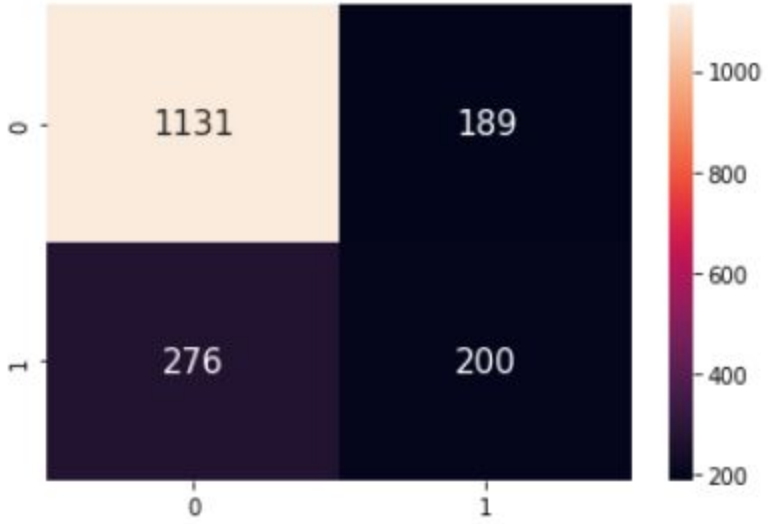
Methodology | Models

- Classification models: Cat Boost Classifier, Light Gradient Boost Machine, Random Forest Classifier
- Technical information about the models and tuning process: see GitHub repository [Telecom_Churn_Prediction]
- Comparison of the model performances



