Twitter Thread by Andres Segura-Tinoco



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A time series (TS) is a series of data points indexed (or listed or graphed) in time order, with equally spaced time intervals.

Let me tell you a little about them, in the following thread ■

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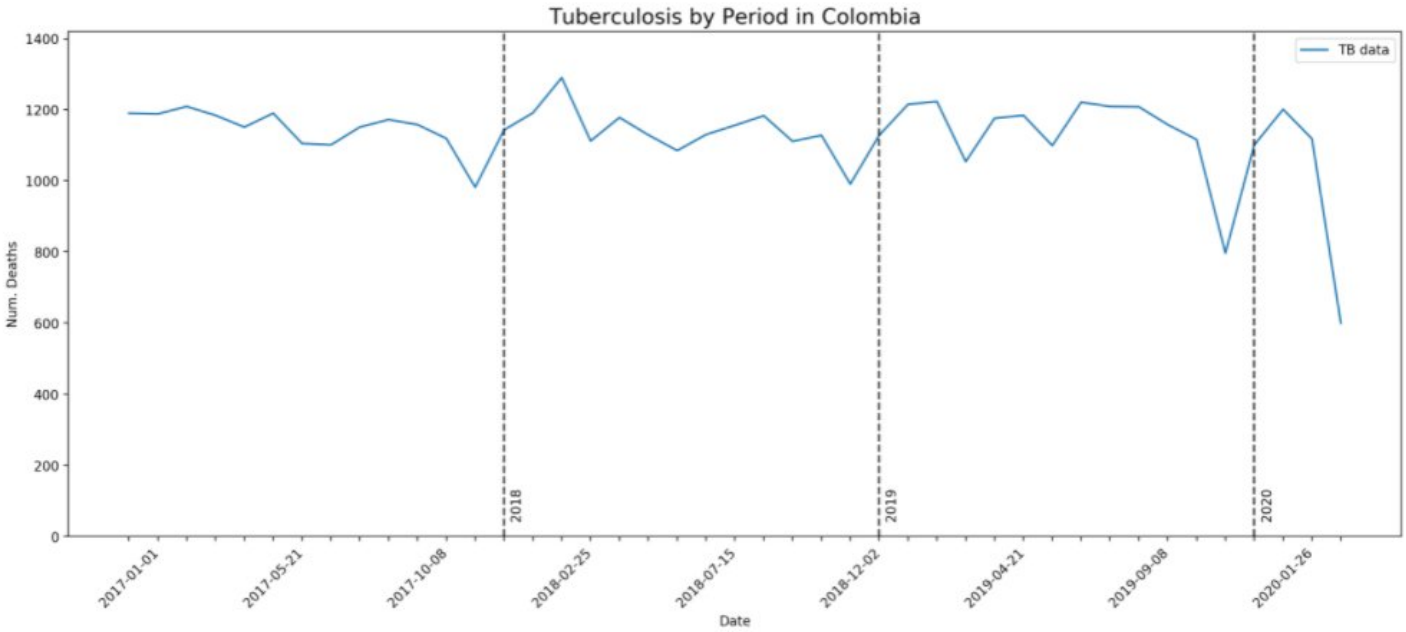

Currently, time series analysis is applied in many fields, such as:

■Economic forecasting
■Inventory analysis
■Stock price forecasting
■Medical supplies forecasting
■Census analysis

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The 4 main components of a time series are:

■■Level: the average value in the series if it were a straight line.
■■Trend: the linear increasing or decreasing behavior of the series over time.

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and,

■■Seasonality: the repeating patterns or cycles of behavior over time.
■■Noise: the random variation in the series that cannot be explained by the model.

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A time series can be decomposed into its components using the following 2 methods:

■■Additive decomposition: Level + Trend + Seasonality + Noise

■■Multiplicative decomposition: Level * Trend * Seasonality * Noise

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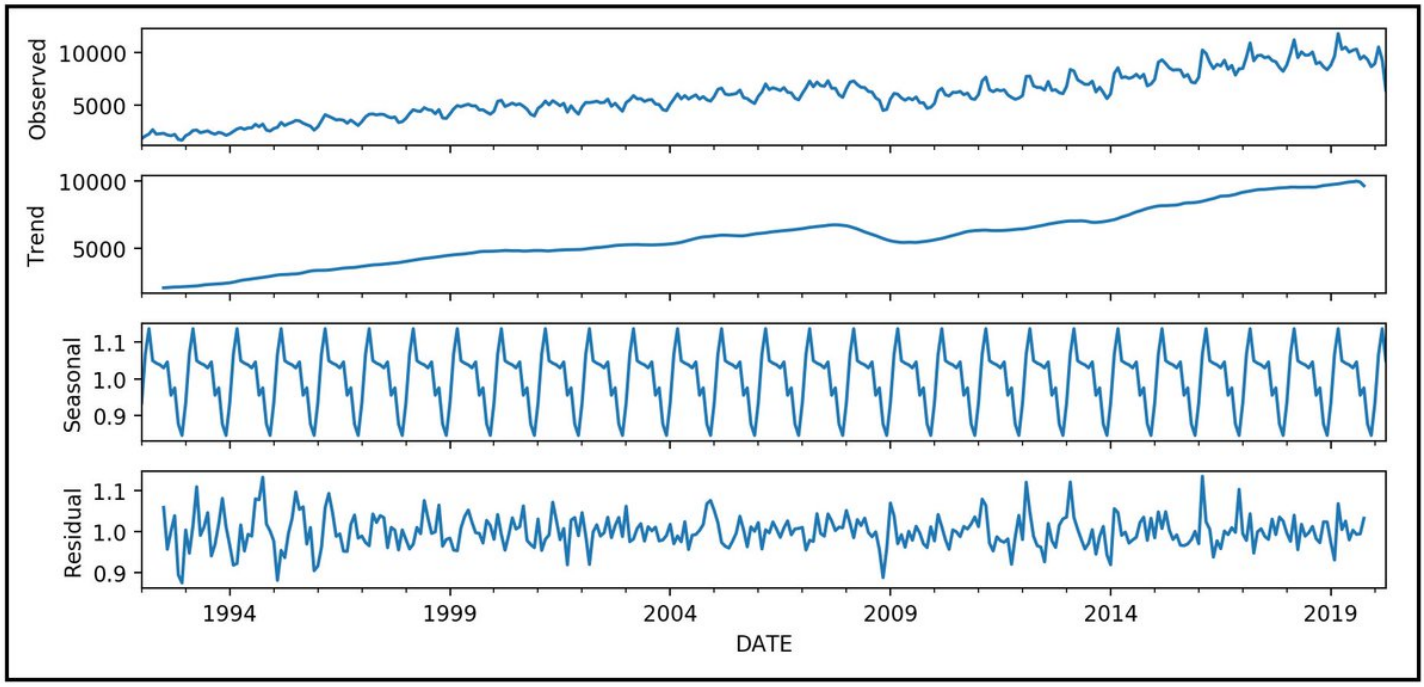

Additionally, two of the most commonly used methods for time series analysis are:

■Box-Jenkins Analysis
■Holt-Winters Analysis

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The Box–Jenkins method, applies autoregressive moving average (ARMA) or autoregressive integrated moving average (ARIMA) models to find the best fit of a time-series model to past values of a time series.

Another (very useful) variant is SARIMAX.

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Holt-Winters analysis is a time series forecasting method for univariate data that can be extended to support data with a systematic trend or seasonal component.

A variant is Holt-Winters (Triple) Exponential Smoothing, with support for both trends and seasonality.

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Finally, both Python and R have excellent libraries and documentation for performing time series analysis.

Let's get to work!

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