

Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. 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. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. Computer programmers are those who write computer software. Programming languages are essential for software development. Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers. Programmable devices have existed for centuries. One approach popular for requirements analysis is Use Case analysis. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). 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. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. 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. 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. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Use of a static code analysis tool can help detect some possible problems. One approach popular for requirements analysis is Use Case analysis. 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. Whatever the approach to development may be, the final program must satisfy some fundamental properties. 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. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form.