

High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Techniques like Code refactoring can enhance readability. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. 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. Following a consistent programming style often helps readability. There exist a lot of different approaches for each of those tasks. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Different programming languages support different styles of programming (called programming paradigms). Many applications use a mix of several languages in their construction and use. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages. 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. There are many approaches to the Software development process. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. 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. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). They are the building blocks for all software, from the simplest applications to the most sophisticated ones. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. 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 the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.