



MEASURES AND MEASUREMENTS



Measurements and Metrics A measurement is an indication of the size, quantity, amount or dimension of a particular attribute of a product or process. For example the *number of errors in a system* is a measurement.

A Metric is a measurement of the degree that any attribute belongs to a system, product or process. For example the *number of errors per person hours* would be a metric.

Thus, software measurement gives rise to software metrics.

Metric Classification Software metrics can be divided into two categories; *product metrics* and *process metrics*.

Product metrics are used to assess the state of the product, tracking risks and discovering potential problem areas. The team's ability to control quality is assessed.

Process metrics focus on improving the long term process of the team or organisation.

- **Measurement** helps in estimation, quality control, productivity assessment and project control throughout a software project.
- Also, measurement is used by software engineers to gain insight into the design and development of the work products. In addition, measurement assists in strategic decision-making as a project proceeds.
- Software measurements are of two categories, namely, direct measures and indirect measures.
- Direct measures include software processes like cost and effort applied and products like lines of code produced, execution speed, and other defects that have been reported.
- Indirect measures include products like functionality, quality, complexity, reliability, maintainability, and many more.

Generally, software measurement is considered as a management tool which if conducted in an effective manner, helps the project manager and the entire software team to take decisions that lead to successful completion of the project. Measurement process is characterized by a set of five activities, which are listed below.

- **Formulation:** This performs measurement and develops appropriate metric for software under consideration.
- **Collection:** This collects data to derive the formulated metrics.
- **Analysis:** This calculates metrics and the use of mathematical tools.
- **Interpretation:** This analyzes the metrics to attain insight into the quality of representation.
- **Feedback:** This communicates recommendation derived from product metrics to the software team.