

Data Analysis Report

Title: Report of Telco Customer Churn

From
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Executive Summary

This analysis examines customer churn in an online subscription service. Using historical customer data (2019–2024), we identified key drivers of churn. The results indicate that customers with low engagement frequency, late payments, and basic-tier plans are more likely to churn. Predictive modeling suggests a potential reduction of churn by 18% if targeted retention strategies are implemented.

Objectives

- To identify what are the major factors contributing to customer churn.
- Provide actionable recommendations to improve retention.

Data Description

- Resources : Kaggle ([Link](#))
- There are 7043 customers in the data.

Table 1 : Data Description

Data	Description	Data	Description
Customer ID	Unique Number	Device Protection	(Yes/No/No internet service)
Gender	(Male/Female)	Tech Support	(Yes/No/No internet service)
Senior Citizen	(Yes/No)	Streaming TV	(Yes/No/No internet service)
Partner	(Yes/No)	Streaming Movies	(Yes/No/No internet service)
Dependents	(Yes/No)	Contract	(Month-to-month/ One year/ Two year)
Tenure	Length of cooperation	Paperless Billing	(Yes/No)
Phone Service	(Yes/No)	Payment Method	(Electronic check/ Mailed check/ Bank transfer (automatic)/ Credit card (automatic))
Multiple Lines	(Yes/No/No phone service)	Monthly Charges	Amount charged
Internet Service	(DSL/Fiber optic/No)	Total Charges	Total amount charged
Online Security	(Yes/No/No internet service)	Churn	(Yes/No)
Online Backup	(Yes/No/No internet service)		

Analysis & Findings (Visualise with Python)

