

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. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Code-breaking algorithms have also existed for centuries. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. 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. 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. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. 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. Use of a static code analysis tool can help detect some possible problems. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. 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. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. Scripting and breakpointing is also part of this process. Scripting and breakpointing is also part of this process. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Computer programmers are those who write computer software. 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. Many applications use a mix of several languages in their construction and use. For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software. Use of a static code analysis tool can help detect some possible problems. They are the building blocks for all software, from the simplest applications to the most sophisticated ones.