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. Programming languages are essential for software development. However, readability is more than just programming style. Computer programmers are those who write computer software. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. However, readability is more than just programming style. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Normally the first step in debugging is to attempt to reproduce the problem. Following a consistent programming style often helps readability. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. Code-breaking algorithms have also existed for centuries. However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages. Computer programmers are those who write computer software. 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. 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. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Expert programmers are familiar with a variety of well-established algorithms and their respective complexities and use this knowledge to choose algorithms that are best suited to the circumstances. New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation). 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. 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. 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. Scripting and breakpointing is also part of this process. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.