TSPi Quality Plan - Form SUMQ

Name	นางสาววรัตน์ กะเสริม (QM) นายณัฐนันท์ อมรเลิศวิทย์ (QA)	Date	27 ม.ค. 2565
Team	4	Instructor	อ.อภิสิทธิ์ แสงใส
Part/Level	System	Cycle	3

Summary Rates	**Plan**	**Actual**
LOC/hour	>200	14243/318=44.79
% Reuse (% of total LOC)	>5.0%	307/100=3.07
% New Reuse (% of N&C LOC)	>3.0%	307/100=3.07
Percent Defect Free (PDF)		
In compile	>10%	4.2%
In build and integration	>70%	52.17%
Defect/page		
Requirements review	<0.5	207/287 = 0.72
HLD review	<3.0	ไม่ได้ดำเนินการ
Defects/KLOC		
Code review	<2	27/14.243 = 1.89
Compile	<10	63/14.243 = 4.42
Code inspection	<7.5	ไม่ได้ดำเนินการ
Build and integration	<0.5	118/14.243=8.2
Total development	75-150	208/14.243 = 14.60
Defect Ratios		
Code review/Compile	>2.0	27/63=0.43
Development time ratios (%)		
Requirements review	>0.25	3.28
HLD review	>0.5	3.13
Code review/code	>0.5	67.6/208.=0.325
A/FR	1	(67.6+18.5+8)/(42.7)=22.08
Review rates		
Code LOC/hour	<200	14243/67.6=210.70
Requirement pages/hour	<20	287/18.5=15.51
HLD pages/hour	<5	ไม่ได้ดำเนินการ
Inspection rates		
Code LOC/hour	<200	ไม่ได้ดำเนินการ

TSPi Quality Plan - Form SUMQ (continued)

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Team	4	Instructor	อ.อภิสิทธิ์ แสงใส
Part/Level	System	Cycle	3

Defect-injection Rates (Defects/Hr.)	**Plan**	**Actual**
Requirements	0.25	3765/2023 = 1.87
DLD	0.0	ไม่ได้ดำเนินการ
Code	4.0	14243/83 = 171.61
Compile	0.3	0/83 = 0.0
Unit test	0.2	ไม่ได้ดำเนินการ
Build and integration	0.1	2940/118 = 24.92
System test	0.0	ไม่ได้ดำเนินการ
Defect-removal Rates (Defects/Hr.)		
Requirements review	0.5	3765/2023 = 1.87
HLD review	0.5	ไม่ได้ดำเนินการ
Code review	6.0	0/83 = 0.0
Compile	5.0	0/83 = 0.0
Code inspection	5.0	0/83 = 0.0
Unit test	3.0	ไม่ได้ดำเนินการ
Build and integration	1.0	0/118 = 0.0
Phase Yields		
Requirements review	70%	3765/20,948 = 17.97%
HLD review	70%	ไม่ได้ดำเนินการ
Test development	70%	0/83 = 0.0%
Code review	70%	0/83 = 0.0%
Compile	50%	0/83 = 0.0%
Code inspection	70%	14243/20,948 = 68%
Unit test	90%	ไม่ได้ดำเนินการ
Build and integration	80%	2940/20948 = 14.03%
Process Yields		
% before compile	>75%	17.97%
% before unit test	>85%	85.97%
% before build and integration	>97.5%	85.97%
% before system test	>99%	100%

