

Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Programmable devices have existed for centuries. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. It is usually easier to code in "high-level" languages than in "low-level" ones. 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. 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. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. 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. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. It is very difficult to determine what are the most popular modern programming languages. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. 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. 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. 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. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Programming languages are essential for software development. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Computer programmers are those who write computer software.