What is software analysis?

Software Analysts analyse software both quantitatively and qualitatively. This is done by extracting the models of software systems and these models are simulated. This can provide insight into some specific software systems and provide data to create general insights. An example of this may improving a web searching application by analysing the algorithm that it uses and possibly changing it to a better one. There is currently research being done to create software that can automate the process of software analysis.

There are types of software analysis tools. They are Code Coverage; Instruction Trace; Memory analysis and Performance analysis.

The main difference between software analysis and debugging is that software analysis can be carried out while the program is running and not have to pause. This is especially important if the software is an embedded one where the system cannot always be halted.

The advantages of using software analysis are: accelerating the development of software, improving the software quality and creating software that gives maximum performance.

There is currently research being cared out in the Centre for Research and Testing into new methods of software analysis. One method they found is genetic improvement. It involves treating the source code of a program as genetic material and running algorithms to find strains of the code that are improved from the original. Like DNA, the source code can mutate.

<http://www.nxp.com/files/soft_dev_tools/doc/white_paper/CWTESTTECHCW.pdf>

<https://www.cwi.nl/research-groups/software-analysis-and-transformation>