The effect of Payment Method to Churn

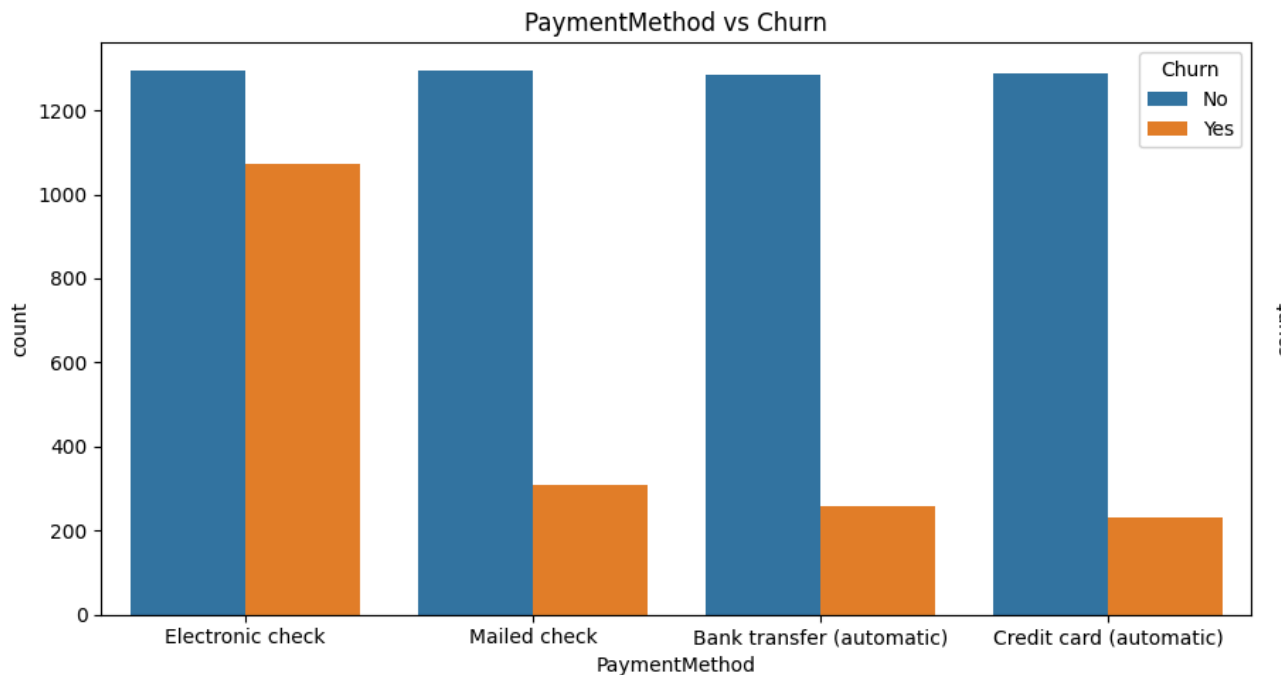


Figure 1

Figure 1 is a table that compares the Payment Method and Churn.

Based on the Figure 1 we can see that Electronic checks have a higher Churn compare with the Mailed check, Bank Transfer (automatic), Credit card (automatic). In this case, it shows that when the customer uses an automatic function for making payment it will reduce the chance of churn.

So there is a way to reduce the churn is to let the customer set up an automatic payment method. The way to increase the customer set up an automatic payment method. We can provide a promotion for the customer such as a discount RM 5 for each month when using automatic payment.

The effect of Contract type to Churn

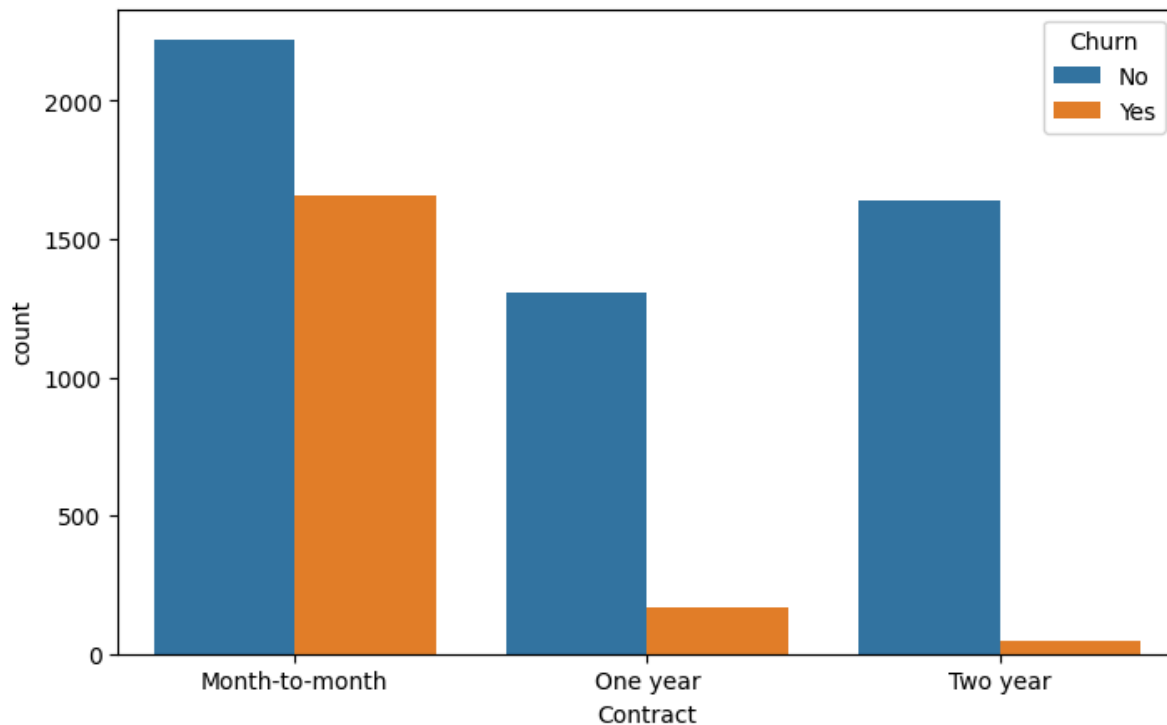


Figure 2

Figure 2 illustrates the relationship between contract type and customer churn. The results indicate that customers with month-to-month contracts exhibit a significantly higher churn rate compared to those on one-year or two-year contracts.

