Here is the background information on your task:

PowerCo is a major gas and electricity utility that supplies to corporate, SME (Small & Medium Enterprise), and residential customers. The power-liberalization of the energy market in Europe has led to significant customer churn, especially in the SME segment. They have partnered with BCG to help diagnose the source of churning SME customers.
A fair hypothesis is that price changes affect customer churn. Therefore, it is helpful to know which customers are more (or less) likely to churn at their current price, for which a good predictive model could be useful.
Moreover, for those customers that are at risk of churning, a discount might incentivize them to stay with our client. The head of the SME division is considering a 20% discount that is considered large enough to dissuade almost anyone from churning (especially those for whom price is the primary concern).
The Associate Director (AD) held an initial team meeting to discuss various hypotheses, including churn due to price sensitivity. After discussion with your team, you have been asked to go deeper on the hypothesis that the churn is driven by the customers' price sensitivities.
Your AD wants an email with your thoughts on how the team should go about testing this hypothesis.
The client plans to use the predictive model on the 1st working day of every month to indicate to which customers the 20% discount should be offered.

Here is your task:
Your first task today is to understand what is going on with the client and to think about how you would approach this problem and test the specific hypothesis.
You must formulate the hypothesis as a data science problem and lay out the major steps needed to test this hypothesis. Communicate your thoughts and findings in an email to your AD, focusing on the data that you would need from the client and the analytical models you would use to test such a hypothesis.
We would suggest spending no more than one hour on this task.

Please note, there are multiple ways to approach the task and that the model answer is just one way to do it.

Dear [AD],

After our team meeting, I've spent some time considering the hypothesis that customer churn in the SME segment may be influenced by price sensitivity. Here are my initial thoughts on how we can approach testing this hypothesis.

Hypothesis: churn is driven by the customers' price sensitivities in the SME segment
Data Science Problem: develop a prediction model to identify customers at risk of churning due to price sensitivity. With machine learning models, it would be a binary classification problem with the target variable as customer churn.

Therefore, to dive deeper into the hypothesis testing, we would need these major steps:

1. data collection:
    - gather historical data on customer churn, including churn status, current prices (and pricing changes if applicable), reasons for churn (if applicable), additional customer data (if applicable, such as countries, the size of SME customers, duration of customers, applied discounts, etc.)
    - ideally represent the data in tabular form, where each row represents one customer's data
2. data preprocessing
    - clean and preprocess data, handle missing values and outliers
    - define what price sensitivity is and calculate it
    - engineer features that may be relevant to churn rates
3. exploration data analysis
    - explore and visualize the distribution of churn rates
    - explore any patterns in churn behaviors
    - explore correlations between churn and various factors, with a focus on pricing-related variables
4. model selection
    - select predictive classification models such as logistic regression, decision trees, etc.
5. model training and evaluation
    - split data into training and testing sets to evaluate model performance; use cross-validation if necessary
    - train the model
    - evaluate the model's performance using metrics like accuracy, precision, recall, F1 score, and so on
    - select the model with the best performance if multiple models are compared
6. predict for discount offering and interpret

I believe these steps provide a structured approach to test our hypothesis. Please let me know if you have any specific considerations or if there are additional aspects you'd like us to explore.

Best regards,