1 Exponential Smoothing

- Used to predict future data trends: For example, weather forecasting

$$S_i = \alpha x_i + (1 - \alpha) S_{i-1},$$

Where α and $1 - \alpha$ remove the outlying data. x_i is the actual data. This is a recurrence relation, which can be represented by

$$S_i = \alpha(x_i + (1 - \alpha)x_{i-1} + (1 - \alpha)^2 x_{i-2} + \dots)$$

As the terms increase, the $1 - \alpha$ term begins to decrease.