Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards..  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
 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.  
 Different programming languages support different styles of programming (called programming paradigms).  
Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly.  
Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process.  
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.  
Scripting and breakpointing is also part of this process.  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
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.  
It is usually easier to code in "high-level" languages than in "low-level" ones.