

It is usually easier to code in "high-level" languages than in "low-level" ones. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. Unreadable code often leads to bugs, inefficiencies, and duplicated code. It is very difficult to determine what are the most popular modern programming languages. There exist a lot of different approaches for each of those tasks. 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. In 1206, the Arab engineer Al-Jazari invented a programmable drum machine where a musical mechanical automaton could be made to play different rhythms and drum patterns, via pegs and cams. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. 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. Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. 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). Programming languages are essential for software development. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. There are many approaches to the Software development process. Integrated development environments (IDEs) aim to integrate all such help. Following a consistent programming style often helps readability. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Programmable devices have existed for centuries. Programming languages are essential for software development. Programming languages are essential for software development. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses.