Programs were mostly entered using punched cards or paper tape..  
 New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation).  
Programming languages are essential for software development.  
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.  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.  
 Different programming languages support different styles of programming (called programming paradigms).  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
 Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications.  
Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability.  
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.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
For this purpose, algorithms are classified into orders using so-called Big O notation, which expresses resource use, such as execution time or memory consumption, in terms of the size of an input.  
It affects the aspects of quality above, including portability, usability and most importantly maintainability.  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
 Following a consistent programming style often helps readability.