**Title: Analyzing Customer Churn: A Statistical Approach**

**1. Introduction**

The dataset under examination, "**churn\_data.csv**," encompasses a range of customer-related metrics from a telecommunication company. These metrics include Churn status, account weeks, contract renewal, data plan subscription, data usage, customer service calls, daily usage metrics, monthly charges, overage fees, and roaming minutes. The primary objective of this analysis is to uncover insights into factors that may influence customer churn using inferential statistics.

**2. Questions**

The analysis focuses on two key questions:

* Is the average monthly charge for customers who churn higher than for those who do not churn?
* Are there significant differences in the number of customer service calls between customers with and without data plans?

**3. Hypotheses**

For each question, the following hypotheses are formulated:

**Question 1 Hypotheses:**

**Null Hypothesis (H0):** The mean monthly charge for customers who churn is equal to or less than for those who do not churn.

**Alternative Hypothesis (H1):** The mean monthly charge for customers who churn is higher than for those who do not churn.

**Question 2 Hypotheses:**

**Null Hypothesis (H0):** The mean number of customer service calls for customers with data plans is the same as for those without.

**Alternative Hypothesis (H1):** The mean number of customer service calls for customers with data plans is different from those without.

**4. Methodology**

The following statistical tests were employed:

**For Question 1**, a one-sample t-test was used to compare the mean monthly charge of customers who churned against the overall mean of the dataset.

**For Question 2**, a two-sample t-test was applied to compare the mean number of customer service calls between customers with and without data plans. These tests were chosen based on the nature of the data and the questions being addressed.

**5. Results**

**Question 1:** The one-sample t-test indicated a [insert result here] suggesting that [insert interpretation of p-value and statistics].

**Question 2:** The two-sample t-test showed a [insert result here], which implies that [insert interpretation of p-value and statistics].

**6. Interpretation**

The results from Question 1 suggest that [interpretation based on the t-test results].

The findings from Question 2 indicate that [interpretation based on the t-test results]. These interpretations provide insights into the behavior and preferences of the customer base, especially in relation to churn.

**7. Conclusion**

This statistical analysis sheds light on key factors affecting customer churn. The insights gained from the analysis of monthly charges and customer service calls can guide strategic decisions in customer service management and pricing strategies. Understanding these dynamics is crucial for enhancing customer retention and identifying areas for improvement in service offerings.