

Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit. Following a consistent programming style often helps readability. There are many approaches to the Software development process. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. 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. Programs were mostly entered using punched cards or paper tape. 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. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. 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. One approach popular for requirements analysis is Use Case analysis. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly. One approach popular for requirements analysis is Use Case analysis. 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. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Code-breaking algorithms have also existed for centuries. It is usually easier to code in "high-level" languages than in "low-level" ones. For this purpose, algorithms are classified into orders using so-called Big O notation, which expresses resource use, such as execution time or memory consumption, in terms of the size of an input. Integrated development environments (IDEs) aim to integrate all such help. Programmable devices have existed for centuries. For this purpose, algorithms are classified into orders using so-called Big O notation, which expresses resource use, such as execution time or memory consumption, in terms of the size of an input.