**Executive Summary**

This analysis provides a comprehensive exploration of customer churn in the Telco Customer Churn dataset, using visualizations and statistical summaries to uncover key drivers of churn. The main findings are as follows:

**Churn Rate:** Approximately 26.5% of customers have churned (left the service), as shown by the pie chart. This means that out of every 100 customers, about 27 are leaving, which is a significant proportion for the business to address.

**Contract Type:** Customers with month-to-month contracts have the highest churn rate, with over 40% of these customers leaving. In contrast, customers with one-year or two-year contracts have much lower churn rates (less than 10%), indicating that longer-term contracts are effective in retaining customers.

**Senior Citizens:** Senior citizens represent a higher risk group, with about 42% of senior citizen customers churning compared to only 24% of non-senior citizens. This suggests that age is an important factor in customer retention.

-**Tenure:** Customers with a tenure of 1-2 months have a churn rate exceeding 60%, while those with longer tenure (over 24 months) have a churn rate below 10%. This highlights the importance of engaging new customers early to reduce early churn.

**Payment Method:** Customers using electronic checks as a payment method have a churn rate of around 45%, which is much higher than those using other payment methods (such as credit card, bank transfer, or mailed check, all below 20%). This suggests that payment method is a strong indicator of churn risk.

**Service Features:** The countplots for services like PhoneService, InternetService, OnlineSecurity, and others show that customers who do not subscribe to additional services (such as OnlineSecurity or TechSupport) are more likely to churn. For example, customers without OnlineSecurity have a churn rate of over 35%, compared to less than 15% for those with the service.

**Monthly and Total Charges:** Customers who churn tend to have higher monthly charges (average above $75) but lower total charges, indicating they leave early in their tenure. In contrast, loyal customers have lower monthly charges and higher total charges, reflecting longer relationships with the company.

**Relationship Between Charges:** The scatterplot of MonthlyCharges vs. TotalCharges shows that churned customers cluster in the lower total charges range, supporting the finding that they leave earlier in their tenure.

**Conclusion:**

The analysis highlights that contract type, payment method, tenure, and service features are strong predictors of customer churn. Focusing on converting month-to-month contracts to longer-term contracts, encouraging the use of more secure payment methods, engaging new customers early, and promoting value-added services can help the business reduce churn and improve customer retention.