Unit - 5

1) Longitudinal Data:

A Longitudinal data refers to the collection of same type of information at multiple points in time.

for example, Longitudinal dataset could contain the specific students and their test scores in six years.

The primary advantages of longitudinal datasets are they can change in measures

* According to the performance of successive classes of students, we can predict teachers effectiveness and also we can predict their experiences.

* The longitudinal data extend into the past as well as present

Eg:

Name of student	2001	2002	2003	2004
Ravi	339	350	361	361
Ani	322	343	350	351
Lahu	360	380	400	420

2) TSA:

* A time series is a collection of observation or samples of well defined data obtained through repeated measurements over a time

* for example, measuring the value of retail sales each month of the year.

* An observed time series can be decomposed into three components; namely.

* The trend
* The Seasonal
* The irregular

* Time series data is a data that is collected at a different points in time.

* This is opposed to cross-sectional data

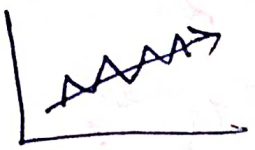
* Time series forecasting is used to predict the future behaviour based on historical data.

* Eg for TSA:

* Weather data.
* Rainfall measurement
* Temperature Readings
* Heart rate monitoring
* Brain Monitoring
* Quarterly Sales
* Stock prices
* Interest rates
* Industry forecasts.

Trend:

* Trend is an long-term movement or direction in data.
* It indicates whether the variable is generally increasing, decreasing or staying constant over a time.
* Trend is classified into five types, Uptrend, Downtrend, up-to-down, down-to-up, Horizontal.

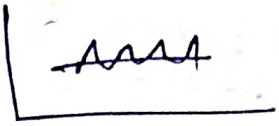


up-trend

downtrend

up-to-down

down-to-up



Horizontal.

Seasonal:

* periodic fluctuation in data.
* seasonal pattern follow a Specific time frames, such as daily, monthly or yearly cycle.
* Holidays, chirstmas.

Irregular:

* It is not preditable.