

Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process.

Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. Many applications use a mix of several languages in their construction and use. 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. Use of a static code analysis tool can help detect some possible problems. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research. Programs were mostly entered using punched cards or paper tape. It is very difficult to determine what are the most popular modern programming languages. New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation).

Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Trial-and-error/divide-and-conquer is needed: the programmer will try to remove some parts of the original test case and check if the problem still exists. Computer programmers are those who write computer software. When debugging the problem in a GUI, the programmer can try to skip some user interaction from the original problem description and check if remaining actions are sufficient for bugs to appear. One approach popular for requirements analysis is Use Case analysis. Also, specific user environment and usage history can make it difficult to reproduce the problem. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers. 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. There are many approaches to the Software development process.