This finding suggests that longer-term contracts, such as one-year and two-year plans, are effective in reducing the likelihood of churn, as customers under these agreements are less prone to discontinuing services.

Business Implication:

To mitigate churn, it is recommended that the company actively encourage month-to-month customers to transition to longer-term contracts. This can be achieved by offering targeted incentives such as:

- Promotional discounts for customers who upgrade to a one-year or two-year plan.
- Free gifts or value-added services to enhance customer loyalty.
- Bundled service packages that provide greater value over long-term commitments.

The effect of Internet Service to Churn

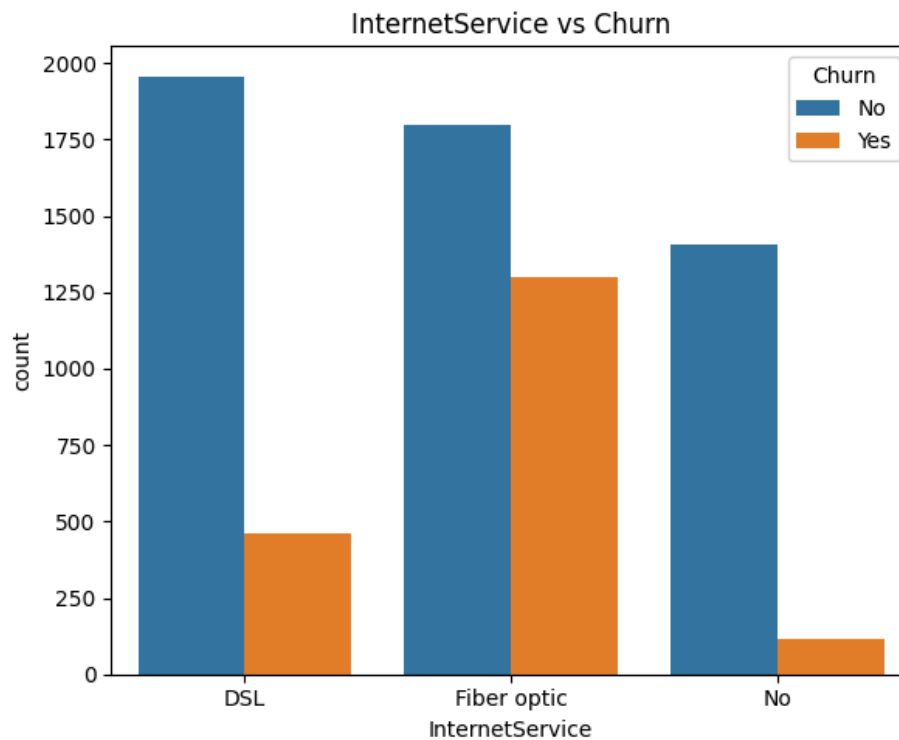


Figure 3

Figure 3 illustrates the relationship between internet service type and customer churn. The results reveal that customers using fiber optic internet services exhibit the highest churn rate compared to those using DSL or those with no internet service.

This suggests that while fiber optic services may attract a large customer base, they are also more prone to dissatisfaction or switching. Possible reasons could include pricing, service reliability, or customer expectations being higher for fiber optic users.

Business Implication:

To address this, it is important to investigate the root causes of churn among fiber optic customers. Potential steps include:

- Conducting customer feedback surveys to identify service-related issues (e.g., speed, outages, or customer support).
- Reviewing pricing and value proposition to ensure competitiveness against market alternatives.
- Offering loyalty programs or bundled services to retain fiber optic customers.

The Effect of Additional Services on Churn (Fiber Optic Customers)

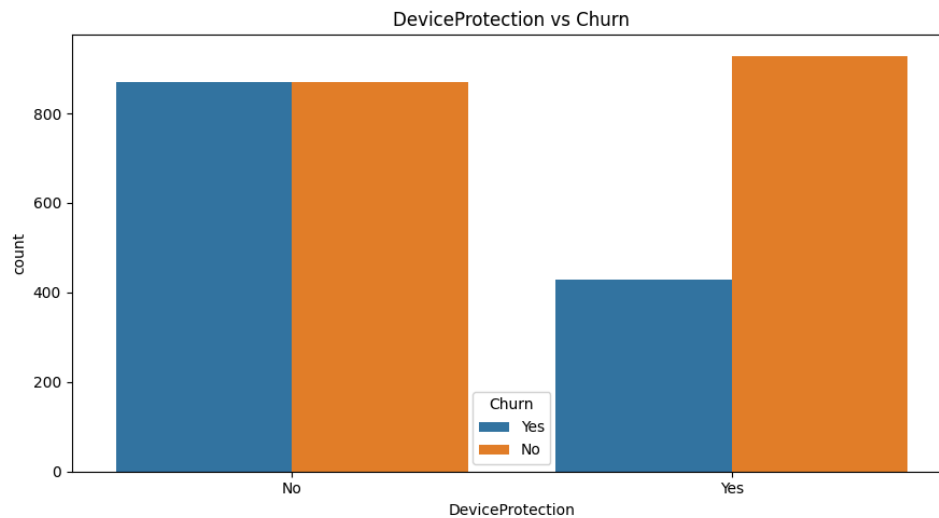


Figure 4 – Device Protection vs. Churn

Figure 4 compares device protection subscription with churn rates among fiber optic customers. The analysis shows that customers who subscribe to device protection services are less likely to churn compared to those without this service.

Recommendation: Promote device protection to fiber optic customers through bundled packages or targeted campaigns, as it appears to increase retention.

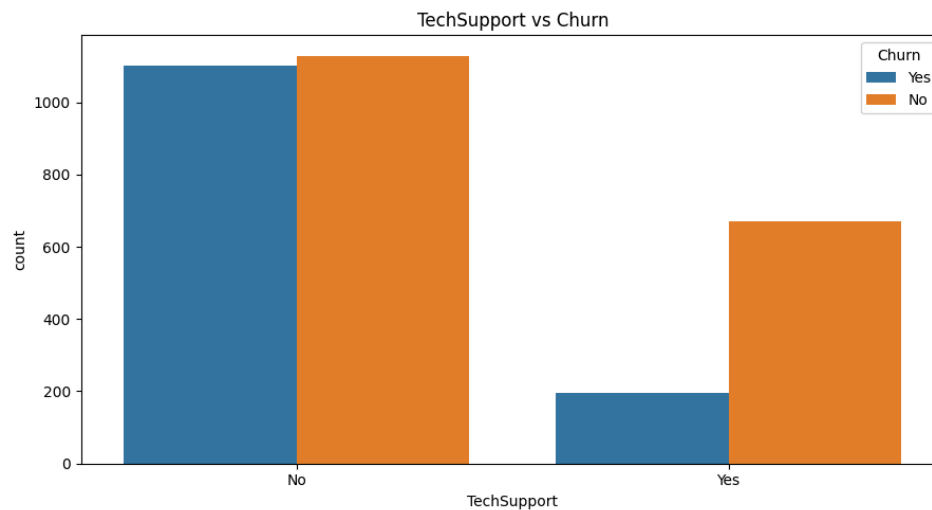


Figure 5 – Tech Support vs. Churn

Figure 5 highlights the relationship between technical support and churn. Customers with tech support services exhibit significantly lower churn compared to those without.

Recommendation: Encourage customers to adopt tech support services by offering affordable add-ons or including limited support in base plans. Enhancing customer support quality could further reduce churn.

