

While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages. However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages. Debugging is often done with IDEs. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line. For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash. The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems. These compiled languages allow the programmer to write programs in terms that are syntactically richer, and more capable of abstracting the code, making it easy to target varying machine instruction sets via compilation declarations and heuristics. Ideally, the programming language best suited for the task at hand will be selected. Different programming languages support different styles of programming (called programming paradigms). It affects the aspects of quality above, including portability, usability and most importantly maintainability. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Programming languages are essential for software development. Integrated development environments (IDEs) aim to integrate all such help. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. One approach popular for requirements analysis is Use Case analysis.