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Professional School
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CONSUMER PRICE INDEX FORECASTING
PROBLEM STATEMENT, VARIABLE DESCRIPTION & DELIVERABLES

Consumer Price Index Forecasting – Objective & Deliverables

Problem Statement:

The Consumer Price Index (CPI) is a vital measure of inflation, reflecting the average change in prices over time that consumers pay for a basket of goods and services. It is used to assess price changes associated with the cost of living. The objective of this project is to analyze the CPI trends for any State and use time series modeling to forecast future CPI values.

Data Description:

The CPI data used in this analysis includes both rural and urban indices, collected monthly for each state in India. The data covers the period from January 2011 to March 2022, sourced from official government records.

Deliverables:

For the analysis, Take any state data based on your preference. Then combined CPI for that State by summing the rural and urban CPI indices for each month.

- ❖ Exploratory Data Analysis (EDA):
  - ➢ Examine the distribution of CPI over time to understand overall trends and patterns.
  - ➢ Identify any missing values and periods with potential data gaps.
  - ➢ Detects outliers that may indicate unusual economic events or data errors.
- ❖ Model Building:
  - ➢ Choose a suitable time series model such as ARIMA or SARIMA based on the data's characteristics.
  - ➢ Determine the model parameters using techniques like grid search or examining ACF/PACF plots.
- ❖ Forecasting and Analysis:
  - ➢ Generate forecasts for the next several months to anticipate CPI trends.
  - ➢ Plot forecasted values along with confidence intervals.
- ❖ Business Recommendations:
  - ➢ Identify periods of high inflation or deflation and their potential causes.
  - ➢ Highlight key trends and potential economic impacts.
- ❖ Model Evaluation (if applicable):
  - ➢ Use metrics like Mean Absolute Error (MAE) or Root Mean Squared Error (RMSE) to evaluate model accuracy.