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.  
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.  
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.  
Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash.  
Also, those involved with software development may at times engage in reverse engineering, which is the practice of seeking to understand an existing program so as to re-implement its function in some way.  
Normally the first step in debugging is to attempt to reproduce the problem.  
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.  
Scripting and breakpointing is also part of this process.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
Normally the first step in debugging is to attempt to reproduce the problem.  
There are many approaches to the Software development process.  
 Programmable devices have existed for centuries.