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..  
 It is very difficult to determine what are the most popular modern programming 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.  
 Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA).  
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.  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
 Programs were mostly entered using punched cards or paper tape.  
Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability.  
However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
 High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware.  
Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process.  
Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation.  
However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory.