Subject: Analyzing Customer Churn and Recommending Discount Strategy

Dear AD,

I hope this email finds you well. I have thoroughly examined the current situation and the business problem faced by our client, PowerCo, regarding customer churn in the SME segment. Based on the information provided, I have formulated a data science hypothesis and outlined the major steps to test this hypothesis.

Hypothesis:
Customer churn in the SME segment is primarily driven by price sensitivity/change. Therefore, by *identifying customers who are more likely to churn at their current price*, we can offer them a 20% discount, which could potentially incentivize them to remain loyal to our clients.

Approach and Testing Steps:

● Data Collection:

To test the hypothesis, we would require relevant data from our client. The data should include historical customer information, such as
 a) *customer demographics*,
 b) *contract details*,
 c) *pricing information*,
 d) *usage patterns*,
 e) *customer service interactions*,
 f) *and churn indicators (such as Engagement, Feedback and life-time value)*.
Additionally, it would be valuable to have data on the customers offered a discount and their subsequent churn behavior.

● Data Exploration and Preprocessing:

Once we have the data, we will perform exploratory data analysis to gain insights into the factors contributing to customer churn. We would examine the distribution of customer attributes, pricing information, and any available churn patterns. This analysis could involve visualizations, statistical summaries, and identifying correlations between variables.

- ## Feature Engineering:

Based on our understanding of the problem, we may need to engineer additional features to improve the predictive power of our model. For example, *we could calculate variables* such as the <u>percentage change in price</u>, <u>customer tenure</u>, or <u>average customer satisfaction rating</u>.

- ## Model Development:

We would train a predictive model to identify customers with a high propensity to churn. Given the nature of the problem, a *binary classification model* such as <u>logistic regression</u>, <u>decision trees</u>, or <u>random forest</u> would be suitable.
We would split the data into training and testing sets, <u>ensuring that the churned and non-churned customers</u> are represented proportionally in both sets.

- ## Model Evaluation:

We would evaluate the performance of the predictive model using appropriate metrics, such as <u>accuracy</u>, <u>precision, recall</u>, and <u>F1 score</u>. Additionally, we would analyze the <u>receiver operating characteristic (ROC) curve</u> and calculate the <u>area under the curve (AUC)</u> to assess the model's ability to discriminate between churned and non-churned customers.

- ## Identifying Customers at High Churn Risk:

Using the trained model,<u> we would predict the churn probability for each customer</u> in the SME segment. Based on the model's predictions, we can identify customers with a high likelihood of churn at their current price.

- ## Discount Strategy:

<u>For the identified high-risk customers</u>, we would <u>recommend offering them a 20% discount</u>. It is important to ensure that the discount is communicated effectively, highlighting the potential benefits of staying with PowerCo. Tracking the acceptance and subsequent churn rates of customers offered the discount will provide insights into the effectiveness of the strategy.

- ## Ongoing Monitoring and Refinement:

To continuously improve the model's accuracy, we should update the training data with new customer information and churn indicators. By retraining the model periodically, we can adapt to changing customer behaviors and market dynamics.

In conclusion, by leveraging predictive modeling techniques and offering discounts to customers at high churn risk, we aim to mitigate customer churn in the SME segment for our client, PowerCo.

Please let me know if you have any further questions or if there are specific aspects you would like me to focus on. I look forward to your feedback and guidance.

Thank you for your time.

Best regards,
Nihar Jani