Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Different programming languages support different styles of programming (called programming paradigms). Scripting and breakpointing is also part of this process. 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. 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. Programming languages are essential for software development. It is very difficult to determine what are the most popular modern programming languages. Programs were mostly entered using punched cards or paper tape. 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. Normally the first step in debugging is to attempt to reproduce the problem. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. 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. Also, specific user environment and usage history can make it difficult to reproduce the problem. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. These compiled languages allow the programmer to write programs in terms that are syntactically richer, and more capable of abstracting the code, making it easy to target varying machine instruction sets via compilation declarations and heuristics. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. Ideally, the programming language best suited for the task at hand will be selected. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers.
Code-breaking algorithms have also existed for centuries. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. It is usually easier to code in "high-level" languages than in "low-level" ones. Ideally, the programming language best suited for the task at hand will be selected. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Computer programmers are those who write computer software. 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.