

Unit: III
Software Project Management
Lecture: 4

Measures and Measurements

Software Project Management:

Building computer software is a complex undertaking task, which particularly involves many people working over a relatively long time. That's why software projects needs to be managed. The software project management is the first layer of software engineering process. It starts before the technical work starts, continues as the software evolves from conceptual stage to implementation stage. It is a crucial activity because the success and failure of the software is directly depends on it.

Software project management is needed because professional software engineering is always subject to budget constraints, schedule constraints and quality oriented focus.

Project management involves the planning, monitoring and control of the people, process and events that occurs as software evolves from a preliminary concept to an operational implementation. Software project management is an umbrella activity within software engineering. It begins before any technical activity is initiated and continues throughout the definition, development and support of computer software. The project management activity encompasses measurements and metrics estimation, risk analysis, schedules, tracking and control.

Effective software project management focuses on the four P's: people, product, process, and project.

Software Measurements:

To assess the quality of the engineered product or system and to better understand the models that are created, some measures are used.

These measures are collected throughout the software development life cycle with an intention to improve the software process on a continuous basis. 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.

Need of Software Measurement:

Software is measured to:

- Create the quality of the current product or process.
- Anticipate the future qualities of the product or process.
- Enhance the quality of a product or process.
- Regulate the state of the project in relation to budget and schedule.

There are two types of software measurement:

- **Direct Measurement:**
 - Direct measures of software engineering process include cost and effort applied.
 - Direct measures of the product includes:
 - **Lines of code (LOC) produced**, execution speed, memory size and defects reported over some set period of time.
- **Indirect Measurement:**
 - Indirect measures of the product include functionality, quality, complexity, efficiency, reliability, maintainability etc.