Zoom Tools – Expert reviews: Tool TESTWELL CMT ++ / CMTJava

In the field of IT / programming, code complexity concepts and probability of errors are closely related. A complex code is more difficult to test, and more likely to contain errors. These errors, which can lead to an expensive maintenance, can tarnish the company's image. Teswell CMT ++ / CMTJava is a complexity measurement tool for C, C++, Java and C#. It can locate modules that could create problems due to their complexity, to estimate the probability of errors in the code as well as the duration of understanding of the code. Based on the statistical properties of the program code, it also provides information on the logical volume.

Also assembly code, either inclined in a C/C++ source file or separate assembly file, can be measured.

Testwell CMT++/CMTJava is intended for mature software development organizations striving for productive development process resulting in low error rate and good maintainability in the code. Code complexity has effect on how difficult it is to test and maintain the program.

Expert reviews on Tool TESTWELL CMT ++/CMTJava:

What is TESTWELL CMT++/CMTJava tool?

"Testwell CMT++ stands for C and C++ Complexity Measurement Tool. Testwell CMT++ measures the complexity of source code written in C, C++. The latest version 6.0 analyses also C# code. For analysing Java code, developers can use Testwell CMTJava, a tool which works the same way as CMT++.

Testwell CMT++ and CMTJava shows the following complexity metrics: lines of code (like lines with program code, lines with comments, ...), Halstead metrics like (estimated number of errors, difficulty level, effort to implement, ...), Cyclomatic number of McCabe, and Maintainability Index."

K.Lambertz (Management Germany)

"CMT++" stands for "Complexity Measurement Tool for C/C++/C#".

O. Poutanen (Technical Management Finland)

What benefits TESTWELL CMT++/CMTJava gives to its users?

"Developers should write code with a low complexity because such code contains less errors, it is easier to understand and to test and also the maintenance is much easier.

Testwell CMT++ helps them to write software with good complexity.

With Testwell CMT++ even very large projects can be analysed within minutes. The tool is fast and very easy to use."
K.Lambertz (Management Germany)

"There is a saying that you cannot control something unless you can measure it.
CMT++ is a tool that measures something. That something is code complexity.
Code complexity in turn is known to go somewhat hand by hand with
- How difficult it is to test the code
- How much errors there likely will remain in the final product code
- How difficult the code is to maintain (further develop, change,...)
Responsible managers wish to follow what kind of code the development team produces in code complexity regard, i.e. in terms of code size, commenting, understandability, error-process, maintainability.

CMT++ measures source code. It gives the code complexity measures that are commonly used in our industry:
- Lines of code measures (physical, code, comment, blank lines). This is a simple and already reasonably well predictive measure. Common sense already tells that it is a difference if the code base is well-commented 10.000 lines or hardly not at all commented 30.000 lines
- McCabe complexity number. It is a measure of control flow complexity of a piece of a code (amount of conditional branches, reported per function, file, overall)
- Halstead complexity numbers. They are derived from the amount of (unique and total) operands and operators in the code. Halstead measures (estimates on error-pronness, understandability, etc.) give a perception of the logical size of the code, independent of prorgam layout.
- Maintainability Index. It is a single number value, derived from the previous ones, rating the code maintainability.
The CMT++ reports are compact and easy to read, containing no more information than is needed. The tool is astonishingly fast. It has no problems to work with large volumes, e.g. with thousands of files.
CMT++ can be used by individual users, also as integrated to Continuous Integration (CI) tool chain.
It may also be useful to understand what CMT++ is not. It is not a lint type tool, i.e. which would pinpoint suspicious program constructs (e.g. = vs == operator use). Neither it suggests buffer overflows or similar runtime errors. Neither it is a Misra kind of tool that would check that only certain good or safe coding styles are used.
CMT++ is a tool that measures the above mentioned complexity numbers.
In statistical sense they give one good view to the code properties.
Along with CMT++ other tools and development practices need to be used by which quality of some other code properties can be ensured." Olavi Poutanen (Technical Management Finland)

Who is using TESTWELL CMT++/CMTJava?

"Testwell CMT++ is used by a lot of customers in many industries like automotive, automation, aerospace, telecom, ... Many of this companies use Testwell CMT++ for quality controls for software development they have outsourced to other companies.
A lot of companies use Testwell CMT++ for their own software development: by writing software with a good complexity, they save time and money. ."
K.Lambertz (Management Germany)