Code-breaking algorithms have also existed for centuries. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. The following properties are among the most important: In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. It affects the aspects of quality above, including portability, usability and most importantly maintainability. When debugging the problem in a GUI, the programmer can try to skip some user interaction from the original problem description and check if remaining actions are sufficient for bugs to appear. 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. Whatever the approach to development may be, the final program must satisfy some fundamental properties. 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. Unreadable code often leads to bugs, inefficiencies, and duplicated 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. Techniques like Code refactoring can enhance 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. Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic. Use of a static code analysis tool can help detect some possible problems. Ideally, the programming language best suited for the task at hand will be selected. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. 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. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. Many programmers use forms of Agile software development where the various stages of formal software development are more integrated together into short cycles that take a few weeks rather than years. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.