

Code-breaking algorithms have also existed for centuries. Use of a static code analysis tool can help detect some possible problems. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. There exist a lot of different approaches for each of those tasks. There are many approaches to the Software development process. However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory. 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. The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. Ideally, the programming language best suited for the task at hand will be selected. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. Also, specific user environment and usage history can make it difficult to reproduce the problem. 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. 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. Computer programmers are those who write computer software. Many applications use a mix of several languages in their construction and use. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. It is very difficult to determine what are the most popular modern programming languages. 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. 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. 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. However, readability is more than just programming style.