Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages..  
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.  
 High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
Integrated development environments (IDEs) aim to integrate all such help.  
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.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.  
 Programs were mostly entered using punched cards or paper tape.  
Normally the first step in debugging is to attempt to reproduce the problem.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
 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.  
Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
  
The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'.  
In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them.