

Will They Stay or Will They Go?

**Telecommunications Customer Churn Algorithm:
Mod 3 Project
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Problem Statement:

We are aiming to better understand why customers churn from telecommunications companies.

In this presentation, we will explain results from the algorithm we have created, such as how several factors significantly impact churn.

Business Value:

By creating a model that can accurately predict whether or not a given customer is likely to churn:

Your company can effectively use marketing resources to persuade high-churn-risk customers to continue doing business with you

Your company can capitalize on demographics who are least likely to churn, in your marketing strategies to gain first-time customers

A significant amount of finances will be saved and profit will increase

Methodology:

Analyze past customer churn data from Telco, to make recommendations for your telecommunications company, on how to most efficiently retain customers and market to new ones

Some of the topics we will explore in our algorithm:

Number of services a customer currently uses from your company

Whether or not they have a contract vs month-to-month membership plan

Whether or not they have switched their type of plan

Model Results - Focus on Recall

Recall = False

Negatives

We believe them
to stay, but they
churn

```
RandomForestClassifier(max_depth=5, n_estimators=200, random_state=50)
```

```
Accuracy on training set: 0.775
```

```
Accuracy on test set: 0.778
```

```
-----  
Accuracy Score:
```

```
0.7775674396592522  
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```

```
Confusion Matrix:
```

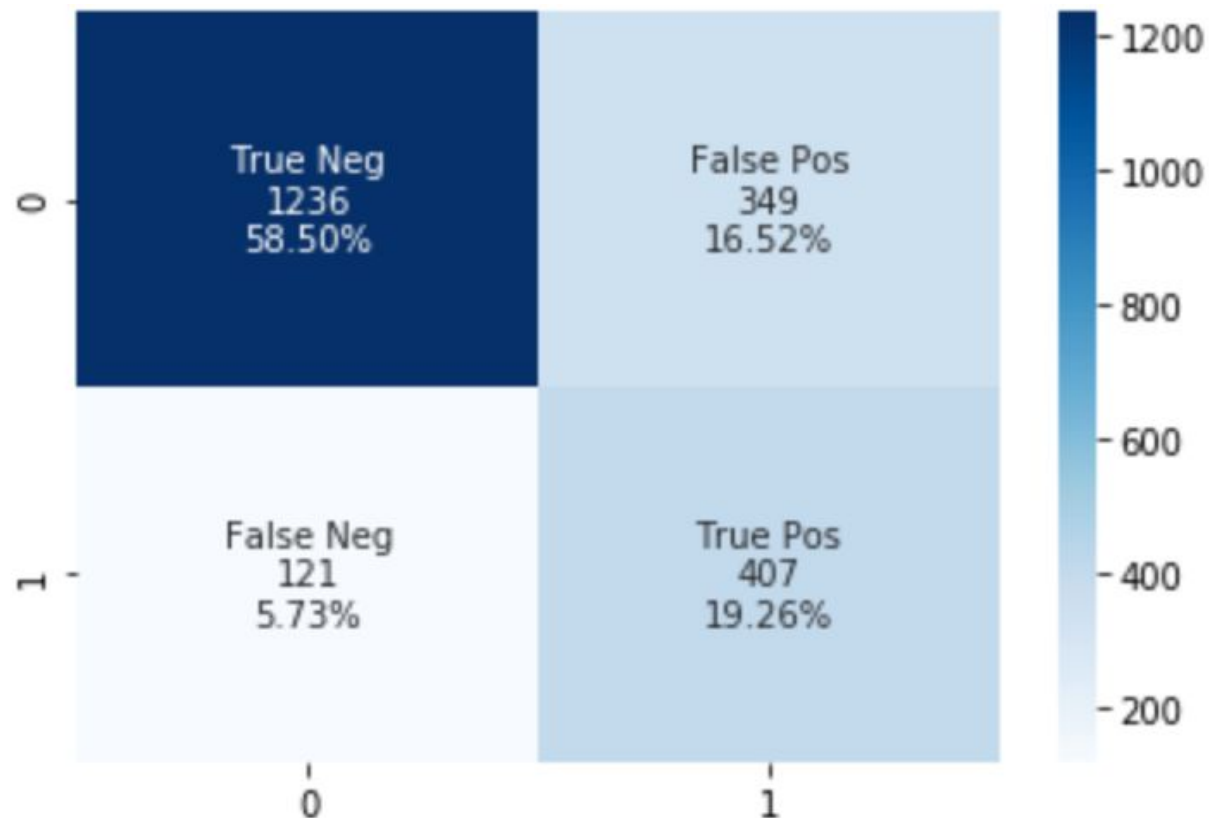
```
[[1236  349]
```

```
 [ 121  407]]  
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```

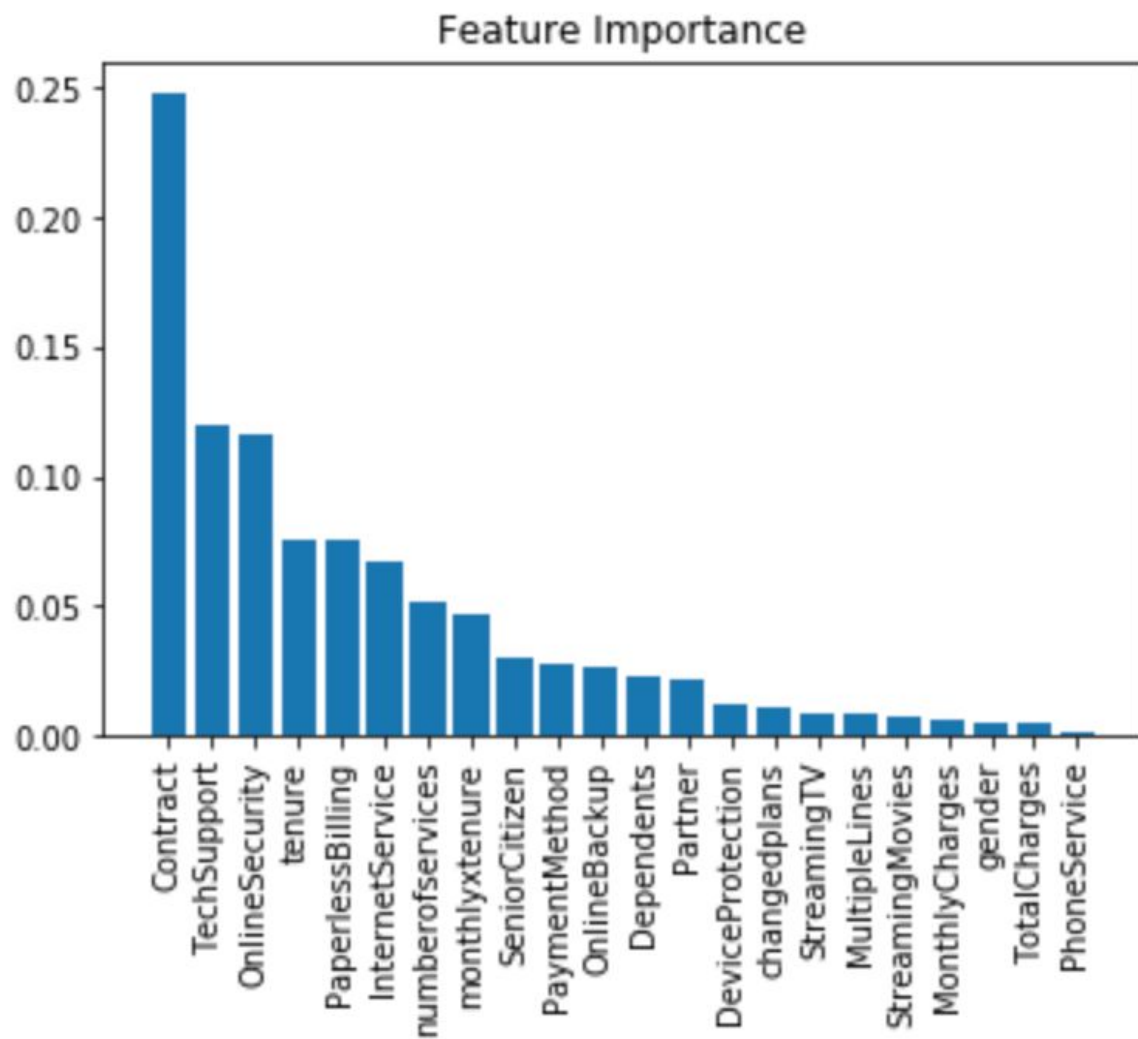
```
Classification Matrix:
```

	precision	recall	f1-score	support
0	0.91	0.78	0.84	1585
1	0.54	0.77	0.63	528
accuracy			0.78	2113
macro avg	0.72	0.78	0.74	2113
weighted avg	0.82	0.78	0.79	2113

Model - Focus on Recall



Model - Feature Importance

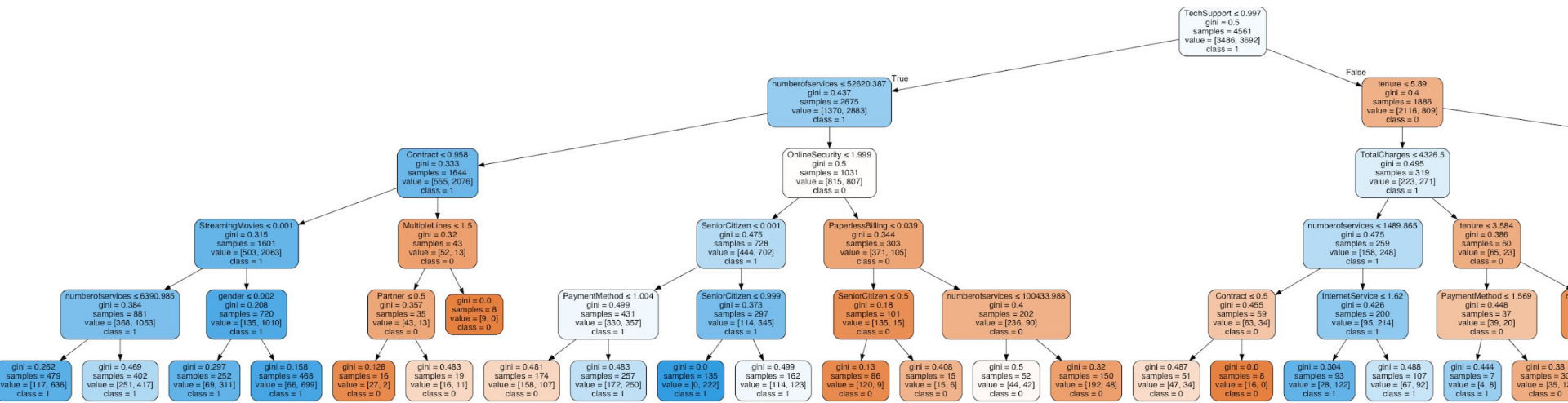


Recommendation 1:

Most significant effect: Those who are not subscribed to tech support or online security, are more likely to churn

Cash cows? Potential for special deals for first-time customers or existing customers without these services

Recommendation 1 Ct'd:



Recommendation 2:

Those who have month-to-month contracts are significantly more likely to churn vs yearly contract customers, unless they are subscribed to tech support

Recommendation 2:

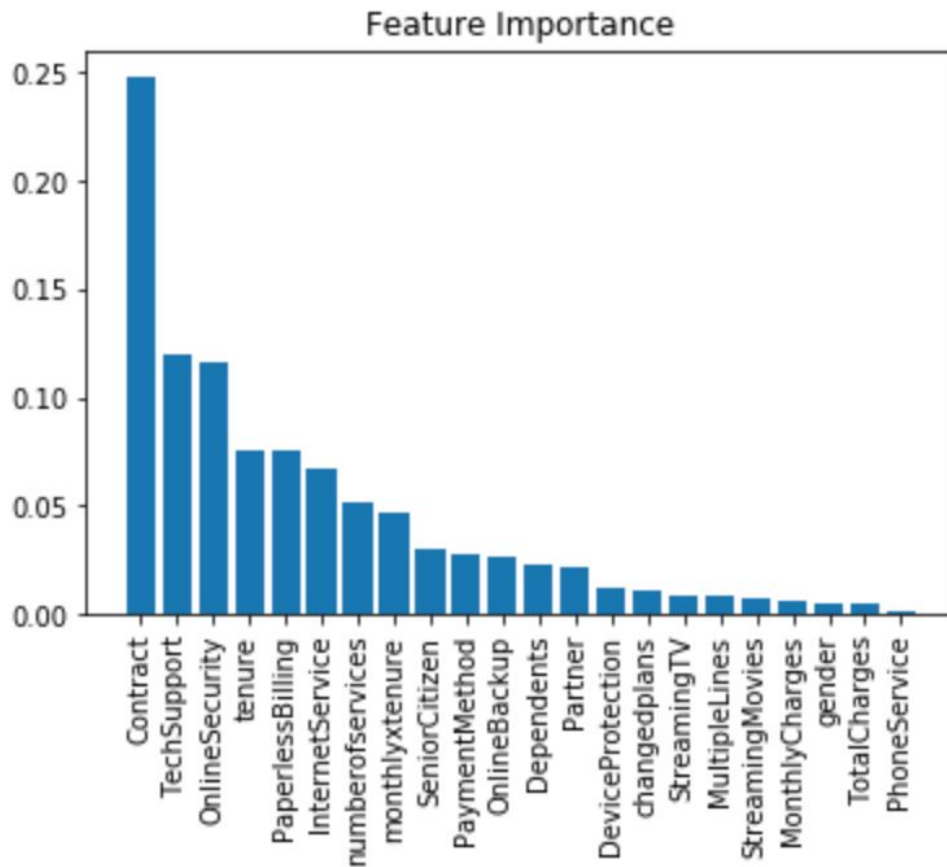
The more services a customer uses from your company, the less likely they are to churn, unless they subscribe to online security or have tenure more than 4 years

More important than some services themselves, ie tv/movie streaming and actual phone service

Recommendation 3:

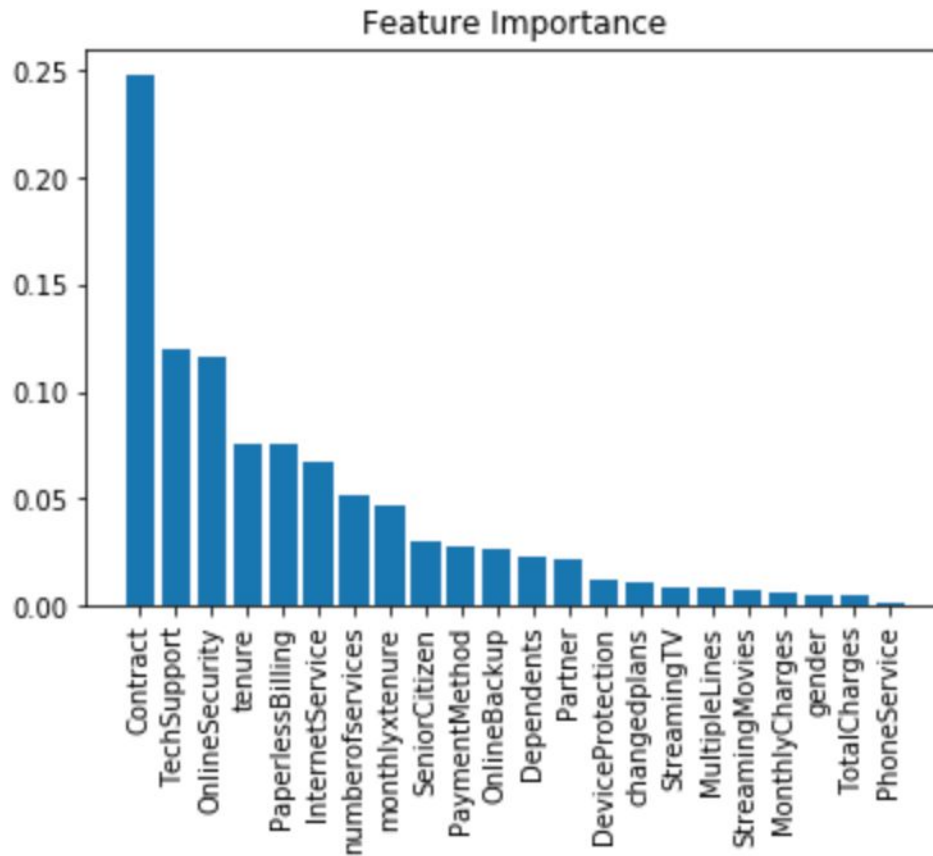
Monthly and lifetime charges had no significant impact on churn

A bit surprising



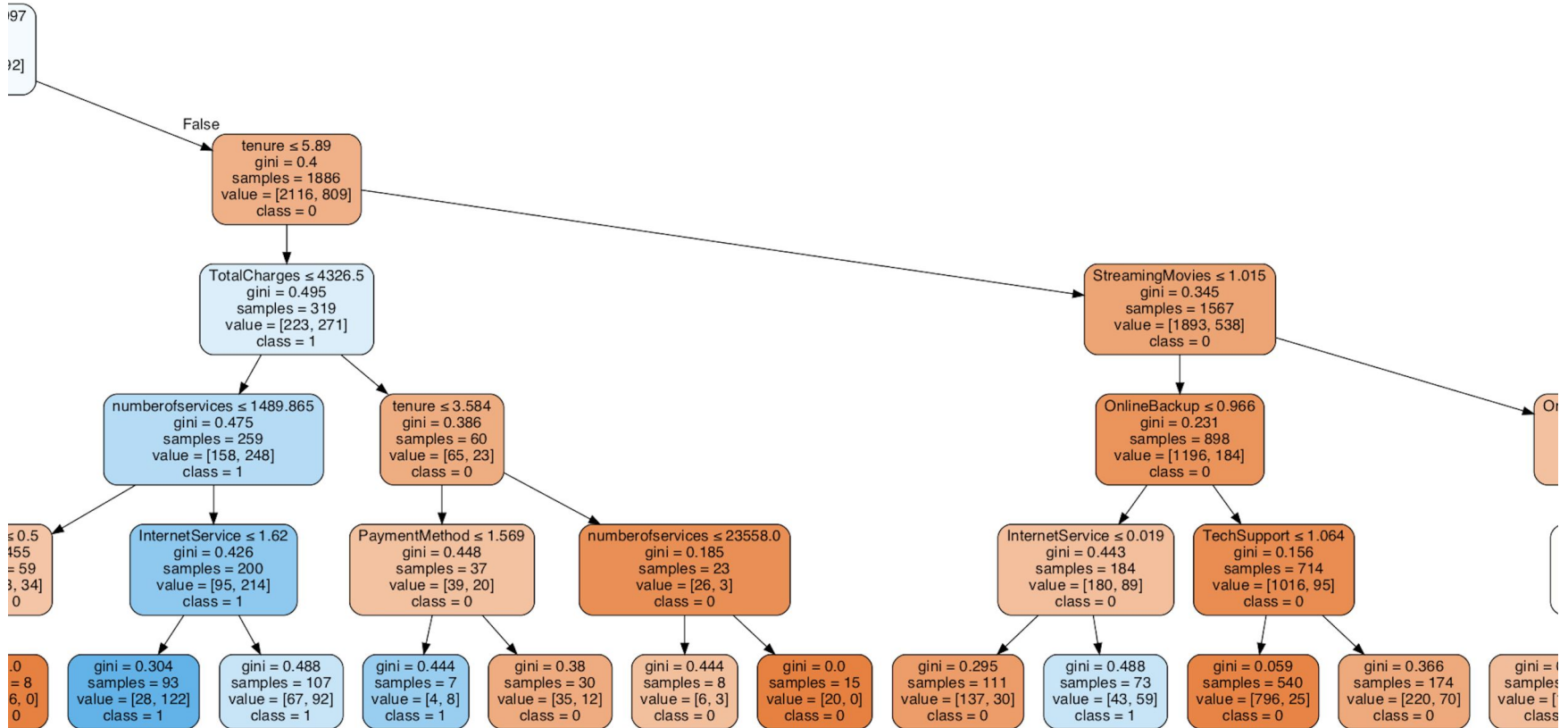
Recommendation 5:

Whether or not a customer has switched their type of membership plan during their lifetime, does not seem to have a significant impact



Recommendation 6:

Those with tenure of less than 6 years are significantly more likely to churn



Future Considerations

Test specifically for paperless billing

Test for upgraded vs downgraded membership plan

Loyalty programs

Phone carrier

Snapshots in the past – how long between data capture + “churn” declaration?

Thank You!