HW10

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Summary：

1. We discussed in-process metrics for both traditional (waterfall) and Agile methodologies.

A) Detail three in-process metrics for traditional development models. You can use methods discussed in class. Detail the pro's and con's for each method. Provide insight on what type of development projects the method would be beneficial. (Max 300 words)

B) Detail three in-process metrics for Agile development models. You can use methods discussed in class. Detail the pro's and con's for each method. Provide insight on what type of development projects the method would be beneficial. (Max 300 words)

1. In traditional waterfall software development, one would expect estimates to quantify the time required for software development. and predict whether the software will meet the end-user requirements. Therefore, traditional development requires reference to parameters such as person-month, SLOC and Cyclomatic complexity.

The person-month is the metric that the principal researchers and developers devote to a specific project.

SLOC is one of the first methods to measure complexity. A structured system is measured by simply counting the number of lines of code. However, it is also one of the most criticized methods because there is little intrinsic connection between the amount of code and the successful completion of a project.

Cyclic complexity refers to a graph theory-based measure of module complexity. This is popular in waterfall development because it is less computationally intensive.

Traditional waterfall development helps improve product quality and allows quantification of the development process through estimation. It is easier to manage the workload and the team. However, because traditional function-oriented metrics lack standard quality parameters, additional abstract attributes such as usability, maintainability, etc. need to be considered.

1. The three in-process metrics for agile development are cycle time, team speed, and Leadtime.

Cycle time refers to the time it takes for the team to make changes to the software system and then deliver it to production. Teams using continuous delivery can even reduce the cycle time to a few minutes. This helps develop the team's continuous improvement capabilities.

Team velocity refers to how many "units" of software development an agile development team can complete in a single iteration. This metric is based on non-objective estimates and is therefore not recommended as a measure of success. It does not measure added value and is not related to the objective quality of the software.

Leadtime refers to the time it takes for a team to successfully deliver software from an idea. Delivery time can be reduced by streamlining decisions and preparing in advance to reduce time.

Agile development has the advantage of fostering team self-management and increasing openness and creativity in development. However, due to its lack of process management, novice teams tend to deviate from the design and the level of collaboration between teams is difficult to maintain over time.