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..  
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.  
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.  
 In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form.  
Use of a static code analysis tool can help detect some possible problems.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
Techniques like Code refactoring can enhance readability.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
 Debugging is often done with IDEs. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line.  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.  
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.  
 These compiled languages allow the programmer to write programs in terms that are syntactically richer, and more capable of abstracting the code, making it easy to target varying machine instruction sets via compilation declarations and heuristics.  
 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.  
  
 Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks.