Task 1

Subject: Testing the Hypothesis of Churn Driven by Price Sensitivity

Dear Associate Director,

I hope that you are doing well. As asked, I have thoroughly evaluated the premise that the price sensitivity of PowerCo's SME clients drives customer attrition. To test this theory, I would want to suggest to our team the following strategy:

1. **Data Gathering:**
   - Collect exhaustive history data about churned SME clients, including price plans, contract terms, usage trends, and any accessible demographic or firmographic features.
   - Obtain data regarding the current pricing plans and items offered to SME customers who haven't yet churned and serve as our control group.
2. **Feature Engineering:**
   - Explore and uncover probable characteristics that may be associated with price sensitivity and client churn. These factors might include contract term, price fluctuations over time, price in relation to rivals, client profitability, consumption trends, and any accessible consumer pricing feedback.
3. **Predictive Modelling:**
   - Using historical data, develop a prediction model to evaluate the chance of customer attrition for each SME.
   - Utilize an appropriate machine learning approach to construct a binary classification model such logistic regression, decision trees, or random forests to create the prediction model.
   - Train the model on a set of data, reserving a second sample for model assessment and validation.
4. **Model Evaluation and Validation:**
   - Examine the prediction model's performance with relevant evaluation measures, such as precision, recall, and F1 score.
   - Validate the performance of the model on the specified set of data to confirm its generalizability and predictivity.
5. **Identify Price Sensitivity Indicators:**

- Conduct a feature importance study to determine the most significant factors related to price sensitivity and customer retention.
- Evaluate the effect of pricing-related factors on the model-predicted churn probability.
- Analyse the relation between the discovered price sensitivity indicators and customer attrition, taking into account the relevance and scale of their effects.

6. **Discounting Strategy:**
   - Based on the results of the predictive model, categorise the SME clients according to their probability of churning.
   - Choose a threshold probability at which consumers are regarded to have a high churn propensity.
   - Apply the recommended discounting method (ie, a 20% discount) to consumers with probabilities over the threshold and observe their behaviour over a predetermined time.
   - Compare the turnover rate and overall customer satisfaction of the discount group to a control group who did not get the discount.
7. **Iterative Analysis and Refinement:**
   - Analyse the outcomes constantly, including the effect of the discounted strategy on customer churn, retention levels, and profit.
   - Refine the prediction model and pricing approach in light of the initial analysis's findings.
   - To further enhance the price plan, consider other elements such as consumer feedback, market dynamics, and competition offers.

By using the suggested methodology, we can successfully evaluate the claim that price sensitivity drives attrition among PowerCo's SME customers. This research will give useful insights into the link between price, customer behaviour, and attrition rates. In addition, we may evaluate the possible efficacy of the 20% discounting approach proposed by the SME division head.

I am eager to work with the team to unearth significant insights that will benefit PowerCo's customer retention and satisfaction initiatives. Please let me know if you have any more questions or if you would want us to explore any other factors.

Best regards,

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