Case Study- Analytics Executive

Business Context

Our company manages two major categories, X and Y, which are highly price sensitive. Additionally, an alternative category Z competes with X and Y. The dataset provided contains key information, including:

- Volumes for products X and Y.

- $/unit for X and Y.

- The percentage of consumers using category Z in the market.

- The percentage of counterfeit products for categories X and Y.

- Mean income levels of pure consumers of X and Y.

Your task is to use this data to address the following objectives:

Objectives

1. **Forecast FY25 Volume Growth/Decline**:

   o Build a forecasting model to estimate the volume growth or decline for products X and Y in FY25.

   o Use critical drivers from the dataset to ensure an accurate and meaningful forecast.

   o Justify your choice of variables, removing unnecessary ones based on statistical evidence.

2. **Interactive Forecasting Template**:

   o Develop an interactive tool (e.g., in Streamlit or another preferred platform) that allows:

      ▪ Visualization of actual and forecasted volumes for X and Y.

      ▪ Input of assumptions for FY25 drivers (e.g., % change in counterfeit, alternative category penetration, $/unit).

      ▪ Dynamic adjustment of forecasts based on these inputs.

- o Include relevant forecasting metrics such as accuracy (e.g., RMSE, MAPE) and model performance indicators.

Expected Deliverables

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

   - o Summarize the data with insights, highlighting relationships, trends, and correlations between variables.

   - o Include visualizations and statistical tests to justify the choice of forecasting drivers.

2. **Forecasting Model**:

   - o Develop and document a simple yet effective forecasting model.

   - o Explain the methodology, assumptions, and drivers influencing the forecast.

3. **Interactive Template**:

   - o Create a user-friendly tool to:

     - ▪ Display actuals and forecasts for X and Y.

     - ▪ Allow assumptions for FY25 to be entered and reflect updates dynamically.

     - ▪ Provide space to summarize EDA findings and model results.

4. **Model Evaluation**:

   - o Present accuracy metrics and any other relevant performance indicators.

   - o Explain how the model and template will aid in business decision-making.

Guidelines

- Use only the necessary variables for forecasting, dropping others with statistical justification.

- Ensure the tool is intuitive and actionable for business users.

- Include documentation or a brief walkthrough of the tool.

You are encouraged to demonstrate creativity in your approach and build a solution that is both robust and business relevant.