

In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. 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. Code-breaking algorithms have also existed for centuries. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. 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.

Trial-and-error/divide-and-conquer is needed: the programmer will try to remove some parts of the original test case and check if the problem still exists. Programmable devices have existed for centuries. Code-breaking algorithms have also existed for centuries. 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. Also, specific user environment and usage history can make it difficult to reproduce the problem. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). Auxiliary tasks accompanying and related to programming include analyzing requirements, testing, debugging (investigating and fixing problems), implementation of build systems, and management of derived artifacts, such as programs' machine code. Their jobs usually involve: Although programming has been presented in the media as a somewhat mathematical subject, some research shows that good programmers have strong skills in natural human languages, and that learning to code is similar to learning a foreign language. There are many approaches to the Software development process. Also, specific user environment and usage history can make it difficult to reproduce the problem. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. 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). 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. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. As early as the 9th century, a programmable music sequencer was invented by the Persian Banu Musa brothers, who described an automated mechanical flute player in the Book of Ingenious Devices. 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.