

# Matrices & Measurements



**Done By**  
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**Level 1**

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# Measurements

- Effective management of the software development process requires effective measurement of that process
- Software measurement is concerned with deriving a numeric value for an attribute of a software product or process.

Direct	Indirect
LOC	Functionality
Speed	Productivity
Memory size	Effectiveness
Defects reported	Quality
Cost	Complexity
Effort(time)	Reliability
Documentation pages	Maintainability
Duration of test process	
People in project	

# Metrics

○ Software metrics are numerical data related to software development, Metrics strongly support software project management activities.

○ Software metrics deals with the measurement of the software product and the process by which it is developed.

○ Metrics can be categorized in several methods:

■ **Way1:**

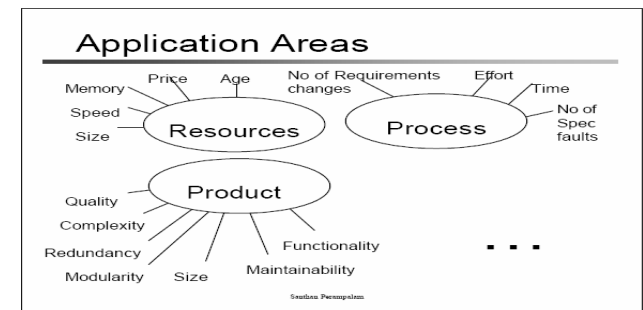
- Product
- Process
- Project

■ **Way2:**

- Product
- Process
- Resource

■ **Way3:**

- Primitive
- Computed

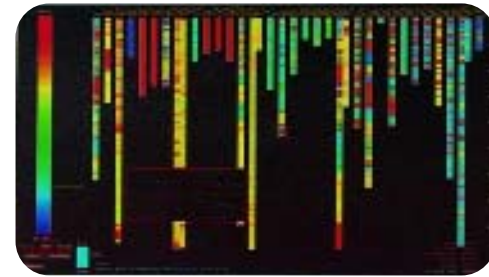


# Metrics

Continues

## Software is Matrices to:

- Indicate the quality of the product.
- Assess the productivity of the people who produce the product.
- Assess the benefits derived from new software engineering tools and methods.
- Form a baseline for estimation.
- Help justify requests for new tools or training.



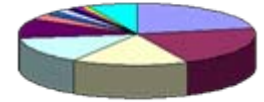
# Software Metrics and Measurements available

Category	Example
Progress	<ul style="list-style-type: none"><li>• Actual vs. planned task completions</li><li>• LOC/ Hour, Story/ Hour</li></ul>
Effort	<ul style="list-style-type: none"><li>• Actual vs. planned staffing profiles</li></ul>
Cost	<ul style="list-style-type: none"><li>• Actual vs. planned costs</li><li>• Cost/ LOC , Cost/ Day</li></ul>
Review Results	<ul style="list-style-type: none"><li>• Status of action items</li></ul>
Trouble Reports	<ul style="list-style-type: none"><li>• Number of defects per time/ Total defects</li></ul>
Requirements Stability	<ul style="list-style-type: none"><li>• Distribution of requirements over releases</li></ul>
Size Stability	<ul style="list-style-type: none"><li>• Distribution of size over releases</li></ul>
Computer Resource Utilization	<ul style="list-style-type: none"><li>• Actual vs. planned profiles of computer resource utilization</li></ul>
Training	<ul style="list-style-type: none"><li>• Actual vs. planned number of personnel attending training classes</li></ul>
Complexity	<ul style="list-style-type: none"><li>• Block of sequential code and its path to other code</li></ul>

# Metrics rejected from our Projects

Rejected Matrices	Reason for rejection
Cost	<ul style="list-style-type: none"><li>• Project doesn't Calculate the budget</li></ul>
Review Results	<ul style="list-style-type: none"><li>• Project doesn't support Tracking Processing</li></ul>
Trouble Reports	<ul style="list-style-type: none"><li>• Project offer testing just as application/ Form to fill</li></ul>
Requirements / Size Stability	<ul style="list-style-type: none"><li>• Project suppose stabilize requirement</li></ul>
Computer Resource Utilization	<ul style="list-style-type: none"><li>• Out of Project scope</li></ul>
Training	<ul style="list-style-type: none"><li>• Project staff made Self-Training</li></ul>
Complexity	<ul style="list-style-type: none"><li>• Need so complicated Mathematic calculation</li></ul>

