Multiplicative seasonality, the size of the seasonal fluctuations vary, depending on the overall level of the series.

Exponential smoothing is a procedure for continually revising a forecast in the light of more recent experience. Exponential Smoothing assigns exponentially decreasing weights as the observation get older. In other words, recent observations are given relatively more weight in forecasting than the older observations.

Forecasting is the process of making projections about future performance on the basis of historical and current data.

Holt-Winters is a set of equations which handle time series data that show trend, seasonality, and a random effects.

Additive Seasonal Model is the Holt-Winters model used when the data exhibits Additive seasonality. In this model, we assume that the time series is represented by the model

$$y_t = a + bt + S_t + \epsilon_t \tag{1.1}$$

where,

y_t response of interest at time t
a is the base signal also called the permanent component
b is a linear trend component
S_t is a additive seasonal factor
ϵ_t is the random error component
Let the length of the season be L periods.

The seasonal factors are defined so that they sum to the length of the season, that is

$$\sum_{1 \leq t \leq L} S_t = 0. \tag{1.2}$$

The trend component b if deemed unnecessary, maybe deleted from the model.

The application of the model and further description of the rest of the set of equations in the model can be found in Kalekar (2004, p 7).

Precipitation is a deposit on earth of hail, mist, rain, sleet, or snow. It is also the quantity of water deposited.