✅ Task Summary: Framing the Problem
PowerCo suspects that price sensitivity is causing customer churn, but we need to validate this with data.

The job is to:
Draft an email to the client.
Clearly outline the data we need to collect (e.g. pricing plans, customer feedback, usage trends).
Describe the techniques and steps you'll use to analyze the data, such as:
Data cleaning
Exploratory analysis
Feature engineering
Modeling
Drawing insights and recommendations

Subject: Proposal to Test Hypothesis on Price Sensitivity and Customer Churn

Dear Sir/Madam,

I hope you're doing well.

Following our recent team discussion on SME customer churn, I've taken a closer look at the hypothesis that price sensitivity is a key reason for customers leaving. Below is a simplified plan to test this idea using data science.

Framing the Hypothesis:
We can treat this as a predictive modeling task. The goal is to predict which customers are likely to churn based on their behavior and pricing data—especially how sensitive they are to price. We also want to identify which of these customers could be retained if offered a 20% discount.

Proposed Steps:
1.Data Collection: Gather data on past customer behavior, including when and why they churned, price changes, and any discounts they were given.
2.**Feature Engineering:** Identify key factors that may influence churn, such as:Changes in pricing,Length of contract,Usage patterns,Customer demographics,How long they've been with the company
3.**Data Pre processing**: Handle missing values and outliers. Normalize or scale numerical features. Encode categorical variables appropriately.
4. **Model Selection**: Consider using machine learning algorithms such as logistic regression, decision trees, or ensemble methods. Evaluate model performance using metrics like accuracy, precision, recall, and F1-score.
5. **Model Training and Validation**: Split the dataset into training and validation sets. Train the model on historical data and validate its performance on a separate dataset.
6. **Interpretability Analysis**: Assess the importance of each feature, with a focus on price sensitivity. Understand how changes in price affect the likelihood of churn.
7. **Prediction for Monthly Discount Offers**: Apply the trained model to predict which customers are at a higher risk of churning. Recommend a 20% discount to customers identified as high-risk.
8. **Monitoring and Iteration**: Regularly monitor the model's performance and update it as new data becomes available. Iterate and refine the model based on ongoing insights and feedback.

Data Needed:
To proceed with the analysis, we would need access to the following data from the client:
• Historical customer data, including churn events.
• Pricing information and changes over time.
• Details on discounts offered to customers.
• Any additional relevant data such as customer demographics.

Timeline :
Considering the client's plan to use the predictive model on the 1st working day of every month, we should aim to have a working model well in advance. A tentative timeline could include data collection and preprocessing in the first two weeks, model development and validation in the third week, and the final model ready for deployment by the end of the month.I look forward to discussing this proposal further and welcome any additional insights or suggestions from the team.