Summary of Customer Churn Data Analysis

The telecom customer churn analysis reveals **critical factors** influencing retention and dropout rates. The dataset highlights patterns across various services such as **internet type, phone service, security features, and tech support**. The **overall churn rate** stands at approximately **26%**, indicating that over **one-fourth of the customers are leaving**.

Key Findings & Insights:

1. Internet Service & Churn:

- **Fiber optic users have the highest churn rate (~42%)**, significantly higher than DSL users (~23%).
- Customers **without internet service have the lowest churn (~7%)**, possibly because they rely on basic telecom services.
- **Reason:** High fiber-optic churn could be due to cost, service disruptions, or competition.

2. Tech Support & Online Security Impact:

- Customers **without tech support churn at a rate of ~39%**, whereas those with tech support churn at **only ~15%**.
- Similarly, **online security reduces churn significantly**—those **without** security churn at **38%**, while those **with security churn at only ~14%**.
- **Insight:** Customers value protection and support, making these key retention factors.

3. Phone Service & Multiple Lines:

- **Single-line users churn at ~25%**, while **multiple-line users churn at ~29%**, indicating a slight increase.
- **No phone service customers churn at only ~10%**, possibly because they have minimal service interaction.

4. Online Backup & Device Protection Influence:

- **Customers without an online backup churn at ~35%**, whereas those with it churn at **only ~16%**.
- Similarly, **device protection users churn at ~18%**, whereas **non-users churn at ~34%**.
- **Conclusion:** Customers prefer secure and backed-up services, making these strong retention drivers.

5. Streaming Services (TV & Movies):

- **Customers using streaming services churn at ~27%**, while non-users churn at **24%**, showing little impact.
- **No major churn difference** between TV and movie subscribers vs. non-subscribers.
- **Insight:** Entertainment services alone are not a strong factor in customer retention.

Final Conclusion & Recommendations:

- **Support & Security Services Matter:** Tech support and online security significantly lower churn, suggesting companies should offer them as part of premium or bundled plans.
- **Fiber Optic Churn Needs Attention:** Higher dropout rates for fiber-optic users imply potential pricing or service quality issues. Improving service reliability or offering loyalty incentives could help retention.
- **Backup & Device Protection Are Key Retention Factors:** Customers who feel protected stay longer, so promoting these services can reduce churn.
- **Streaming Services Are Not a Key Churn Factor:** While popular, streaming services alone do not influence customer retention much.
- **Proactive Customer Support Is Essential:** Companies should **target high-churn groups** (e.g., fiber-optic users without tech support) with proactive retention strategies, such as **discounts, better customer care, and enhanced service quality**.

Overall Recommendation:

To **reduce churn**, telecom companies should focus on **improving customer support, providing strong security services, and addressing fiber-optic service issues**. Offering retention incentives, bundled plans, and proactive engagement strategies will help **lower churn rates and improve customer loyalty**.