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(1)

Six static software product metrics.

① Fan-in/Fan-out: Fan in is a measure of methods that call another method or function (say x). Fan-out is a measure of the number of functions called by x. High value for fan-in correlates the tightly coupled components of x creating extensive knock-on-effects.

② Length of code This is the measure of the size of the program. In general, the larger the size of the code has, the more error-prone it will be. Length of code has been proven to be one of the most reliable metrics for predicting error proneness.

③ Cyclomatic Complexity - This is a measure of the control complexity of of a program. Control complexity may be related to program understandability.

④ Length of Identifiers: This is a measure of the average length of identifiers in a program. The longer the identifiers, the more likely they are to be more meaningful hence more readable.

⑤ Depth of conditional Nesting - This is the measure of the depth of nesting of if-statements in a program. Deeply nested if-statements are hard to interpret and potentially error prone.

⑥ Fog Index - This is the measure of the average length of words and sentences in documents. The higher the Fog Index, the more difficult a document is to intrepret.

(2) Code review process : FTR [Formal Technical Review]

Phases of FTR Process

★ Pre-review

- Pre-review activities are concerned with review planning and review preparation.

★ The review meeting

- During the review meeting, an author of the document or program being reviewed should 'walk through' the document with the review team.

★ Post-review activites

- These address the problems and issues that have been raised during the review meeting.

(3) DevOPs Approach:

DevOPs (software development and IT operations) aims to shorten a systems development life cycle and provide continuous delivery with high software quality. DevOPs is complimentary to Agile Software development in its frameworks and methodologies. CI/CD is the approach to code development and deployment. The primary pipeline to release consists of the development phase, system testing phase, and release phase.

(4) Configuration Managements

① Version Management keeping track of multiple versions of system components and ensuring that changes made do not interfere with other developers work.

② System Building: Process of assembling program components, data, and libraries, then compiling them to an executable.

③ Change Management: keeping track of requests for changes to the software from customers and developers, having cost, impact of change, and deciding on implementations.

④ Release management: Preparing software for external release and keeping track of the system versions.