**Qualitative Forecasting -** Qualitative forecasting is an estimation methodology that uses expert judgment, rather than numerical analysis. This type of forecasting relies upon the knowledge of highly experienced employees and consultants to provide insights into future outcomes.

**Quantitative Forecasting** - Quantitative forecasting is a data-based mathematical process that sales teams use to understand performance and predict future revenue based on historical data and patterns.

**Explanatory Model -** An explanatory model is a type of model that seeks to explain the underlying causes of a phenomenon. It is typically used in scientific research to test hypotheses about how the world works. Explanatory models can be used to make predictions about future events, but their primary purpose is to provide a deeper understanding of the phenomenon being studied.

Example – Explanatory model for electricity consumption

ED = f (current temperature, strength of economy, population, time of day, day of week, error)

The relationship is not exact — there will always be changes in electricity demand that cannot be accounted for by the predictor variables. The “error” term on the right allows for random variation and the effects of relevant variables that are not included in the model.

**Time Series Model -** Here, prediction of the future is based on past values of a variable, but not on external variables that may affect the system.



**Mixed Model -** There is also a third type of model which combines the features of the above two models.

****

**Point forecasts** – These are simple type of forecasts, and take the form of a single number that conveys the forecaster's expectation as to the most. likely outcome.

**Forecast distributions -** It describes the probability of observing possible future values using the fitted model. The point forecast is the mean of this distribution.

**Trend -** A trend exists when there is a long-term increase or decrease in the data. It does not have to be linear.

**Seasonal -** A seasonal pattern occurs when a time series is affected by seasonal factors such as the time of the year or the day of the week. Seasonality is always of a fixed and known period.

**Cyclic -** A cycle occurs when the data exhibit rises and falls that are not of a fixed frequency. These fluctuations are usually due to economic conditions, and are often related to the “business cycle”. The duration of these fluctuations is usually at least 2 years.

Many people confuse cyclic behaviour with seasonal behaviour, but they are really quite different. If the fluctuations are not of a fixed frequency then they are cyclic; if the frequency is unchanging and associated with some aspect of the calendar, then the pattern is seasonal.

**Stationary series** - A Stationary series is one whose statistical properties such as mean, variance, covariance, and standard deviation do not vary with time, or these stats properties are not a function of time.