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..  
 Programmable devices have existed for centuries.  
Programming languages are essential for software development.  
Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic.  
For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software.  
Their jobs usually involve:  
 Although programming has been presented in the media as a somewhat mathematical subject, some research shows that good programmers have strong skills in natural human languages, and that learning to code is similar to learning a foreign language.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
Methods of measuring programming language popularity include: counting the number of job advertisements that mention the language, the number of books sold and courses teaching the language (this overestimates the importance of newer languages), and estimates of the number of existing lines of code written in the language (this underestimates the number of users of business languages such as COBOL).  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
Many programmers use forms of Agile software development where the various stages of formal software development are more integrated together into short cycles that take a few weeks rather than years.  
Ideally, the programming language best suited for the task at hand will be selected.  
 Following a consistent programming style often helps readability.  
 Different programming languages support different styles of programming (called programming paradigms).  
 Computer programmers are those who write computer software.