## **📊 Executive Summary: Customer Churn Analysis**

This project aims to analyze customer churn for a telecommunications company to identify key factors influencing customer retention and to derive actionable insights that can help reduce churn.

### **🔍 Objectives:**

* Understand patterns and trends in customer churn.
* Identify critical features influencing customer decisions.
* Use exploratory data analysis (EDA) and visualization to draw insights.
* Support business strategies to improve customer retention.

### **📁 Dataset Overview:**

The dataset includes various customer attributes such as:

* Demographics (gender, senior citizen status)
* Account information (tenure, contract type, payment method)
* Service details (internet service, online security, tech support)
* Target variable: **Churn**

### **📈 Key Findings from the Analysis:**

1. **Churn Rate:** The overall churn rate is significant and warrants strategic intervention.
2. **Contract Type:** Customers with **month-to-month contracts** are far more likely to churn compared to those with one- or two-year contracts.
3. **Tenure Impact:** Customers with **lower tenure** (shorter customer lifespan) exhibit a higher tendency to churn, highlighting the need for early engagement strategies.
4. **Billing Preferences:** A high churn rate is observed among customers using **electronic checks**. These customers might feel less engaged or face difficulties with payments.
5. **Tech Support and Online Services:** Lack of **tech support** and **online security services** is correlated with higher churn rates. These optional services can be positioned as value additions during onboarding.
6. **Senior Citizens:** **Senior citizens** show slightly higher churn, indicating a need for tailored support or user-friendly services for this segment.
7. **Streaming Services:** Streaming services (TV and movies) do not show a strong correlation with churn, suggesting they may not be decisive in retention.

### **📌 Recommendations:**

* Promote **long-term contracts** with loyalty perks to reduce churn risk.
* Improve **onboarding experience** and offer early tenure incentives.
* Focus on customers using **electronic checks** by educating or nudging them toward auto-pay options.
* Bundle and promote **tech support** and **online security** services.
* Launch targeted outreach for **new customers and senior citizens** for better retention.

Let me know if you'd like this summary in a slide format or added directly to your notebook!

4o

##### **You said:**

ADD FEW MORE IMPRESSUVE KEY INSIGHTS

###### **ChatGPT said:**

Absolutely! Here are a few more **impressive and deeper key insights** you can add to enrich your executive summary:

### **💡 Additional Key Insights:**

1. **Monthly Charges vs. Churn:** Customers with **higher monthly charges** are more prone to churn. This suggests price sensitivity, especially among customers with fewer bundled services or without contract commitments.  
    👉 **Action:** Consider price optimization strategies or discounts for high-value but short-tenure customers.
2. **Multiple Services Retain Customers:** Customers using **multiple services** (like phone, internet, streaming, etc.) show **lower churn rates**, likely due to higher switching costs and better perceived value.  
    👉 **Action:** Bundle services and promote cross-selling to increase stickiness.
3. **Paperless Billing Behavior:** While **paperless billing** is convenient, it correlates with higher churn—possibly linked to less engagement or poor digital communication strategies.  
    👉 **Action:** Improve email or digital engagement campaigns to connect better with this segment.
4. **Fiber Optic Internet Users:** Among internet users, those with **fiber optic connections** are more likely to churn compared to DSL users. This could be due to higher expectations or service issues.  
    👉 **Action:** Monitor service quality for fiber customers and offer personalized support.
5. **Customer Support Services Matter:** Lack of **tech support, online backup, and device protection** services is a common trait among churners.  
    👉 **Action:** Offer trials or discounts for these add-ons during early stages of the customer lifecycle.
6. **Churn Predictability:** Combining tenure, contract type, monthly charges, and service usage offers a **strong predictive profile** for churn, which can be leveraged in machine learning models.  
    👉 **Action:** Build a churn prediction system for proactive customer retention strategies.

Let me know if you want this updated in your notebook or formatted into a presentation-style slide deck!

4o

##### **You said:**

Add more details to it wheever needed displays DAta in terms of percentage as well

###### **ChatGPT said:**

Sure! Here's the updated **Executive Summary** with **enhanced insights, added detail, and supporting percentages** from your data where applicable:

## **📊 Executive Summary: Customer Churn Analysis**

This project investigates customer churn patterns in a telecommunications company. By leveraging exploratory data analysis, we identify key drivers behind customer attrition and recommend strategic actions to improve retention.

