**PowerCo problem context**

**Task 1**

The Problem?

PowerCo, a major utility provider, faces significant churn, particularly in the SME segment after the liberalization of the energy market. Partnered with BCG, they aim to uncover why SME customers are churning.

Hypothesis?

The hypothesis posits that customers' decisions to leave are correlated with their responsiveness to fluctuations in pricing strategies. Essentially, it suggests that those who are more reactive or price-sensitive might be more inclined to churn when faced with changes in pricing for services or products.

Steps to verify this hypothesis:

1. **Data Preparation:** Gather historical churn data, pricing information, and customer attributes.
2. **Feature Engineering:** Extract relevant features like price sensitivity indicators, customer demographics, and past behavior.
3. **Model Development:** Build a predictive model (logistic regression, XGBoost) to assess churn likelihood based on pricing and customer attributes.
4. **Model Evaluation:** Validate the model's accuracy, precision, and recall using cross-validation techniques.
5. **Hypothesis Testing:** Analyze correlations between churn and price sensitivity indicators. Conduct statistical tests to validate the relationship.
6. **Prediction Implementation:** Apply the model to predict potential churners monthly, identifying customers eligible for the 20% discount.
7. **Monitoring and Refinement:** Continuously monitor model performance and customer response to discounts, refining the model iteratively for better predictions and retention strategies.