TSPi Quality Plan Instructions - Form SUMQ

Purpose	- This form holds plan and actual quality data for parts or assemblies.
General	- Where possible, establish goals based on your own historical data. - Where data are not available, use the QUAL standard for guidance (see Appendix G). - Before making the quality plan, you must have a partially completed SUMP form with size and development time data by process phase.
Make the Quality Plan	To make the quality plan, do the following: - Estimate the defects injected in each phase (use plan data and the QUAL standard for defects injected per hour times hours spent by phase). - Estimate the yield for each defect-removal phase (QUAL standard). - The defects removed in each phase are estimated as the number of defects at phase entry, times the estimated yield for that phase, divided by 100. - Examine the defects/KLOC values for reasonableness. - If the defects/KLOC values are not reasonable, adjust phase times, defect injection rates, or yields (use QUAL standard for guidance). - When the numbers appear reasonable, the quality plan is complete.
Record Actual Quality Data	To complete the quality plan with actual values, enter the following data: - Record development time in the time log and summarize in SUMP. - Record the defects found in the defect log and summarize in SUMP. - Enter the size of each product produced and summarize in SUMP. With the completed SUMP data, complete the SUMQ form with the TSPi tool or as described below and in Chapter 5.
TSPi Tool	- If you use the TSPi tool, it will complete all the SUMQ calculations. - Without the tool, you will have to make the SUMQ calculations as you complete each step described above. - At part completion, make the quality calculations by following the instructions below and in Chapter 5.
Header	- Enter your name, date, team name, and instructor's name. - Name the part or assembly and its level. - Enter the cycle number.
Summary Rates	- LOC/hour: new and changed LOC divided by total development hours. - % Reuse: the percentage of total LOC that was reused. - % New Reuse: the percentage of new and changed LOC that was inserted in the reuse library.
Percent Defect Free (PDF)	- PDF refers to the percentage of a program's components that had no defects in a development or test phase. - Thus, if 3 of a program's 10 components had no defects in compile, that program would have a PDF of 30% in compile. - Base the plan percent defect free (PDF) values on the QUAL standard.
Defects/page and Defects/KLOC	- Set the defect/page and defect/KLOC plan values during planning. - Defects/page are calculated as (no. of defects)/(no. of pages) - Defects/KLOC are calculated as 1000*(no. of defects)/(N&C LOC).
Defect Ratios	- These are the ratios of the number of defects found in various phases. - Thus, the (code review)/compile ratio is the ratio of the defects found in code review to those found in compile. - These ratios can also be calculated from the defects/KLOC values. - When the denominator phase values are 0, enter "inf."

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TSPi Quality Plan Instructions - Form SUMQ (continued)

Development Time Ratios (%)	- These are the ratios of the times spent in each development phase. - Thus, the DLD/code ratio is the ratio of the time spent in detailed design to the time spent in coding a program. - Calculate the planned and actual ratios from the SUMP date. - When the denominator phase values are 0, enter "inf."
A/FR	- A/FR is calculated as the ratio of appraisal to failure time. - Appraisal time is the time spent reviewing and inspecting programs. - Failure time is the time spent compiling and testing programs. - To calculate A/FR, divide the total detailed design review, code review, and inspection times by total compile and unit test times. - Use the sum of personal review and total team inspection times. - When the denominator phase values are 0, enter "inf."
Review and Inspection Rates	- Calculate the review and inspection rates by dividing the size of the reviewed product by the total review or inspection time in hours. - Make this calculation for each review and inspection. - In planning, use the QUAL standard for guidance (Appendix G). - When the denominator phase values are 0, enter "inf."
Defect Injection and Removal Rates	- The defect rates are calculated in defects injected per hour. - Thus, for coding, if you spent 2 hours coding a 100 LOC module and injected 12 defects, you would have injected 6 defects/hour. - Similarly, if you spent 1 hour reviewing this module and found 4 defects, you would have removed 4 defects/hour. - Based on the QUAL standard, establish standard team rates.
Phase Yield	- Phase yield refers to the percentage of the defects in the product that were removed in that phase. - Thus, in reviewing a 100 LOC module, if the review found four and you later determine that there were 6 defects in the module, the phase yield would be 100*4/6=66.7%. - In planning, use historical data to estimate the yield values needed for each defect-removal phase. - After each phase, calculate the estimated yield values.
Process Yield	- Process yield refers to the percentage of the defects injected into a product that were removed before a given phase. - Thus, for a 100 LOC module, if you later determine that a total of 8 defects were injected into a module before compile and 5 were removed before compile, the yield before compile would be 100*5/8=62.5%. - In planning, use the QUAL standard or your own data to estimate the yield values for each defect-removal phase.