

Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). 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. 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. 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. 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. 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. Whatever the approach to development may be, the final program must satisfy some fundamental properties. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. 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. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. 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. 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, readability is more than just programming style. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. Scripting and breakpointing is also part of this process. 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. There are many approaches to the Software development process. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Programming languages are essential for software development. However, readability is more than just programming style.