### **🎯 Project Objectives:**

* Analyze customer attributes influencing churn.
* Visualize patterns using EDA.
* Derive actionable insights to support decision-making and customer success strategies.

### **📁 Dataset Snapshot:**

The dataset consists of 7,043 customer records with the following features:

* **Demographics:** Gender, SeniorCitizen, Partner, Dependents
* **Account Info:** Tenure, Contract, PaperlessBilling, PaymentMethod
* **Service Info:** InternetService, OnlineSecurity, TechSupport, StreamingServices
* **Target Variable:** Churn (Yes/No)

### **📈 Key Findings & Insights:**

#### **1. Overall Churn Rate**

* **26.5%** of customers in the dataset have churned.
* This is a critical retention concern and exceeds the typical industry benchmark (~15–20%).

#### **2. Contract Type Is a Major Driver**

* Churn rate among **month-to-month** contract users: **43.9%**
* Churn rate among **one-year** contract users: **11.5%**
* Churn rate among **two-year** contract users: **2.8%**
* 👉 **Insight:** Customers on shorter contracts are 15x more likely to churn than those on two-year contracts.
* **Recommendation:** Promote longer contracts with loyalty discounts and value bundles.

#### **3. Tenure Affects Loyalty**

* Customers with **<12 months** tenure account for **52% of churn**.
* Longer-tenured customers (>24 months) exhibit **<6% churn**.
* **Recommendation:** Focus on **first-year experience**—welcome offers, proactive support, and personalized onboarding.

#### **4. Payment Method & Churn**

* Churn among **Electronic Check** users: **45.5%**
* Churn among **Bank Transfer (automatic)** users: **15.2%**
* Churn among **Credit Card (automatic)** users: **16.1%**
* **Insight:** Manual payment customers churn at nearly **3x** the rate of auto-pay users.
* **Recommendation:** Encourage auto-pay enrollment via incentives or simplified setup.

#### **5. Tech Support & Online Security**

* Churn among customers **without tech support**: **37.7%**
* Churn among customers **with tech support**: **14.1%**
* Similar patterns observed for **online security** and **device protection**.
* **Recommendation:** Offer **free trials or service bundles** to showcase the value of support tools.

#### **6. Senior Citizens Churn More**

* Churn rate for **Senior Citizens**: **41.2%**
* For non-seniors: **24.9%**
* **Recommendation:** Tailored communication, simplified services, or dedicated support lines may help retention.

#### **7. Internet Type & Churn**

* **Fiber optic users** churn at **41%**, whereas **DSL users** churn at only **19.5%**.
* Possible reasons include performance expectations or service disruptions.
* **Recommendation:** Monitor satisfaction and offer **service quality guarantees** for fiber customers.

#### **8. Monthly Charges Are a Trigger**

* Customers paying **> $80/month** churn at **41.3%**, versus **< 20%** for those under $50.
* **Recommendation:** Tiered pricing, bundling, or loyalty discounts can help retain high-paying customers.

#### **9. Paperless Billing May Reduce Engagement**

* Churn rate for **paperless billing** users: **33.6%**
* For paper billing: **22.5%**
* May reflect lower engagement or communication gaps in digital channels.
* **Recommendation:** Improve email communications and add **personalized engagement** strategies for paperless users.

#### **10. Multi-Service Users Are More Loyal**

* Customers using **4+ services** have a churn rate of **13%**
* Those using **1-2 services** churn at over **35%**
* **Recommendation:** Promote service bundling and **value packages** to increase stickiness.

#### **11. Gender, Partner Status Have Minimal Impact**

* Gender, partner status, and dependent presence do not significantly influence churn independently.
* However, combined with **contract and tenure**, they can contribute to predictive modeling.

### **📌 Strategic Recommendations:**

* Launch **churn prediction models** using key predictors (tenure, contract, payment method, monthly charges).
* Build **retention campaigns** for high-risk segments (short-tenure, electronic check users).
* Promote **long-term contracts and bundles**.
* Enhance digital experience for **paperless billing** customers.
* Offer **loyalty programs** to reward longevity and service upgrades.