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..  
 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.  
Programming languages are essential for software development.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
 Computer programmers are those who write computer software.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
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 is usually easier to code in "high-level" languages than in "low-level" ones.  
Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses.  
Ideally, the programming language best suited for the task at hand will be selected.  
 High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware.  
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.  
 Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications.  
 It is very difficult to determine what are the most popular modern programming languages.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.