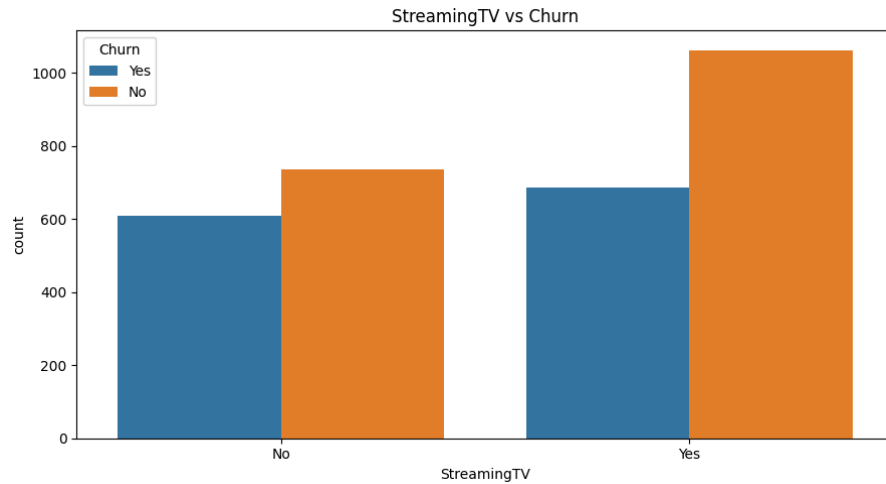


Figure 6 – Streaming Services TV vs. Churn

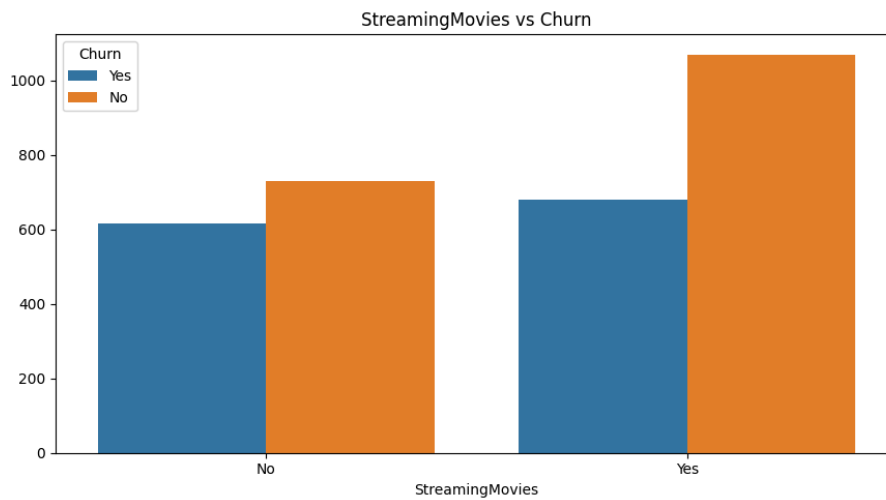


Figure 7 – Streaming Services Movies vs. Churn

Figures 6 and 7 illustrate the effect of streaming services (TV and movies) on churn. While having streaming services slightly reduces churn likelihood compared to not having them, the churn rate remains above 50% among subscribers.

