Relatedly, software engineering combines engineering techniques and principles with software development.  
Normally the first step in debugging is to attempt to reproduce the problem.  
There exist a lot of different approaches for each of those tasks.  
Programming languages are essential for software development.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
Programming languages are essential for software development.  
There are many approaches to the Software development process.  
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.  
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.  
Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability.  
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.  
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.  
Many applications use a mix of several languages in their construction and use.  
Ideally, the programming language best suited for the task at hand will be selected.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.