

It is very difficult to determine what are the most popular modern programming languages. Readability is important because programmers spend the majority of their time reading, trying to understand, reusing and modifying existing source code, rather than writing new source code. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. The following properties are among the most important: In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code. Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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. Readability is important because programmers spend the majority of their time reading, trying to understand, reusing and modifying existing source code, rather than writing new source code. Use of a static code analysis tool can help detect some possible problems. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. 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. Their jobs usually involve: Although programming has been presented in the media as a somewhat mathematical subject, some research shows that good programmers have strong skills in natural human languages, and that learning to code is similar to learning a foreign language. 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. 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. 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. 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. Also, specific user environment and usage history can make it difficult to reproduce the problem. Scripting and breakpointing is also part of this process. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Programs were mostly entered using punched cards or paper tape. As early as the 9th century, a programmable music sequencer was invented by the Persian Banu Musa brothers, who described an automated mechanical flute player in the Book of Ingenious Devices. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. It affects the aspects of quality above, including portability, usability and most importantly maintainability. It is very difficult to determine what are the most popular modern programming languages.