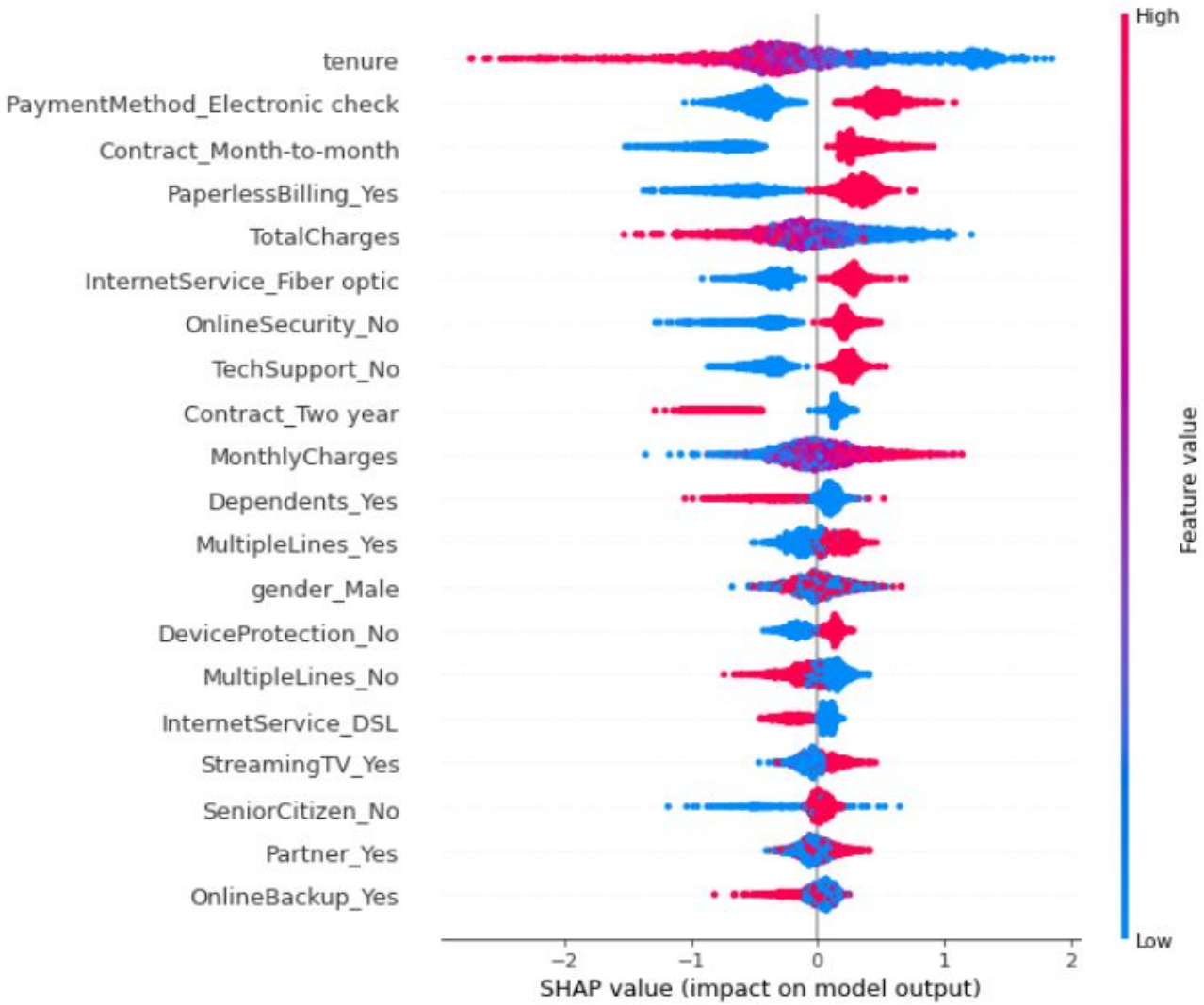
Methodology | Final Model

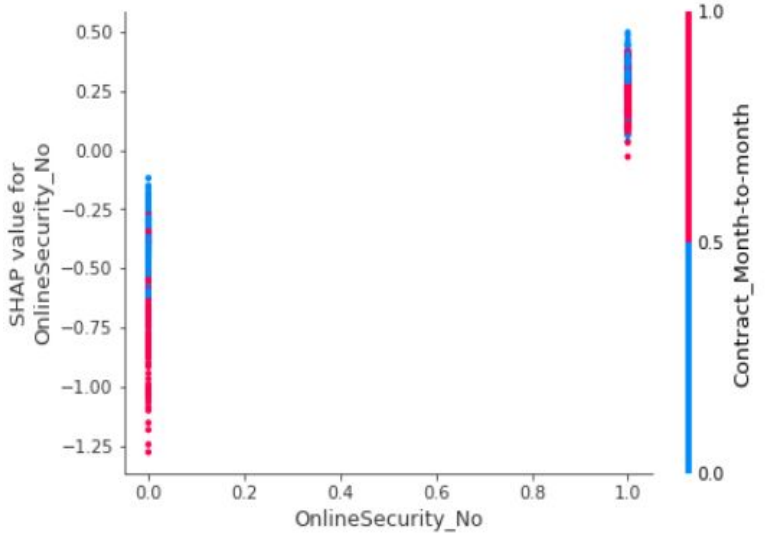
- Best performing model: Tuned Cat Boost Classifier Model
- F1: 0.8380
- Recall: 0.8568
- Precision: 0.8038

