# Running forecasting model on your time series data

2) Understand and explain your model output.

A graph showing the growth of the year

Description automatically generated

This is a Time Series Data plot of Spotify Quarterly Revenue Dataset. The time series starts in the third quarter of 2017 and has a quarterly frequency.

A graph with a line

Description automatically generated

The x-axis represents time series and y-axis represents the forecasted values based on the mean forecast. The forecasted values will be relatively smooth and may resemble an average of the past three observed values.

A graph with a line

Description automatically generated

Here, the Naive forecasted values will be identical to the observed values from three time periods ago [lag of 3 time periods compared to the original data].

A graph of a growth

Description automatically generated with medium confidence

Here, the random walk forecasted values will be identical to the most recent observed value for the next 3 time periods.

A graph with a line

Description automatically generated

Adding a drift component to the random walk forecast allows it to capture and project linear trends in the data, making it more flexible and useful for time series with linear trends.

A graph showing the growth of a number of years

Description automatically generated with medium confidence

The seasonal naive forecasted values will be identical to the values from the same season (quarter) of the previous year for the next 3 time periods.

A graph with a line going up

Description automatically generated

The moving average forecasted values are calculated by taking the average of the last 5 observed values at each time point.

A graph with a line going up

Description automatically generated

A moving average order of 9 means that the forecasted values will exhibit a high level of smoothing, providing a clear view of the overall trend in the data while filtering out short-term variations.

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Description automatically generated

The ETS model is trying to understand and use the random fluctuations, trends, and repeating cycles in data to make predictions about what might happen next.

3) Plot the time series and different model forecasts in one chart.

A graph showing the growth of the company's stock market

Description automatically generated

4) Pick an accuracy measure, compare your models, and state the best model based on the accuracy comparison.

🡪 Lower values of MAE, RMSE, and MAPE indicate better accuracy. In this case, ETS model gives the most accurate prediction.