

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. However, readability is more than just programming style. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Integrated development environments (IDEs) aim to integrate all such help. Normally the first step in debugging is to attempt to reproduce the problem. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. 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. 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. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. Code-breaking algorithms have also existed for centuries. For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software. 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. Programmable devices have existed for centuries. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. 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). 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. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Use of a static code analysis tool can help detect some possible problems. Ideally, the programming language best suited for the task at hand will be selected.