A Data-Driven Strategy to Reduce Customer Churn

End-to-End Business Analyst Project

BUSINESS PITCH

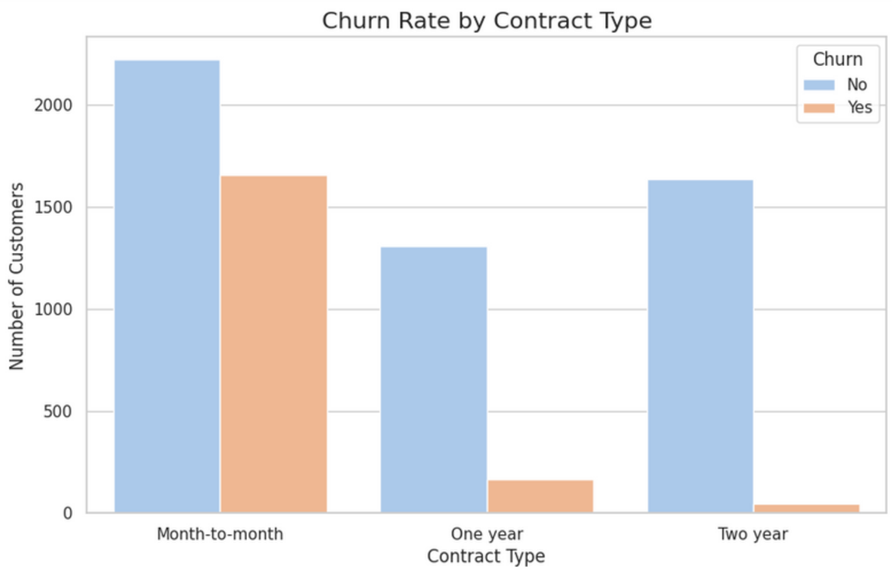
Problem Statement

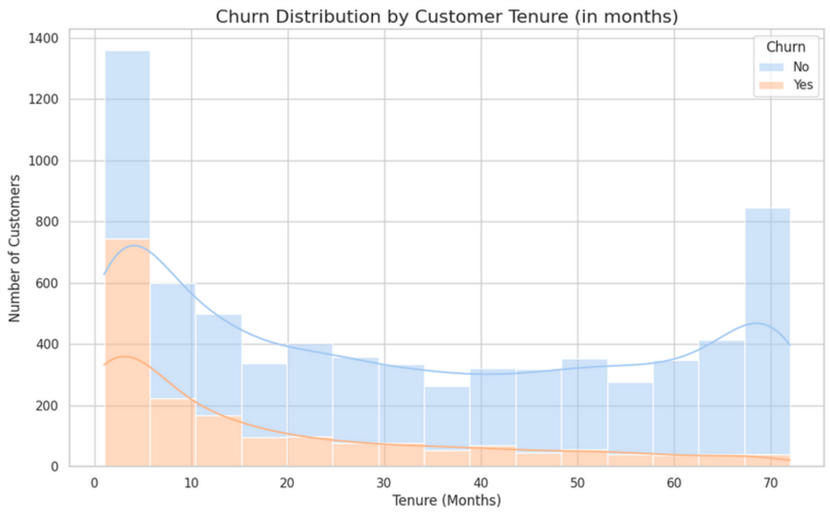
- Our company is losing customers at a high rate, but we don't have a clear, data-driven way to know why they are leaving or who is most at-risk.
- Our retention efforts are expensive and untargeted.

The Solution

- I analyzed our customer data to find the key drivers of churn.
- I built a machine learning model to accurately predict which customers are at high risk of leaving.
- This allows us to create a targeted, cost-effective retention strategy.

The Investigation: Who Is Leaving?





Finding 1: Contract is Key

- **Customers on Month-to-Month contracts churn at an extremely high rate.**
- **Customers on 1-Year or 2-Year contracts are overwhelmingly loyal.**

Finding 2: The "Danger Zone"

- **The vast majority of churn happens to new customers.**
- **Customers in their first 0-10 months are the highest-risk group. If we can get them past 12 months, they are very likely to stay.**

The Solution: A Predictive Model

I built a Decision Tree model to identify at-risk customers. Here are its performance metrics:

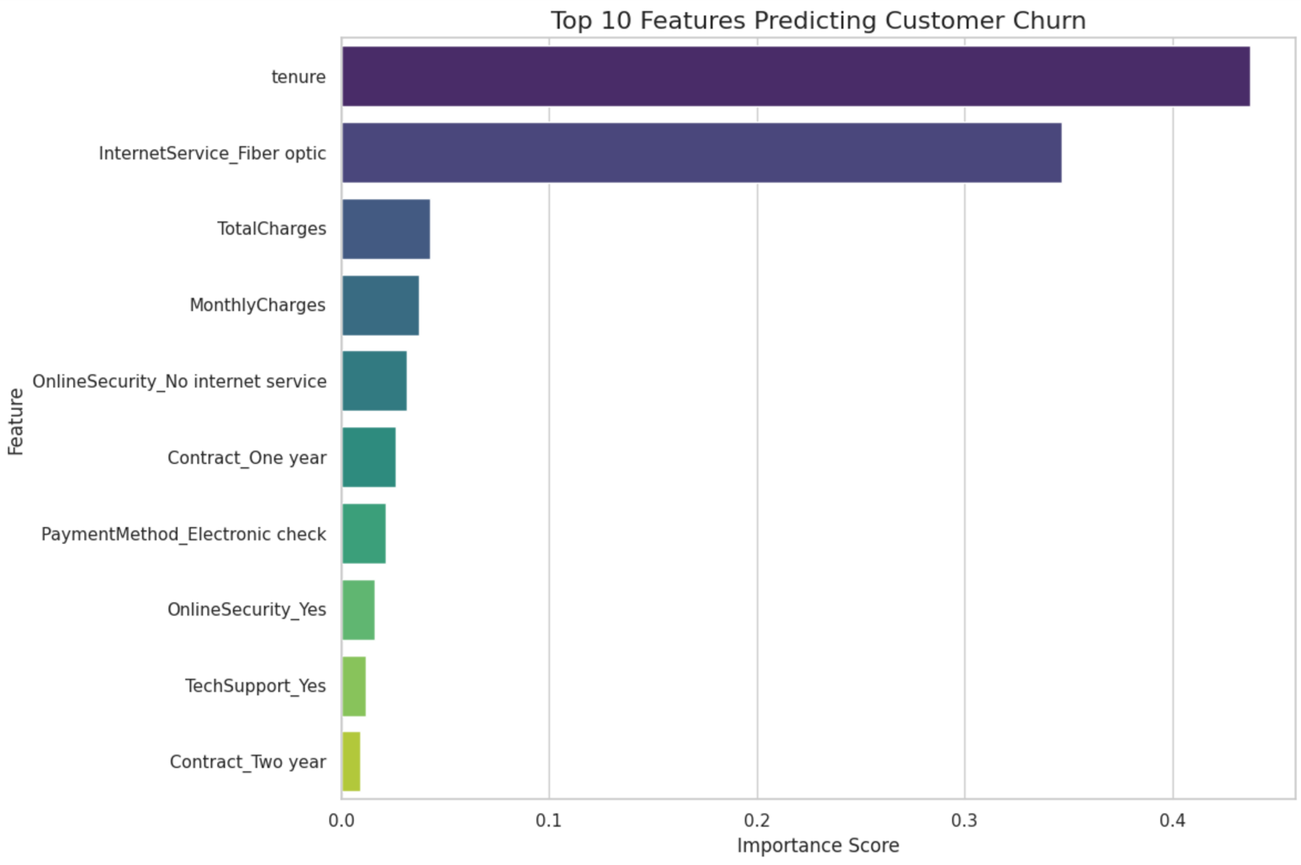
- Overall Accuracy: 77.5%
- The model correctly predicts a customer's outcome (Churn or Stay) 77.5% of the time.
- Recall (The "Finder" Metric): 59%

This is the most important metric.

Our model successfully finds 59% of all customers who are truly at-risk of churning.

Business Value: Instead of guessing, we can now focus our retention budget only on the high-risk customers identified by this model.

Top 3 Drivers of Churn

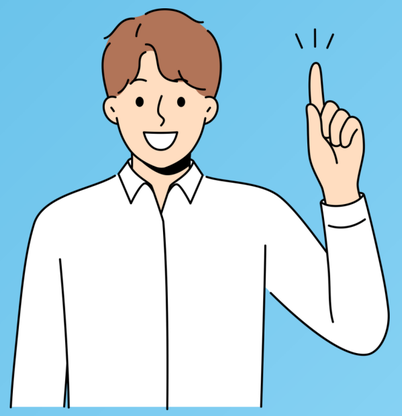


1.Tenure (44% of decision): This confirms our EDA. A customer's time with the company is the #1 predictor.

2.Internet Service (35% of decision): This is a new, critical insight. Customers with Fiber Optic service are a major churn risk.

3.Contract Type (7% of decision): The model confirms that being on a Month-to-Month contract (which is not a 1-year or 2-year) is a key factor.

Our Recommendations



1. **(For Marketing) The "Loyalty Offer"**
   - Proactively target all "Month-to-Month" customers in the "0-10 month" danger zone.
   - Offer them an incentive (e.g., "1 month free") to upgrade to a 1-Year plan.
2. **(For Product) The "Fiber Optic" Investigation:**
   - Launch an immediate investigation into the Fiber Optic service.
   - Why are these customers leaving? Is the service unreliable? Is it priced too high? Is the marketing misleading?
3. **(For Support) The "Smart" Retention:**
   - Use our model to flag "high-risk" customers in the support dashboard.
   - When they call, route them to our best retention agents who are empowered with special discount offers to save them.