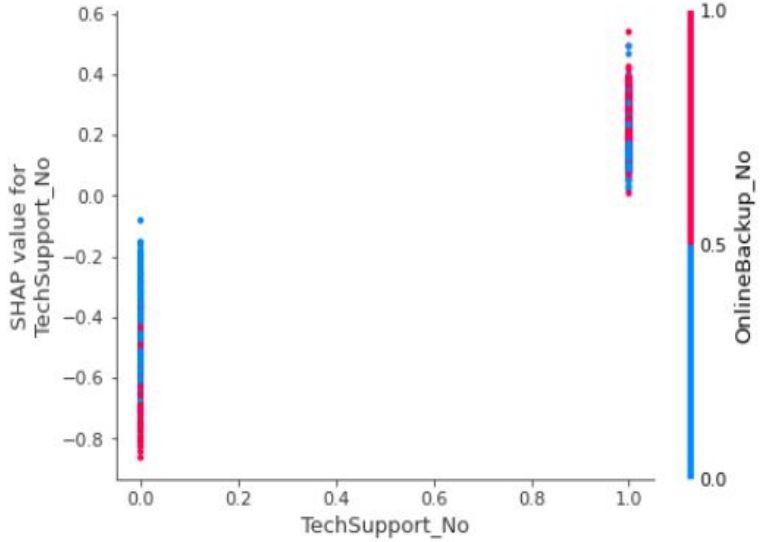



Predictions

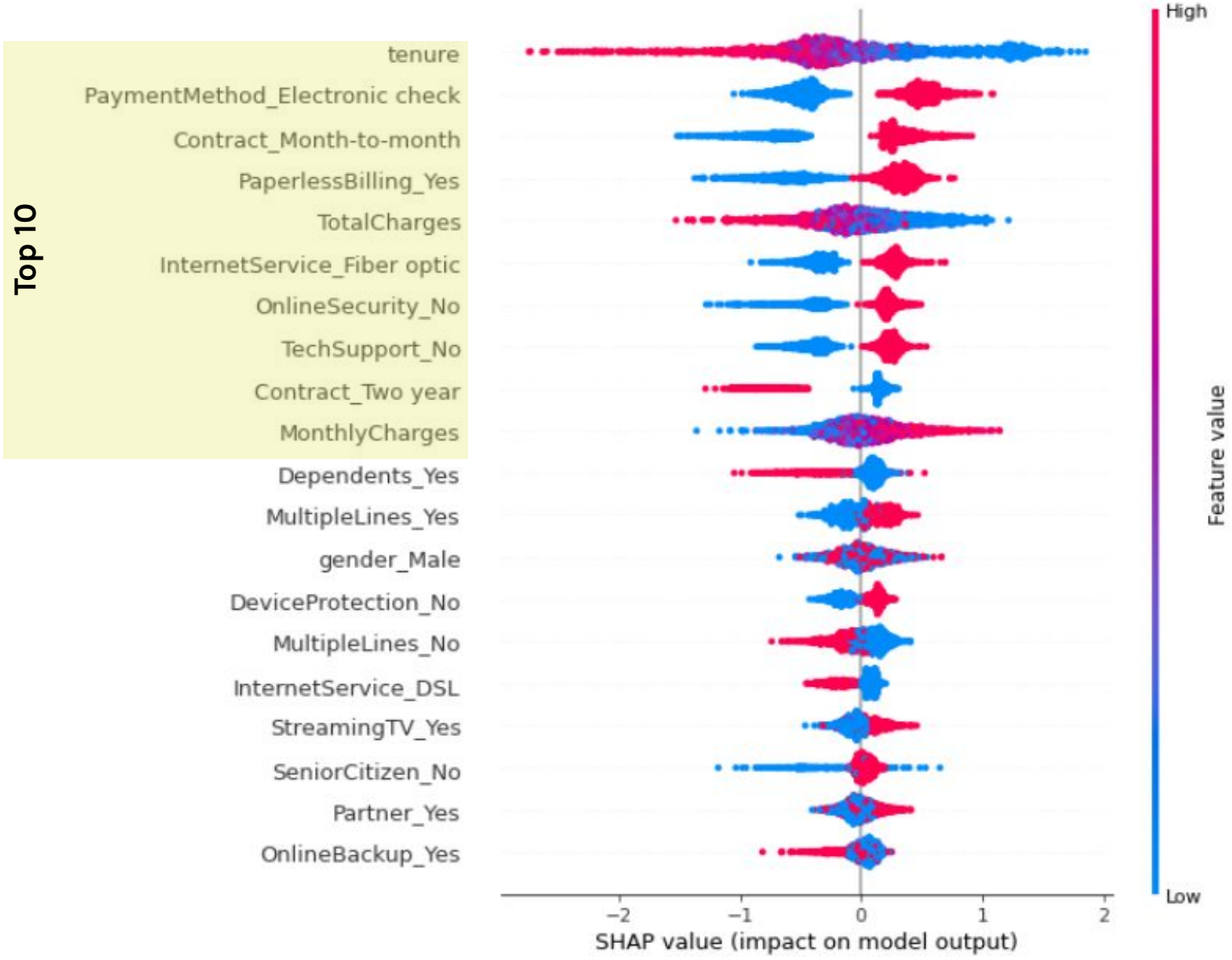
Predictions







Predictions | Top Factors



Predictions | Top Factors

Insights from our Model:

- The clients that have been subscribed for the longest are less likely to unsubscribe.
- The clients with longer contract durations are less likely to unsubscribe.
- The clients that do not subscribe to additional services, such as Online Security and Tech Support, are more likely to unsubscribe.
- The clients that pay their bills electronically are more likely to unsubscribe compared to clients with other payment type.
- The clients with the highest monthly payment are more likely to unsubscribe.

Recommendations

Recommendations | Reducing the churn

The cost of acquiring new customers is significantly higher than retaining existing new ones. However, telecom companies should not reach out to all existing customers.

- Increase attractiveness of long-term contracts: discounts and/or additional offerings
- Offer trial premium services for clients with monthly contracts
- Improving communication regarding additional services (Security, Tech Support)

[1] - Arthur Hughes. "Churn reduction in the telecom industry." DB Marketing, Database Marketing Institute, dbmarketing.com/2010/03/churn-reduction-in-the-telecom-industry/. Accessed 22 Jan. 2021

Recommendations | Future Work

- Clustering customer segments
- Re-run compiled model for each segment
- Outline strategies to tackle highest churn rate segments

{Propulsion}

Thank you for the attention

Questions?