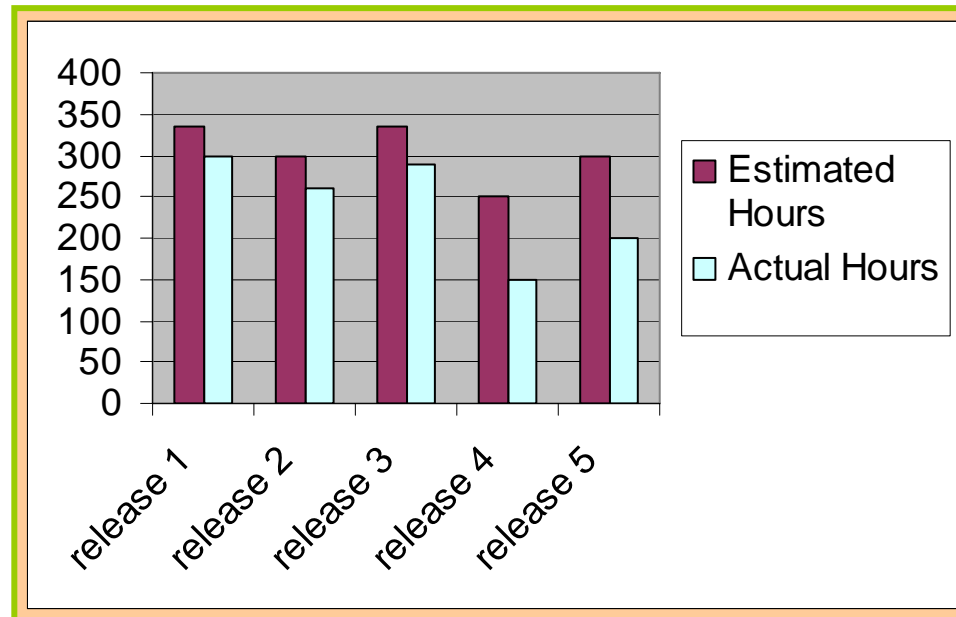
# Metrics included in our Projects



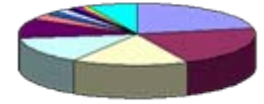
## Progress Metrics (Project Level)

Its provide information on how well the project is performing with respect to planned time. So the comparison between Actual vs. planned Estimate Time for all Project releases.

### Example



# Metrics included in our Projects

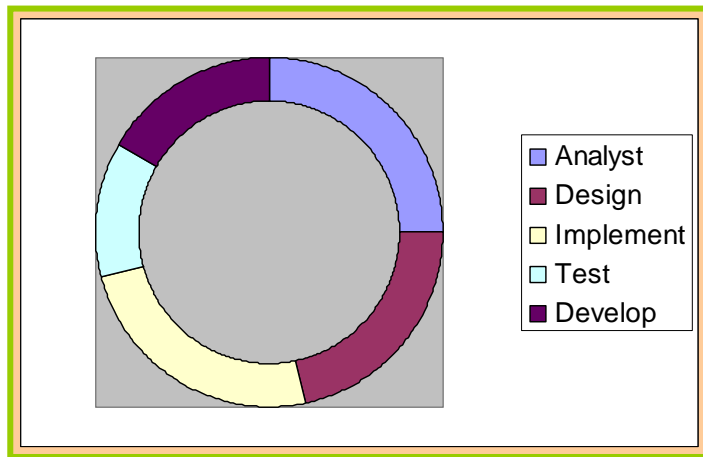


## Effort Metrics (Story Level)

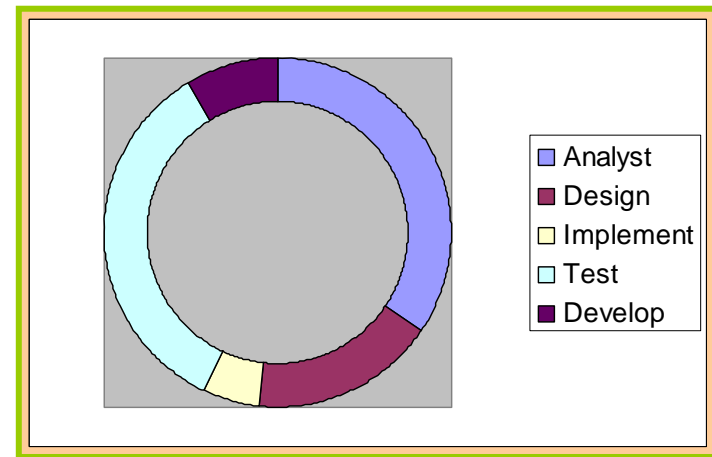
Its provide information on amount of effort required for each story. So the comparison between Story tasks actual time with other Story tasks.

### Examples:

#### Story 1



#### Story 2





# Thank You



**Any Q's !!**

**Dr. Ghazy Assassa**