

Set2Scenario 1: Forecast for Next Week

You want to predict the next 7 days of website traffic. What should you do?

Check-trend/seasonality

If there is a pattern use SARIMA

Not use ARIMA or MA

Train on past data

Forecast using Models

Plot to compare

Conclusion: from the use of model pattern and forecast ahead

Scenario 2: Choosing a Time Series Model

Your data has no trend and no seasonality. What model will you choose?

Plot data-flat,no clear pattern

No trend or seasonality-use ARIMA

Fit and test model

Conclusion: for flat series choose AR or MA

Scenario 3: Monthly Sales Data Showing Steady Growth

You observe that monthly sales data for a company has been increasing steadily over the last 2 years. How would you forecast future sales?

Visualize the sales trend

Recognise that trend in ts

Check if it is stationary-no trend or seasonality

Trend-apply differencing to make data stationary

Select model- AR,MA

Train the model on past data and generate future months

Conclusion:data has a trend and no stationary use ARIMA after its stationary

Scenario 4: Periodic Increase in Sales Every December

Sales data for a retail store shows a spike every December. How do you handle this while forecasting?

Identify repeating pattern-seasonality

Confirm by visualizing multiple years

Use ARIMA

Fit the seasonal model that on historical data
Use model to forecast future values ensuring it captures December peaks
Conclusion: seasonality required model that gives repeated pattern
Use SARIMA

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Scenario 5: Handling Missing Values in Time Series

You are analyzing a time series with missing daily values. What approach will you take?

Check where the data missing-random or blocks
If few values filled by previous values
If many- put start,end
Never ignore time points data
After this proceed Model build
Conclusion: Fill missing values ,it preserves continuity and data integrity

Scenario 6: Evaluating the Accuracy of Forecasts

You've built a time series model. How will you evaluate if it's accurate?

Divide train , test
Train model and generate forecast
Compare forecast with actual values
MAE
RMSE
MAPE
Smaller the error value,better model
Compare different model based on these metrics to select the best
Conclusion: Validate time series model using real data and appropriate error metrics