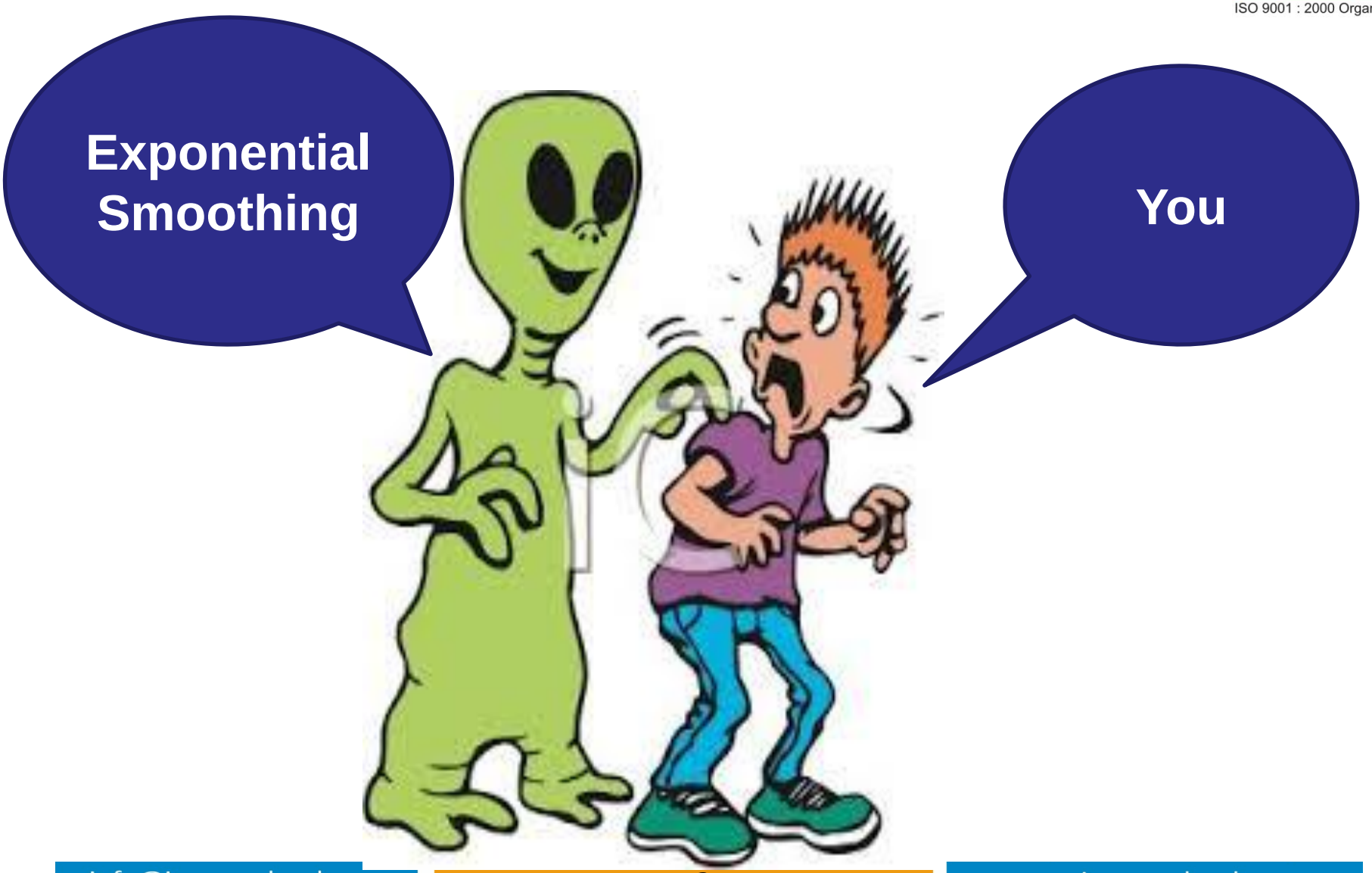
Professional School
ISO 9001 : 2000 Organisation

Business Analytics

Time Series Modeling : Exponential Smoothing

Exponential Smoothing..!!



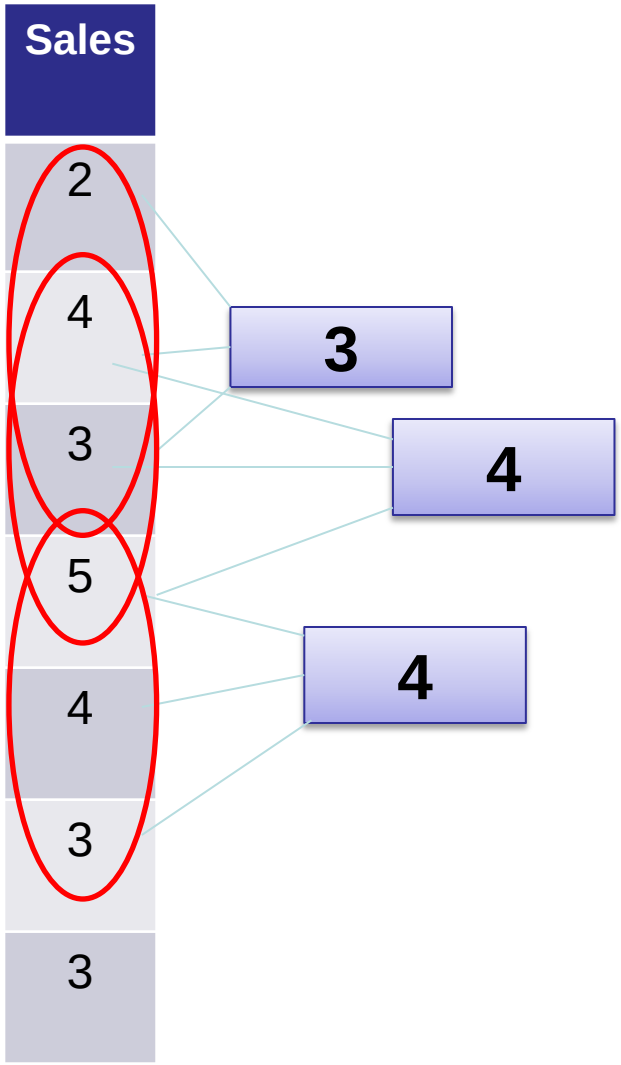
Comparing Summers..!!

Comparing Summers..!!

Summer 1 (Temperature)	Summer 2 (Temperature)
34	38
36	39
35	41
33	40
35	42
36	38
36	40

35	39.7

Moving Average..!!



Weighted Moving Average..!!

Month	Sales
Jan	2
Feb	4
Mar	6
Apr	8

Average
5

Weight	New Weight
25%	15%
25%	20%
25%	30%
25%	35%

Exponential Smoothing..!!

Month	Sales
Jan	2
Feb	4
Mar	6
Apr	8

Average
5

New Weight	Carry forward
65% of 14.79%	Goes on till the start value!
65% of 22.75%	14.79%
65% of 35%	22.75%
35%	100% - 35% = 65%

Exponential Smoothing..!!

The most recent period's demand multiplied by the smoothing factor.

PLUS

The most recent period's forecast multiplied by (one minus the smoothing factor).

(D*S)+(F*(1-S))

