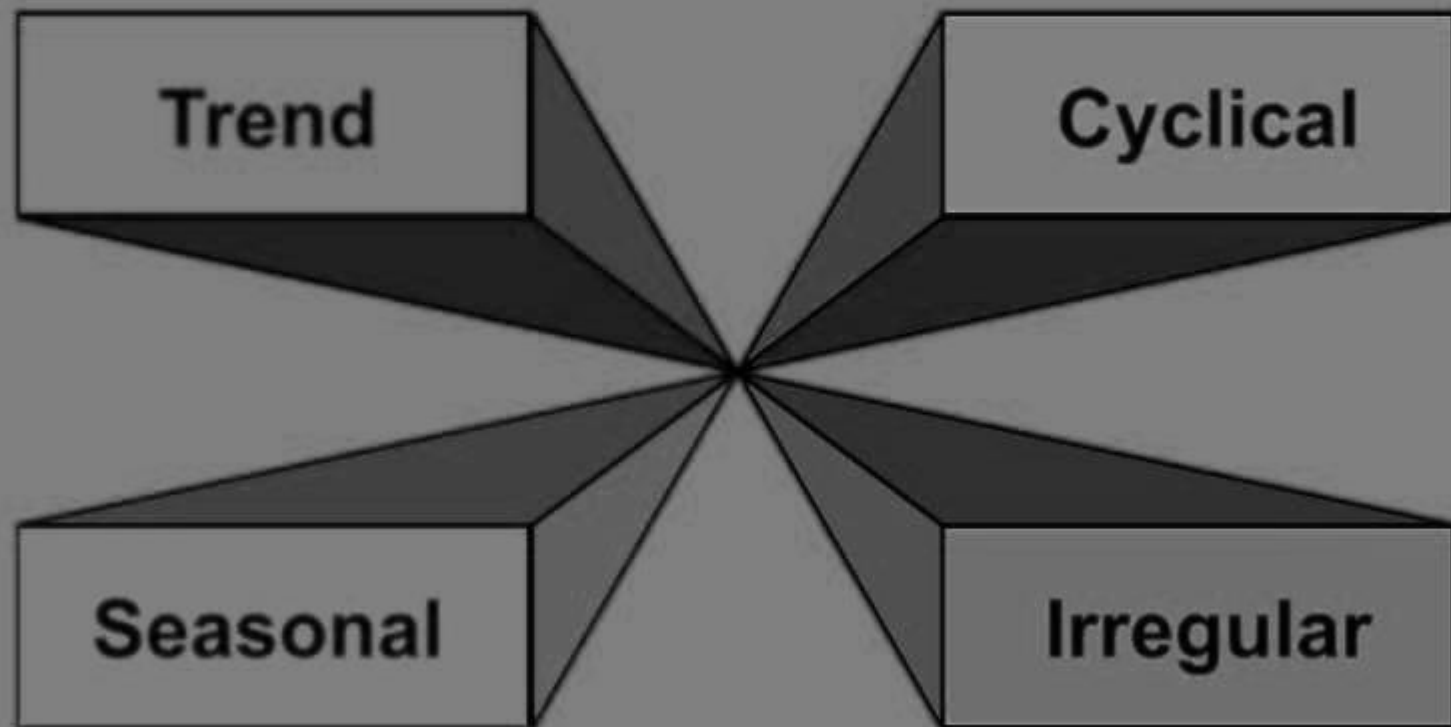


Time Series

Definition: “A time series is a set of observation taken at specified times, usually at equal intervals”.

- Set of evenly spaced numerical data
 - Obtained by observing response variable at regular time periods
- Forecast based only on past values
 - Assumes that factors influencing past, present, & future will continue
- Example
 - Year: 1995 1996 1997 1998 1999
 - Sales: 78.7 63.5 89.7 93.2 92.1

Time Series Components



Trend Component

- Persistent, overall upward or downward pattern
- Several years duration

Response



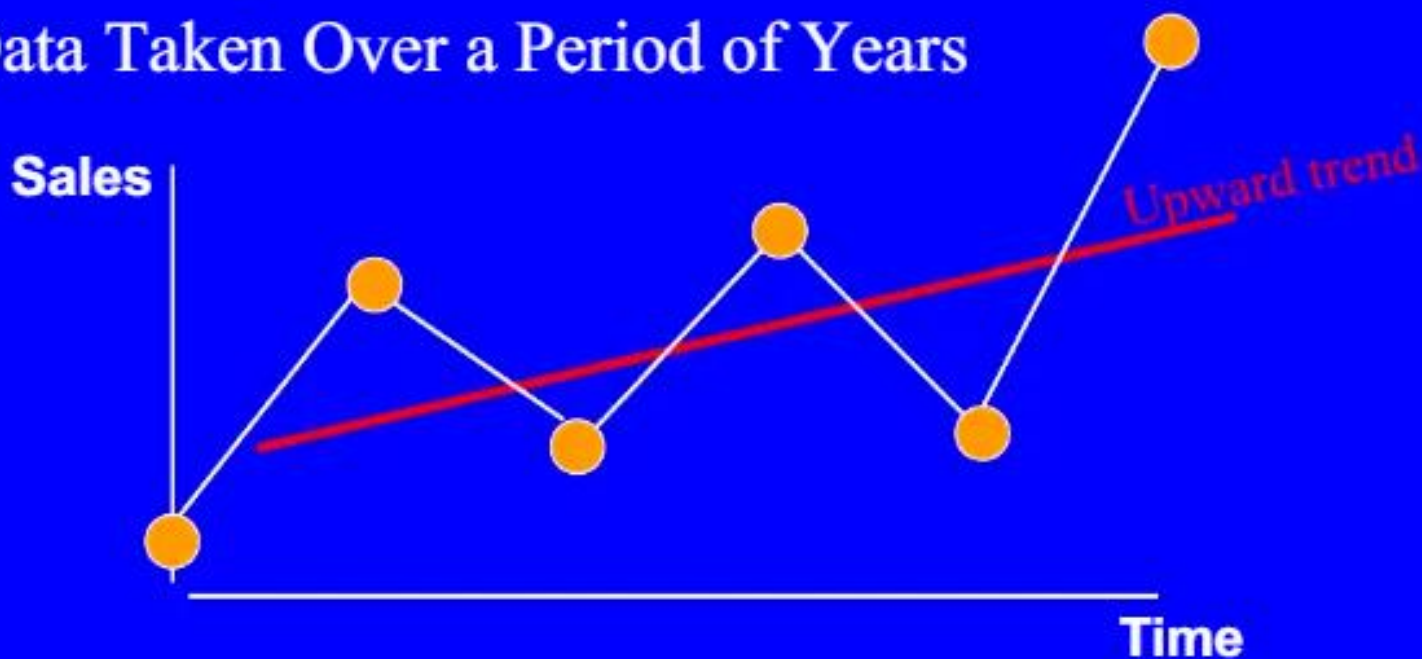
Mo., Qtr., Yr.



© 1984-1994 T/Maker Co.

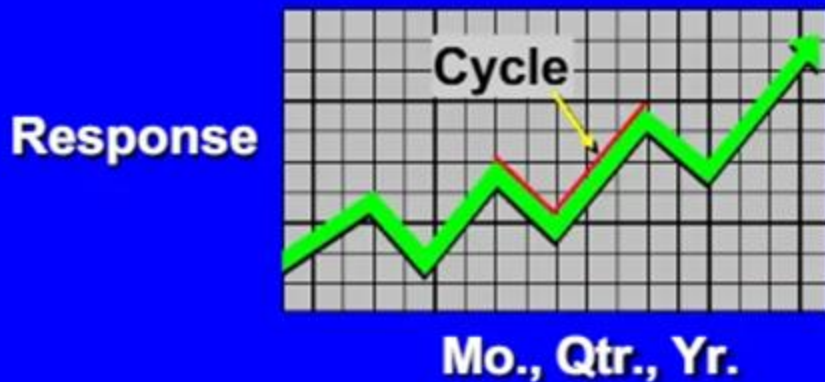
Trend Component

- Overall Upward or Downward Movement
- Data Taken Over a Period of Years



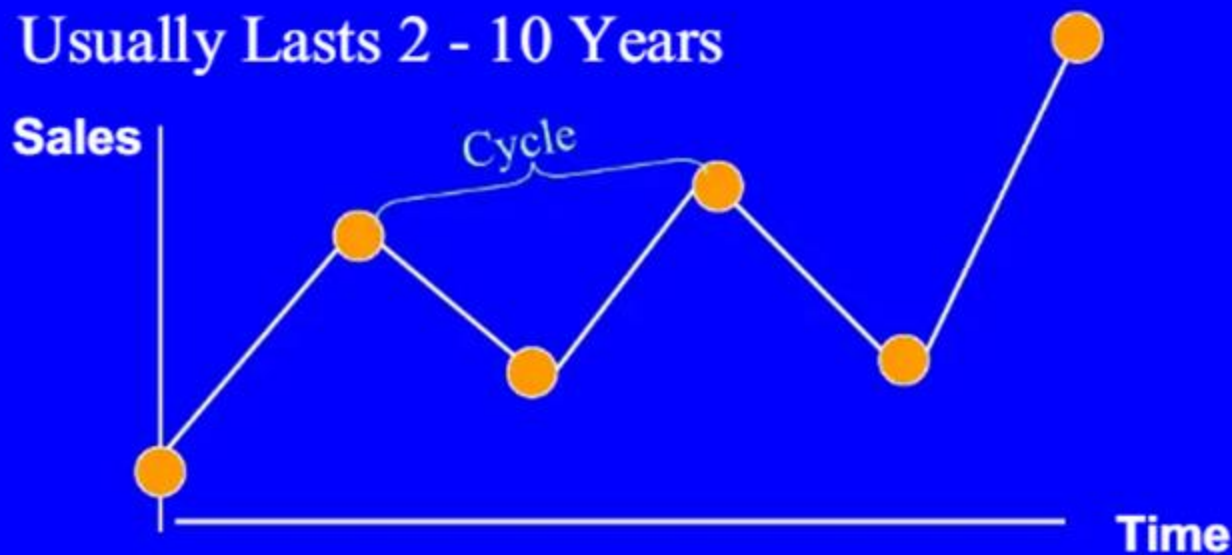
Cyclical Component

- Repeating up & down movements
- Usually 2-10 years duration



Cyclical Component

- Upward or Downward Swings
- Usually Lasts 2 - 10 Years



Seasonal Component

- Regular pattern of up & down fluctuations
- Due to weather, customs etc.
- Occurs within one year

Response



Mo., Qtr.



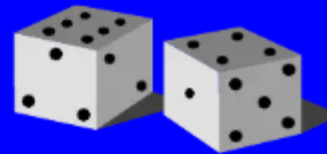
Seasonal Component

- Upward or Downward Swings
- Regular Patterns
- Observed Within One Year



Random or Irregular Component

- Erratic, Nonsystematic, Random
- Due to Random Variations of
 - Nature
 - Accidents
- Short Duration and Non-repeating



**Forecasting = Future
occurrence**

**It is
time-based**

Forecasting models

Try to predict the future based on past data

- Moving average