

To: Associate Director

Subject: Testing the Hypothesis of Churn Due to Price Sensitivity

Dear Associate Director,

I hope this message finds you well. I have considered our discussion regarding the hypothesis that churn among SME customers may be driven by price sensitivity. In this email, I would like to outline my thoughts on how we can approach this problem and test this specific hypothesis.

The hypothesis we want to investigate can be formulated as follows:

"Churn among SME customers is influenced by their sensitivity to changes in price. Customers who are more price-sensitive are more likely to churn."

To test this hypothesis, we have 7 major steps to follow:

1. Data Collection:

- Obtain customer's historical data from PowerCo, we need information about price changes, customer demographics, usage patterns, and churn status.
- Identify relevant features and variables that may contribute to price sensitivity and churn. These could include factors like contract type, contract duration, billing frequency, payment history, and customer feedback.

2.Data Preprocessing:

- Clean and preprocess the data, we will identify and handle missing values, remove null values, outliers, and inconsistencies.
- Encode categorical variables and standardize numerical variables if necessary.

3. Exploratory Data Analysis (EDA):

- Perform EDA to gain insights into the data and understand the relationships between variables.
- Check the trends and patterns.

- Investigate the distribution of price changes and churn rates among different customer segments.

- Explore correlations and visualizations to identify potential patterns, we will also make a heat map.

4. Feature Engineering:

- Where needed, we will create new features, such as metrics for price sensitivity, customer tenure, or usage trends.

5. Model Development. - Split the dataset into training and testing sets.

- we will select appropriate machine learning models for predicting churn based on price sensitivity. Models like logistic regression, decision trees, or gradient boosting can be suitable.

- Train the models using the training data and evaluate their performance on the testing data using metrics like accuracy, precision, recall, and F1-score.

6. Interpretation and Insights:

- Analyze model results to understand the importance of price sensitivity in predicting churn.

- Identify key churn drivers among price-sensitive customers.

- Assessing the overall performance of the predictive model and its ability to differentiate between customers at risk of churning and those who are not.

7. Recommendations:

- Based on the model's predictions, we can recommend offering the 20% discount to customers identified as at-risk of churning due to price sensitivity.

- Continuously monitor the model's performance and update it as needed to ensure its accuracy over time.

Data Frame and Fields: Our data frame should include columns such as customer ID, demographics, contract details, usage data, billing history, pricing changes, and a binary churn indicator. Each row would represent an individual customer.

Conclusion: We can test this hypothesis after collaborating with PowerCo to gather the necessary data. After this we can proceed with the steps outlined above to develop a predictive model that helps us identify price-sensitive customers at risk of churning.

I'm eager to hear your thoughts on this approach and any further guidance you may have. Please let me know how you would like to proceed, and if you have any additional questions or suggestions.

Thank you for entrusting me with this important task.

Sincerely,

Oluyomi Alabi