A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Proficient programming thus usually requires expertise in several different subjects, including knowledge of the application domain, specialized algorithms, and formal logic.  
This is interpreted into machine code.  
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.  
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.  
Use of a static code analysis tool can help detect some possible problems.  
Scripting and breakpointing is also part of this process.  
Ideally, the programming language best suited for the task at hand will be selected.  
The purpose of programming is to find a sequence of instructions that will automate the performance of a task (which can be as complex as an operating system) on a computer, often for solving a given problem.  
Trial-and-error/divide-and-conquer is needed: the programmer will try to remove some parts of the original test case and check if the problem still exists.  
 Computer programmers are those who write computer software.  
 Allen Downey, in his book How To Think Like A Computer Scientist, writes:  
 Many computer languages provide a mechanism to call functions provided by shared libraries.  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
  
 Computer programming is the process of performing particular computations (or more generally, accomplishing specific computing results), usually by designing and building executable computer programs.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.