**Subject**: Proposed Approach to Test the Hypothesis on Price Sensitivity Driving Churn

Dear AD

I have carefully considered our discussion on the hypothesis that customer churn within the SME segment may be driven by price sensitivity. To delve deeper into this matter and provide actionable insights, I propose the following approach:

**1. Define the Hypothesis as a Data Science Problem:**

- Hypothesis Statement: Churn within the SME segment is influenced by price sensitivity.

- Data Science Problem: Build a predictive model to identify customers at risk of churning based on their price sensitivity.

**2. Data Requirements:**

- Customer Data: Gather comprehensive data on SME customers, including but not limited to:

- Customer demographics (industry, company size, location)

- Historical usage patterns (electricity and gas consumption)

- Billing information (current price, payment history)

- Contract duration and renewal patterns

- Churn Labelling: Identify a clear definition of churn for SME customers, such as non-renewal or explicit cancellation.

**3. Formulate the Data Frame:**

- Columns:

- Customer ID

- Demographic details

- Usage patterns

- Billing information

- Contract details

- Churn label (0 for no churn, 1 for churn)

- Rows: Each row represents an individual SME customer.

**4. Exploratory Data Analysis (EDA):**

- Correlation Analysis: Examine correlations between churn and various factors (e.g., price changes, contract duration, usage patterns).

- Descriptive Statistics: Understand the distribution of key variables among churned and non-churned customers.

- Visualizations: Utilize visualizations to identify patterns and outliers that may indicate price sensitivity among churned customers.

**5. Model Selection:**

- Classification Model: Since the outcome is binary (churn or no churn), consider using classification algorithms such as logistic regression, decision trees, or random forests.

- Feature Importance: Assess which features contribute the most to predicting churn, with a specific focus on pricing-related variables.

**6. Model Evaluation:**

- Train-Test Split: Divide the dataset into training and testing sets.

- Model Metrics: Evaluate the model using metrics like accuracy, precision, recall, and F1 score to ensure its effectiveness in predicting churn.

**7. Discount Incentive Strategy:**

- Threshold Determination: Establish a threshold for the model's churn probability above which a 20% discount is offered.

- Monthly Application: Apply the predictive model on the 1st working day of each month to identify customers eligible for the discount.

I believe this structured approach will provide us with valuable insights into the relationship between price sensitivity and churn within the SME segment. Please let me know if you have any further insights or if you'd like additional details on any aspect of the proposed plan.

Looking forward to your feedback.

Best regards,

BHARAT KUMAR KORI.