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.  
When debugging the problem in a GUI, the programmer can try to skip some user interaction from the original problem description and check if remaining actions are sufficient for bugs to appear.  
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.  
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.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
 Computer programmers are those who write computer software.  
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.  
 Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA).  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
Programming involves tasks such as analysis, generating algorithms, profiling algorithms' accuracy and resource consumption, and the implementation of algorithms (usually in a particular programming language, commonly referred to as coding).