

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. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. It is very difficult to determine what are the most popular modern programming languages. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. 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. 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. The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine. Auxiliary tasks accompanying and related to programming include analyzing requirements, testing, debugging (investigating and fixing problems), implementation of build systems, and management of derived artifacts, such as programs' machine code. 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. It is very difficult to determine what are the most popular modern programming languages. It is very difficult to determine what are the most popular modern programming languages. 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. 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. Whatever the approach to development may be, the final program must satisfy some fundamental properties. 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. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Use of a static code analysis tool can help detect some possible problems. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Many applications use a mix of several languages in their construction and use. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process.