

The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference. 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. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. 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. Different programming languages support different styles of programming (called programming paradigms). Programming languages are essential for software development. 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. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Computer programmers are those who write computer software. Many applications use a mix of several languages in their construction and use. Normally the first step in debugging is to attempt to reproduce the problem. It is very difficult to determine what are the most popular modern programming languages. However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory. Some of these factors include: The presentation aspects of this (such as indents, line breaks, color highlighting, and so on) are often handled by the source code editor, but the content aspects reflect the programmer's talent and skills. Code-breaking algorithms have also existed for centuries. 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. 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. 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. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Some of these factors include: The presentation aspects of this (such as indents, line breaks, color highlighting, and so on) are often handled by the source code editor, but the content aspects reflect the programmer's talent and skills. Some languages are more prone to some kinds of faults because their specification does not require compilers to perform as much checking as other languages. Use of a static code analysis tool can help detect some possible 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. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.