SET 1Scenario 1: Identifying Trend

You are given a dataset showing daily temperature for the past year. You notice the values generally increase over time. How do you confirm the presence of a trend?

Plot data

Check rolling mean

Augmented Dickey Fuller Test

If p-value>0.05-Non-stationary

Conclusion-Data has a trend confirmed by plot and ADF test

Scenario 2: Detecting Seasonality

You are analyzing monthly electricity usage and notice similar spikes every summer. How do you confirm seasonality?

Plot the time series

Use Seasonal decomposition

Check Autocorrelation plot ACF

Conclusion-Data has yearly Seasonality

Scenario 3: Making Data Stationary

Question:

Your time series model gives poor results. The data shows trend and seasonality. How do you prepare it for ARIMA?

Check stationarity-use ADF test
Remove Trend
Remove seasonality
Recheck ADF test on transformed data
Conclusion- Differencing removes nonstatistical suitable for ARIMA

Scenario 4: Choosing Model for No Seasonality

Your time series data (e.g., daily website visits) has no visible seasonality but has a clear trend. Which model would you choose?

Plot the data-confirm no repeating seasonal pattern
Use ADF test-To check stationality
Use ARIMA model
Use autoarima

Conclusion-choose ARIMA for trend**Scenario 5: Evaluating Forecast Performance**
You forecast sales for 3 months and want to check how accurate it is. What steps do you follow?
Compare forecast vs actual values
Calculate error metrics
MAE
RMSE
MAPE
Interpret results
Conclusion-use errors metrics to evaluate forecast quatity

Scenario 6: Sudden Spike in Data

You're analyzing daily water consumption. One day, the value suddenly jumps very high. What will you do?

Check if it is real
If real-keep the value
If error or outlier
Replace it with the average if nearby values
Or use smothing methods

Scenario 7: Sales Goes Up Every December

You're analyzing a store's monthly sales. Sales always increase in December. What does this indicate?

Check if thishappens every year
This means there is seasonality
Model to use
Holt-Winters
SARIMA
Prophet
Conclusion=December sales pattern =seasonality

Scenario 8: Forecasting with Missing Values

You are forecasting stock prices, but a few days of data are missing. What should you do?
Check how much data is missing
Donot drop rows unless the missing part is too llarge
Donot drop rows unless the missing part is too large

Use forward fill or interpretation
Conclusion: Handle missing values before building the model