D = Most recent period's forecast

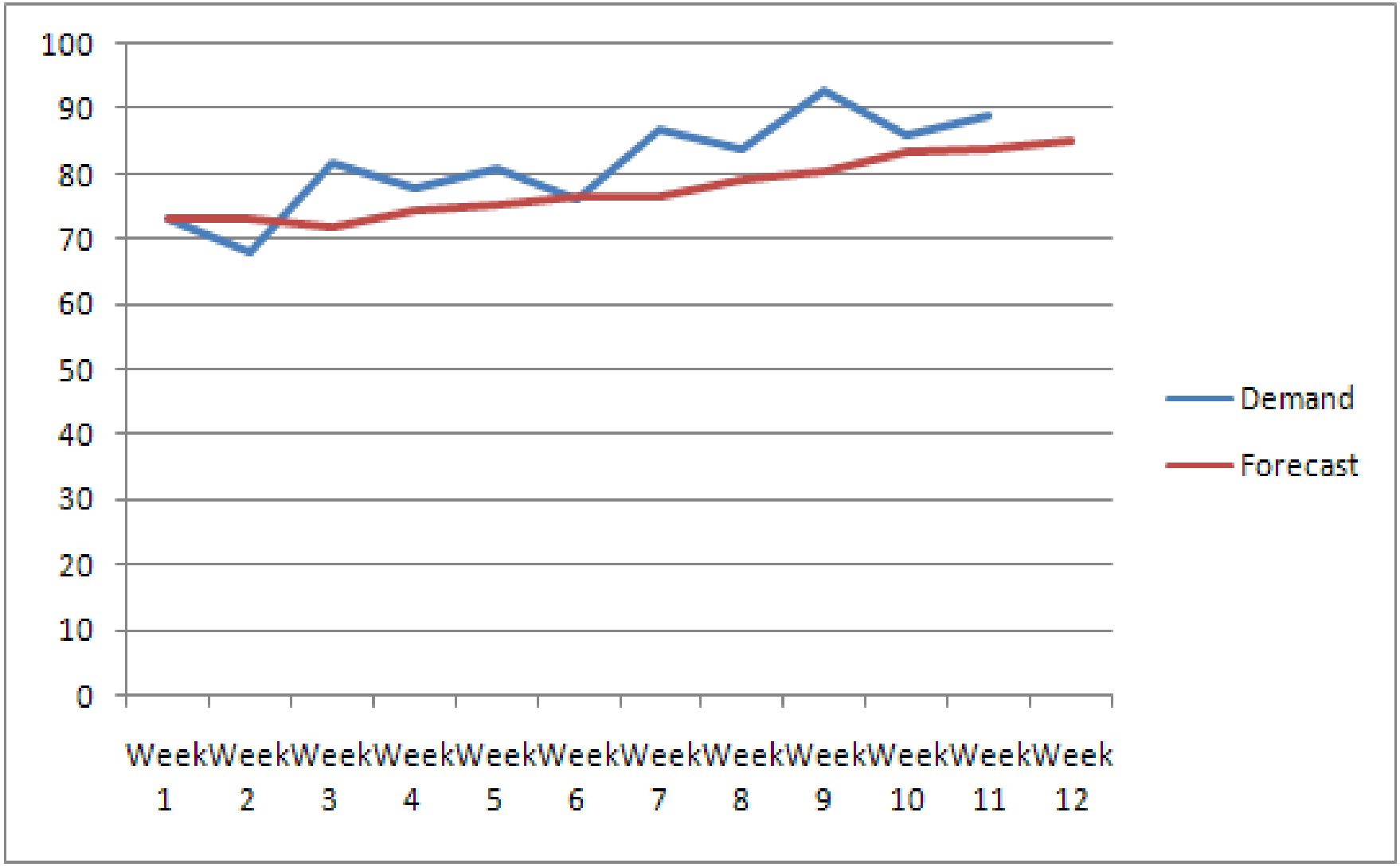
S = Smoothing factor (35% or 0.35 in this example)

F = Most recent period's forecast

So in this example it would be ….

(D*0.35)+(F*0.65)

Exponential Smoothing plot!!



Exponential Smoothing!!

- **Simple Exponential Smoothing**
- **Double Exponential Smoothing**
- **Triple Exponential Smoothing**

Simple Exponential Smoothing!!

- **Doesn’t mean re smoothing of the demand multiple times**

- **Smoothing of Base demand**

Double Exponential Smoothing!!

- **Smoothing on additional elements of forecast.**

- **Smoothing of Base Demand plus trend**

Triple Exponential Smoothing!!

- **Smoothing on additional elements of forecast.**

- **Smoothing of Base Demand plus trend plus seasonality.**

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