Programs were mostly entered using punched cards or paper tape..  
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.  
  
The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'.  
 Whatever the approach to development may be, the final program must satisfy some fundamental properties.  
 In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
 Programmable devices have existed for centuries.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
Use of a static code analysis tool can help detect some possible problems.  
Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit.  
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.  
The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference.