Telcom Churn Prediction

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Outline

- Problem and Objective
- Workflow
- Results and Insights
- Recommendations
- Conclusion and Future Scope

What is a problem in the Telecom Industry?

It is **churn** of **customers**

Churn is **one** of the **biggest problems** in the telecom industry.

Research has shown that the **average monthly** churn rate among the
top 4 wireless carriers in the US is 1.9% - 2%

Why is it **important**?
It **negatively affects** business, companies do **not** want to lose customers.

It needs more expenses to gather new customers than to just keep them.

What is the **Objective** of us Business Data Scientists?

To **predict customers** that eventually **churn**, based on the data,
and to use the power of Machine Learning to predict churn in the future.

Workflow

1. Data Exploration
   19 features, 2986 customers
2. Feature Engineering
   a. Summarised categories of services

3. Decision on the focus on specific metrics to focus for our approach

4. Use a wide scope to get most effective models
   a. Problem: imbalanced target churn class
   b. Resulted in three models that performed well
   c. Tuning and adjustments
      i. Hyperparameters, oversampling, class weights
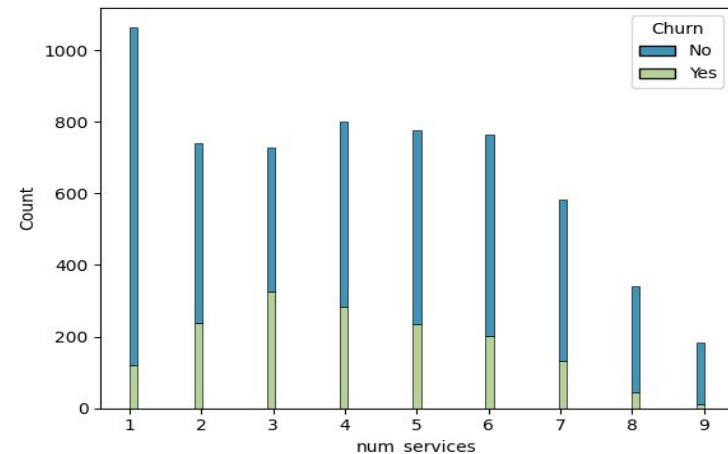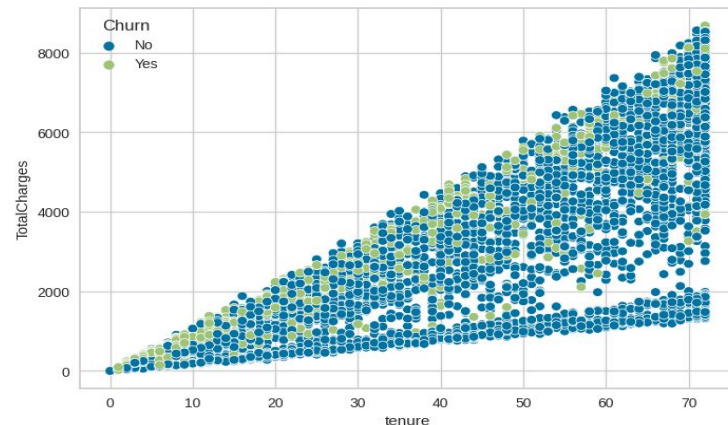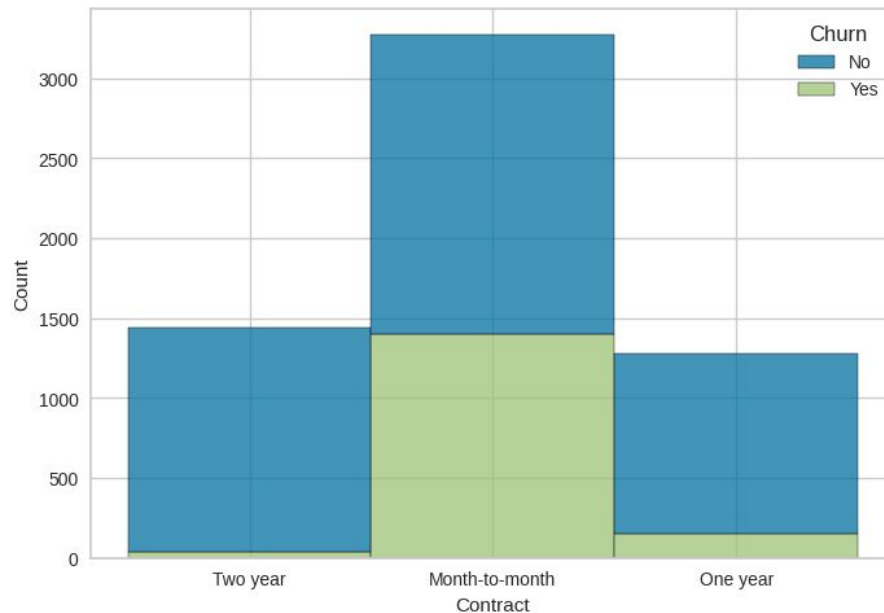
Looking at the data : Gender
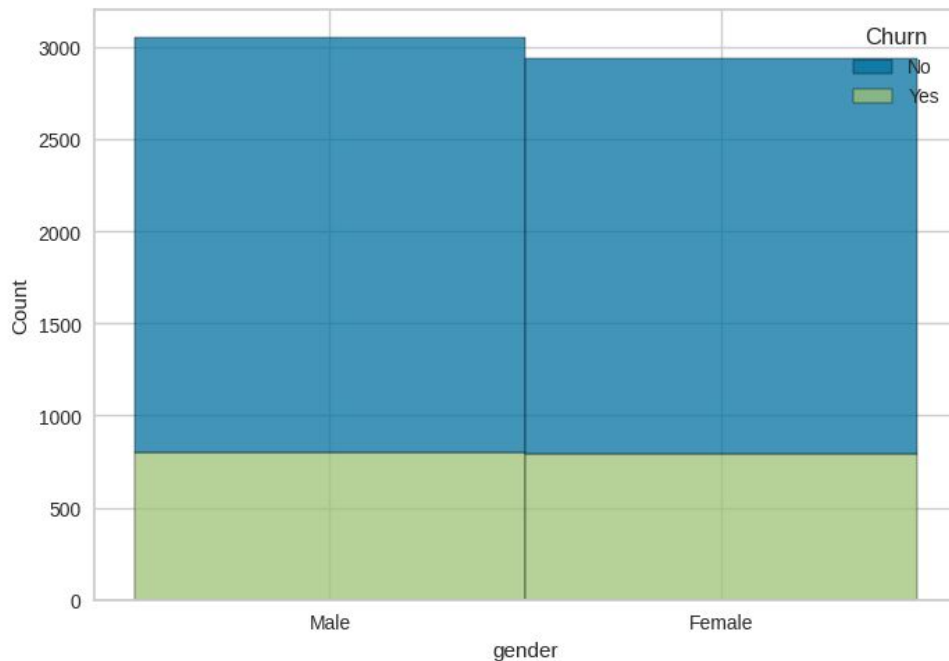
Quickly saw that gender variable was not very impactful when predicting churn
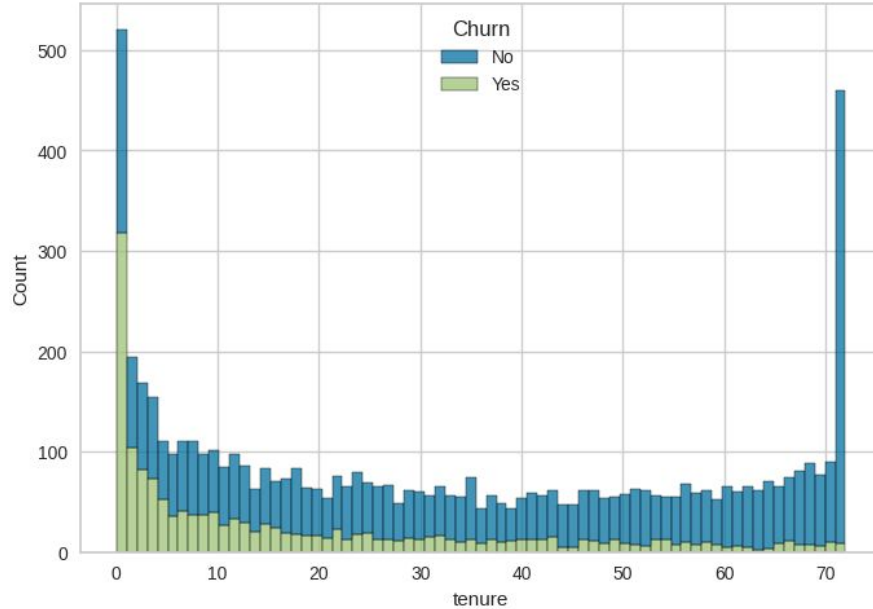
Looking at the data : Contract type

Contract type clearly has a large impact with Month-to-month contract clients providing north of 80% of churn clients.

Looking at the data : tenure

Data more similar to bimodal, with high amount of clients with very low tenure and a significant amount with tenure.

As expected lower tenure customer were also more likely to churn

Portfolio of models

- Performed a thorough search of models seeking to optimize for given problem.
- We arrived at 2 distinct fitting model types:
    - Model I a.k.a. 'The Sentinel': Precision Outreach
        - "Leverage Model I's high true positive rate for precise customer outreach."
        - "Minimize financial exposure while maintaining strong customer connections."
    - Model II a.k.a. 'The Conservator': Calculated Investment - model
        - "Utilize Model II's conservative approach to target high-value opportunities."
        - "Invest with intent, balancing the potential for higher returns against increased financial commitment."

Portfolio of models - cont.

Sentinel Model
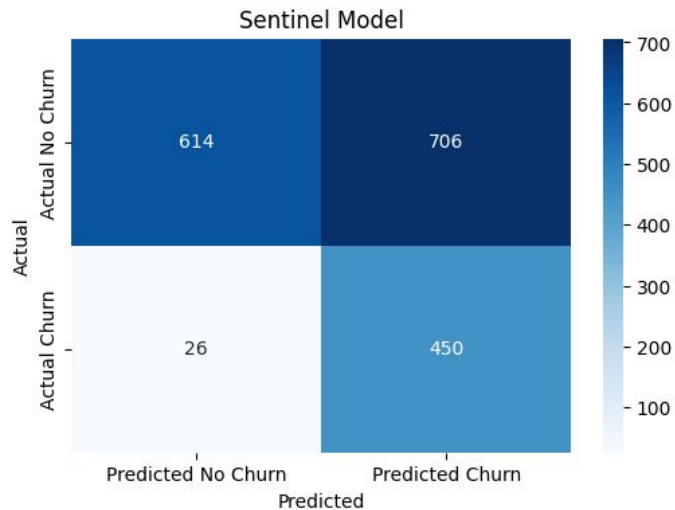
	precision	recall	f1-score	support
0	0.96	0.47	0.63	1320
1	0.39	0.95	0.55	476
accuracy			0.59	1796
macro avg	0.67	0.71	0.59	1796
weighted avg	0.81	0.59	0.61	1796

Conservator Model
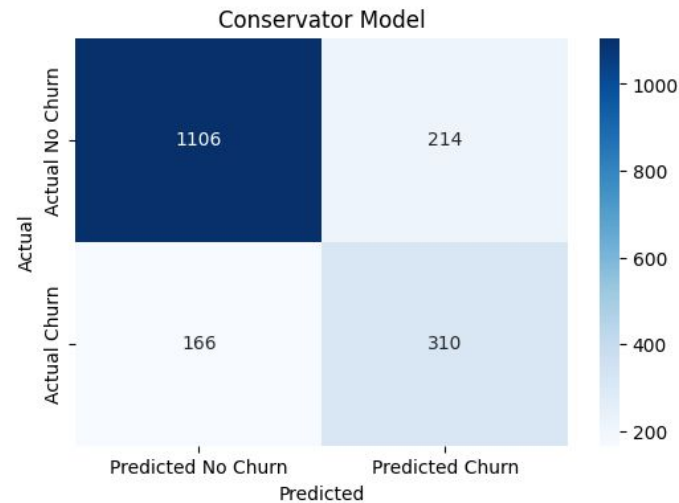
	precision	recall	f1-score	support
No	0.87	0.84	0.85	1320
Yes	0.59	0.65	0.62	476
accuracy			0.79	1796
macro avg	0.73	0.74	0.74	1796
weighted avg	0.80	0.79	0.79	1796

Targeted Recommendations
Know Your Customers

Do *not* target customers based on their **gender**.

Target customers

... that are **young** and make them stay.

... with **month-to-month** contracts and provide **incentives** to make them sign **long year contracts**.

... with **long-term** contracts and provide **incentives** to make them **extend** their **contracts**.

Model-Driven Customer Engagement
Trust Our Models

Use the **Sentinel** for **cost-effective strategies** like **personalized emails** and **targeted calls**.

Use the **Conservator** for strategic **discount** offers, **tailored advertisements**, and **promotions**.

Model-Driven Customer Engagement

Call to Action
Journey to Customer Excellence

Know your **customers** (and thus) **data**.

Keep **watch** and **alert** regarding potential threats of churn with our guarding **Sentinel**.

Preserve and **protect** your most valuable customers with our protecting **Conservator**.

Q&A and Next Steps
Your Questions, Our Answers

Invest more

... in **data collection**

... in the **Conservator** and **Sentinel** to make them outstanding.

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