Software Engineering

Assignment 4

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32.1. Describe the difference between process and project metrics in your own words.

Solution:

Software process and project metrics are quantitative measures that enable software engineers to gain insight into the efficacy of the software process and projects that are conducted using the process as a frame work.

Process metric –Process metrics are used to make strategic decisions about how to complete common process frame work activities. And also it is used to assess the activities that are used to engineer and build computer software.

Used to assess the activities that are used to engineer and build computer software. Project metric – Project metrics are used to monitor progress during a software development project and to control product quality. And it is also used to assess the status of a software project

Metric of project allows:

Of the state of the project in court evaluates.

Of the risk potential

To adjust the work flow

Used to assess the status of a software project itself.

32.5. Team A found 342 errors during the software engineering process prior to release. Team B found 184 errors. What additional measures would have to be made for projects A and B to determine which of the teams eliminated errors more

efficiently? What metrics would you propose to help in making the determination? What historical data might be useful?

Additional measures for project A&B are

In size – Oriented metrics the lines of code may be chores as normalization value.

1) Size Oriented metrics are:

-Errors per KLOC

-Defects per KLOC

-$ per LOC

-Page of documentation per KLOC

Size oriented metrics are not universally accepted as the best way to measure the process of software development.

2) Function oriented software metrics.

Use a measure of the functionality delivered by application as a normalization.

Errors per function point

Defects per FP

$ per FP

Pages of documentation per FP

FP per person month

It would have been important to know how much person worked in each beam and how long this work their took, to able to determine which beam was most effective.

I would add the number of lines of code through the proposed below metrics for making the determination.

Equip | LOC | effort | nobody

With A – 342

B - 184

32.7. Compute the function point value for a project with the following information domain characteristics:

Number of user inputs: 32

Number of user outputs: 60

Number of user inquiries: 24

Number of files: 8

Number of external interfaces: 2

Assume that all complexity adjustment values are average. Use the algorithm noted in Chapter 30.

Solution:

To compute function points (FP), the following relationship is used:

$$\text{Function point (FP)} = \text{Count total} \times \left[0.65 + 0.01 \times \sum (F_i)\right]$$

Where count total is the sum of all FP (Function point) entries obtained from the table:

Information Domain Value	Count	Weighted factor (Average)	FP (Count × Average)
Number of user inputs	32	4	128
Number of user outputs	60	5	300
Number of user inquiries	24	4	96
Number of files	8	10	80
Number of external interfaces	2	7	14
Count total		$\sum (F_i) = 30$	618

Value adjustment factors F_i = total of average

Therefore, $\sum (F_i)$ = 30

Now we calculate the function point using,

Function point(FP)=Count total $\times \left[0.65+0.01\times \sum (F_i)\right]$

$$= \frac{618\times \left[0.65+(0.01\times 30)\right]}{}$$

$$= \frac{618\times \left[0.65+0.3\right]}{}$$

$$= \frac{618\times \left[0.95\right]}{}$$

$$= 587.10$$

Therefore, the function point = 587.10

32.9. The software used to control a photocopier requires 32,000 lines of C and 4,200 lines of Small talk. Estimate the number of function points for the software inside the copier.

Solution:

The software used to control a photo copier requires - 32,000 of C

The software used to control a photo copier requires - 4200 of small tall.

Take the data from the table in Section 22.2.3,

for C = 162 LOC/FP

for Smalltalk = 26 LOC/FP

Therefore,

= 32,000/162 + 4,200/26

= 197.53 + 161.54

= 359 FP (approximate)