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..  
 A similar technique used for database design is Entity-Relationship Modeling (ER Modeling).  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.  
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.  
FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research.  
Normally the first step in debugging is to attempt to reproduce the problem.  
 Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
Many applications use a mix of several languages in their construction and use.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
 Different programming languages support different styles of programming (called programming paradigms).  
It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages.  
Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.  
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.