ROLE OF METRICS ON SOFTWARE QUALITY

[1]Dr. Preeti Sharma, [2]Uma

[1]Assistant Professor, DCSA (MDU),Rohtak, (India)

[2]Research Scholar , DCSA (MDU),Rohtak, (India)

ABSTRACT

Software metrics refers to the Quantitative measure for computer software that assist in quality control and productivity of software. Quality increases the productivity of the software. This paper includes various metrics contributed to software quality and reliability. It also contain numerical analysis of metrics with a example. It also contain the view on software quality.

Keywords: Software Metrics; Software Quality, Measure, Measurement.

I. INTRODUCTION

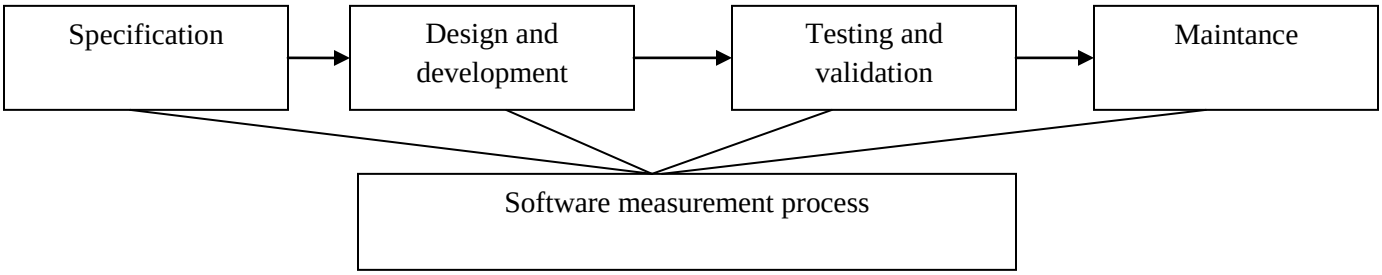
Software metrics is a term used to measure software item. Software item may be:

1. Software product or partial product.
2. Software process such as coding.
3. An event such as product failure.
4. Person involved in software production.

According to Lord Kelvin " when you can measure what you are speaking about and can express it as number ,you know something about it. But when you can not measure and express it in number then your knowledge is unsatisfactory.

II. OBJECTIVE OF METRICES

1. To measure the size of software.
2. To measure the cost of developing of a software.
3. To find expected no. of bugs.
4. To find complexity of a module.
5. Reliability of the software at the time of release.



III. NUMERICAL ANALYSIS OF MATRICES

Suppose there are 6 test engineer and 5 months to do necessary testing of product. So total engineer month is 30. Suppose they found 60 error.

$$\text{Error found per engineer month(EFPEM)} = \frac{\text{Total no. of errors}}{\text{Total no. of engineer months}}$$

So by using the result of this model we can analysis how efficient the test team is and how good the product is.

IV. DIFFERENCE BETWEEN MEASURE, MEASUREMENT, METRIC AND INDICATOR

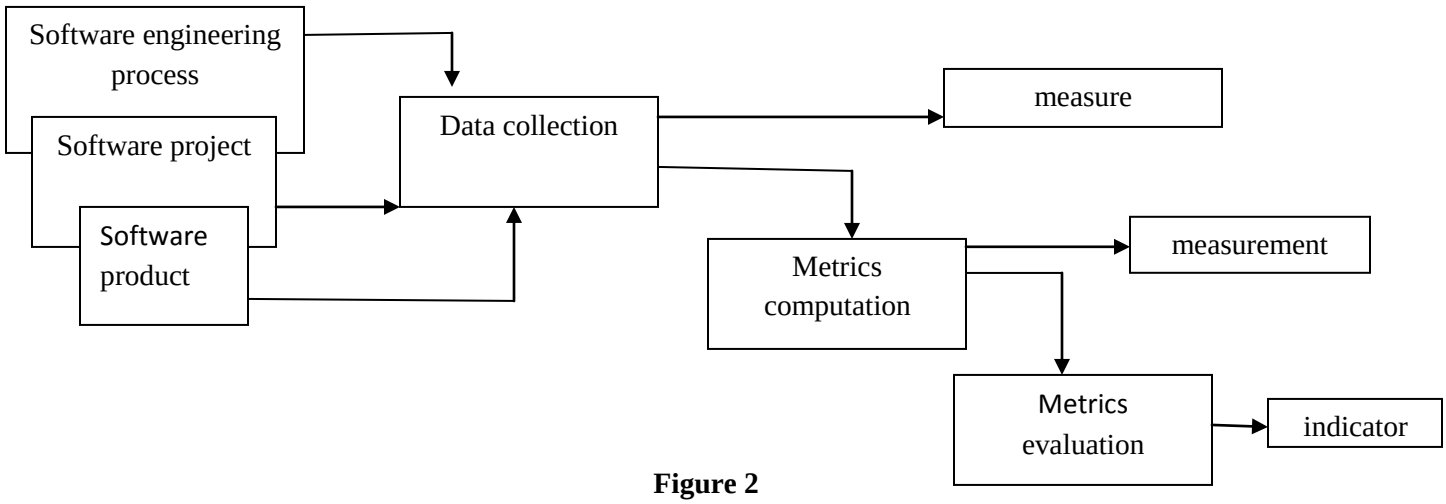


Figure 2

Measure

It is a quantitative indicator of size, dimension ,capacity of some attribute of a product or process. In the example error found in test cycle is the measure.

Measurement

It is act of determining measure. In the example no. of test engineer and no. of month spent on testing process.

Metric

It is a quantitative measure of degree to which a system component or a process posses a given attribute. In the example no. of errors found per engineer month.

Indicator

It is a metric or combination of metrics that provide insight into software process, project and product itself.

V IMPORTANCE OF SOFTWARE QUALITY

Software quality assurance start from the beginning of the project right from the analysis phase.Some errors of software include:

1. Error on electricity bill.
2. Error in Bank transaction.
3. Error in space shuttle's.

VI WHO CARES SOFTWARE QUALITY

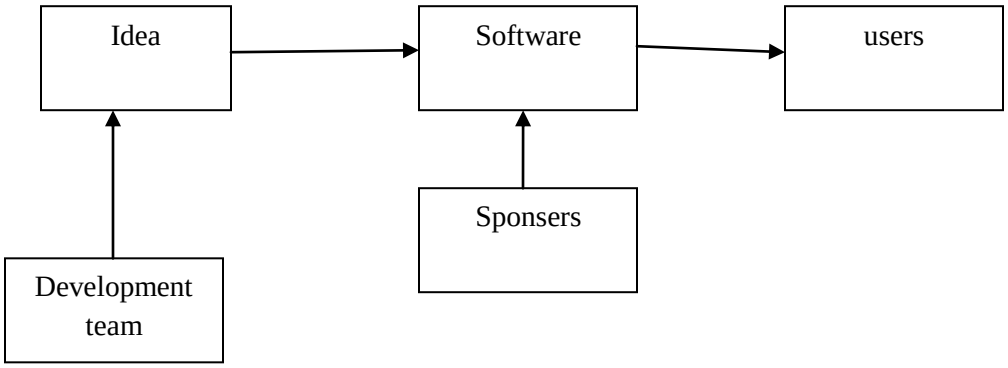


Figure 3

Software users

They apply the software to some problem.

Development team

They create the software.

Sponsers

They are the people paying for software creation.

Software quality is mainly divided into three aspects:

1. Functional quality
2. Structural quality
3. Process quality

Functional quality

It specify software correctly performs the task according to users. Example:

1. Meeting the specified requirement.
2. Create software that has no defect.
3. Ease of learning and easy to use.

Structural quality

It specify that code itself is well structured. Example:

1. Code testability

2. Code maintainability
3. Code understandability
4. Code efficiency
5. Code security

Process quality

It specify

1. Was the software delivered on time.
2. Was the software delivered for the expected amount of money.

VII CONCLUSION

With the rapid development in software industries software metrics become the basis for software development .There is no adequate international standard for any of the extensive used software .So software metrics play a very important role to determine the quality of the software. This paper focuses on various type of quality and role of metrics on software quality.

REFERENCES

1. www.slideshare.net
2. www.tutorialpoint.com
3. K.k. Aggarval , Yogesh Singh,"SOFTWARE ENGINEERING"
4. Mrinal Singh Rawat,Arpita Mittal, Sanjay Kumar Dubey ,"Survey on impact of software metrics on softaware quality",IJACSA,Vol 3. No. 1 2012.
5. www.guru99.com