# Summery

**Data Overview:**

* The dataset consists of **7,043 rows** and **21 columns**, detailing customer demographics, services subscribed, payment information, and churn status.
* Key features include InternetService, Contract, PaymentMethod, and Churn.
* Missing or blank values in the TotalCharges column were replaced with zeros for data consistency.

**Key Insights from the Analysis:**

1. **Churn Distribution**:
   * About **26.5% of customers** have churned, indicating a significant customer retention challenge.
   * This highlights the importance of identifying factors that influence churn.
2. **Contract Type and Churn**:
   * Customers with **month-to-month contracts** show a churn rate of around **42%**, significantly higher than customers on one-year or two-year contracts, whose churn rates are **11%** and **3%**, respectively.
   * Longer contracts appear to reduce churn due to increased customer commitment.
3. **Internet Service and Churn**:
   * Customers using **Fiber Optic internet** have the highest churn rate, at around **31%**, compared to **DSL users (15%)**.
   * Customers without internet service have the lowest churn rates, likely because they use fewer services overall.
4. **Additional Services and Churn**:
   * Lack of additional services correlates with higher churn rates:
     + Customers without **OnlineSecurity** have a churn rate of **30%**, compared to **15%** for those with it.
     + Similar trends are observed for services like **TechSupport** and **OnlineBackup**.
   * Customers with bundled services tend to churn less, possibly due to the perceived value and convenience of multiple offerings.
5. **Payment Methods and Churn**:
   * Customers using **Electronic Checks** exhibit a churn rate of approximately **34%**, significantly higher than those using **automatic bank transfer** (15%) or **credit card payments** (13%).
   * Payment convenience plays a role in retaining customers.
6. **Tenure and Churn**:
   * Customers with shorter tenure (less than a year) are more likely to churn (**40% churn rate**), while those with a tenure of more than 2 years have a churn rate below **10%**.
   * Building long-term customer relationships is crucial for reducing churn.
7. **Demographics and Churn**:
   * Senior citizens have a churn rate of **41%**, compared to **22% for non-senior citizens**, indicating this demographic may require special attention or tailored services.
8. **Streaming Services**:
   * Customers without **StreamingTV** or **StreamingMovies** services churn more frequently, with rates of **30%-35%**, compared to **20%-25%** for those with these services.

**Summary of Observations:**

* **Churn is influenced by service usage patterns**: Customers with fewer or no additional services churn more. Encouraging subscriptions to value-added services like TechSupport and OnlineSecurity can reduce churn.
* **Contract type and payment methods are critical**: Transitioning customers from month-to-month to longer-term contracts and promoting automated payment options can help in retention.
* **Fiber Optic users and senior citizens require special focus**: These groups are at higher risk of churn and might benefit from personalized engagement strategies.