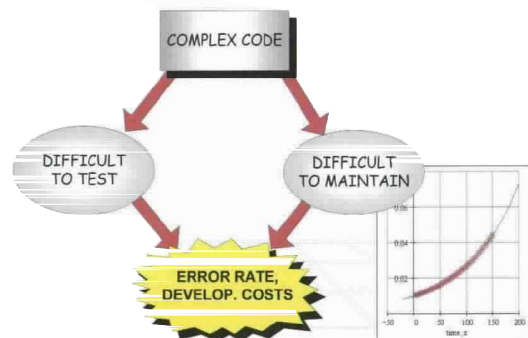


Testwell CMT++/CMTJava Code Complexity Measures for C/C++ and Java

Wish to locate complex code



Why Code Complexity Analysis ?

- Code complexity correlates with the defect rate and robustness of the application
- Complex code is difficult to test
-> more errors in the final application
- Complex code is difficult to maintain

Unnecessary complex code is often the reason for bad code quality and erroneous programs.

Complex code is difficult to test and to maintain.

As the costs of bad quality and erroneous programs can be very high, even crucial to a company, applications with a reasonable complexity helps you to save money.

What is measured by CMT++/CMTJava ?

Based on the static properties of the program code CMT++ and CMTJava gives estimates how error prone the program source code is due to its complexity, how long it will take to understand the code, what is the logical volume of the code, etc ...

As the project team has usually not enough time to inspect all the code produced by the project, CMT++/CMTJava can assist in locating the modules, which are most likely to cause problems in the future.

CMT++ and CMTJava analyses your applications for the following metrics :

a) Lines-of-code (LOC) metrics

LOCbl	number of blanc lines
LOCcom	number of lines with comments
LOCphy	number of physical lines
LOCpro	number of lines with program code

b) McCabe cyclomatic number $v(G)$

Cyclomatic number $v(G)$ describes the complexity of the control flow of a program.

c) Halstead's metrics

B	estimated number of errors
D	difficulty level, error proneness
E	effort to implement
L	program level (abstraction level of the program)
N	program length
N1	number of operators
N2	number of operands
n	vocabulary size (unique operators + unique operands)
n1	number of unique operators
n2	number of unique operands
T	implementation time / time to understand
V	volume: size of the implementation of an algorithm

d) Maintainability Index

Maintainability Index is calculated with certain formulae from lines-of-code measures, McCabe cyclomatic number and Halstead metrics.

The measurement and track maintainability are intended to help reduce or reverse a system's tendency toward "code entropy" or degraded integrity, and to indicate when it becomes cheaper and less risky to rewrite the code instead to change it.

CMT++/CMTJava Highlights :

- Measures original non-pre-processed files
- Extremely fast -> analyses your applications in a couple of minutes
- Can handle many/big files
- HTML or textual reporting -> measurements can be further processed by Excel
- GUI integration in Visual C++ Developer Studio
- Available on many platforms: Windows, Linux, HP, Solaris



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