Time Series-2

12 out of 12 correct

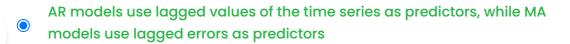
1. What does ARIMA stand for in time series analysis?			
		Autoregressive Integrated Moving Average	
		Average Regression Interpolation Moving Analysis	
		Advanced Randomness Integration Model Analysis	
		Autocorrelated Random Intercept Mean Analysis	
Explanation: ARIMA stands for Autoregressive Integrated Moving Average, which is a widely used time series analysis method for forecasting.			
2. What is the main intuition behind ARIMA?			
		To model the autoregressive relationship between the time series and its lags	
		To model the moving average relationship between the time series and its lags	

Explanation: The main intuition behind ARIMA is to model the autoregressive relationship between the time series and its lags. Autoregression refers to the dependence of the time series on its own past values, and ARIMA models this dependence by using lagged values of the time series as predictors.

3. What is the difference between AR and MA models in ARIMA?

To model the seasonal variation in the time series

To model the trend in the time series





AR models use lagged errors as predictors, while MA models use lagged values of the time series as predictors
AR and MA models are the same and can be used interchangeably
AR and MA models are not used in ARIMA
Explanation: AR and MA models are both components of ARIMA, but they have different roles. In an AR model, the dependent variable is regressed on its own past values, while in an MA model, the dependent variable is regressed on lagged errors.
4. What is the intuition behind differencing in ARIMA?
To remove the trend from the time series
To remove the seasonal variation from the time series
To make the time series stationary
To make the time series non-stationary
Explanation: The intuition behind differencing in ARIMA is to make the time series stationary, which means that the statistical properties of the time series (such as the mean and variance) do not change over time. Differencing involves taking the difference between consecutive values of the time series, which can help remove trends and other non-stationary patterns.
5. Which of the following is a limitation of ARIMA models?
They cannot handle non-linear relationships between the time series and its predictors
They cannot handle seasonality in the data
They cannot handle missing data in the time series
They cannot handle large datasets
Explanation: ARIMA models assume a linear relationship between the time

Explanation: ARIMA models assume a linear relationship between the time series and its predictors, and therefore cannot handle non-linear relationships. If the relationship between the time series and its predictors is non-linear, other methods such as neural networks or support vector machines may be more appropriate.

o. Which of the following is not a step in the Akima modelling process:				
Identifying and removing outliers				
Plotting the autocorrelation and partial autocorrelation functions				
Fitting a linear regression model to the time series data				
While linear regression is a related technique, it is not part of the ARIMA modelling process.				
Explanation: While linear regression is a related technique, it is not part of the ARIMA modelling process.				
7. Which of the following is a common method for selecting the order of the ARIMA model?				
Maximum likelihood estimation				
Akaike information criterion (AI(c)				
Bayes factor				
Pearson correlation coefficient				
Explanation: The Akaike information criterion (AI(c) is a widely used method for selecting the order of the ARIMA model. It balances the fit of the model to the data with the complexity of the model.				
8. When differencing a time series, what does a first-order difference mean?				
Subtracting the current value of the time series from the value at lag 1				
Subtracting the current value of the time series from the value at lag 2				
Subtracting the value at lag 1 from the value at lag 2				
Subtracting the value at lag 2 from the value at lag 1				
Explanation: A first-order difference involves taking the difference between consecutive values of the time series, which can be written as Y(t) - Y(t-1).				

9. Which of the following is not a type of ARIMA model?

ARMA				
ARMAV				
○ ARIMA				
SARIMA				
Explanation: ARMAV is not a standard type of ARIMA model				
10. Which of the following is a method for diagnosing the residuals of an ARIMA model?				
Plotting the autocorrelation and partial autocorrelation functions				
Fitting a linear regression model to the residuals				
Plotting the residuals against the time index				
Calculating the Pearson correlation coefficient				
Explanation: The autocorrelation and partial autocorrelation functions can be used to diagnose the residuals of an ARIMA model. If there is still structure in the residuals (e.g., significant autocorrelation at lag 1), this suggests that the model may not be a good fit for the data.				
II. Which of the following is not a common method for forecasting with an ARIMA model?				
Recursive forecasting				
Rolling window forecasting				
Backward forecasting				
One-step-ahead forecasting				
Explanation: Backward forecasting is not a standard method for forecasting with an ARIMA model.				

12. Which of the following is a common method for evaluating the performance of an ARIMA model?

\bigcirc	Mean absolute percentage error (MAPE)
\bigcirc	Mean squared error (MSE)
\bigcirc	Root mean squared error (RMSE)
	All of the above

Explanation: All of these metrics are commonly used to evaluate the performance of an ARIMA model.

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