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..  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.  
Techniques like Code refactoring can enhance readability.  
Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language.  
Programming languages are essential for software development.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
Normally the first step in debugging is to attempt to reproduce the problem.  
 The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process.  
 It is very difficult to determine what are the most popular modern programming languages.  
Ideally, the programming language best suited for the task at hand will be selected.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
 Different programming languages support different styles of programming (called programming paradigms).  
 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.