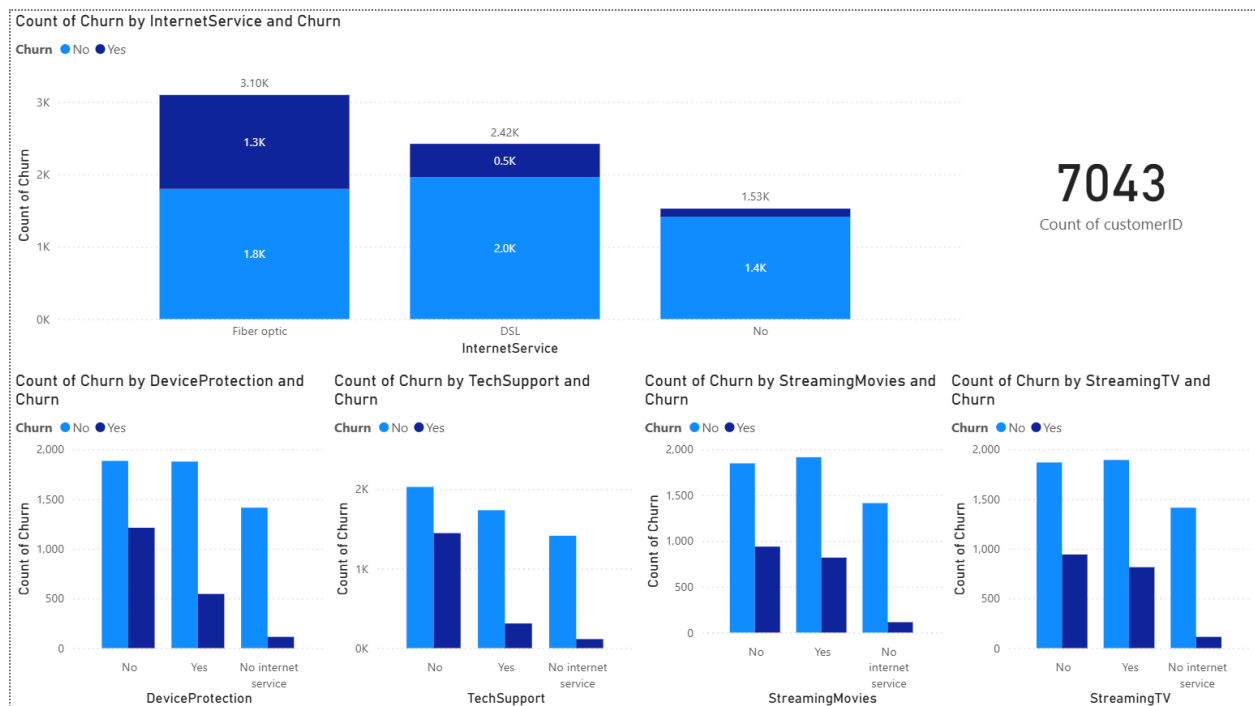
Implication: Streaming services may not be a strong retention driver on their own. The high churn percentage indicates potential dissatisfaction.

Recommendation: Conduct customer surveys or feedback sessions to identify root causes (e.g., content quality, pricing, or service experience). Improvements in content offerings or partnerships with popular platforms could help enhance customer satisfaction and reduce churn.

Discussion for Figure 4,5,6,7

For fiber optic customers, value-added services such as device protection and tech support are effective churn-reduction levers. However, streaming services require further investigation to determine why they do not significantly retain customers. Combining data-driven promotions with customer feedback initiatives can help strengthen retention strategies.

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Possible Recommendations for this analysis:

Contract Strategy:

- Encourage customers to switch from month-to-month to longer-term contracts by offering discounts, free months, or bundled deals.

Internet Service Improvements:

- Investigate fiber optic churn drivers (e.g., pricing, service reliability).
- Conduct surveys and benchmark pricing vs. competitors.

Value-Added Services:

- Promote device protection and tech support to fiber optic users, as they reduce churn.
- Re-evaluate streaming services: consider partnerships with popular platforms (e.g., Netflix, Disney+) or improve content offerings.

Customer Feedback Loop:

- Launch customer satisfaction surveys and focus groups to directly capture why customers churn.
- Use insights to guide product, pricing, and service improvements.

Conclusion

The analysis highlights that contract type, internet service, and value-added services significantly influence customer churn. Customers on month-to-month contracts and fiber optic plans are at the highest risk of churning. However, additional services such as device protection and tech support help reduce churn among fiber optic users.

By promoting long-term contracts, improving fiber optic service experience, and enhancing the value of additional services, the company can reduce churn, improve customer satisfaction, and strengthen long-term revenue stability.