Some languages are more prone to some kinds of faults because their specification does not require compilers to perform as much checking as other languages..  
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.  
Ideally, the programming language best suited for the task at hand will be selected.  
 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.  
 Programs were mostly entered using punched cards or paper tape.  
 The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine.  
 It is very difficult to determine what are the most popular modern programming languages.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
 Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA).  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
One approach popular for requirements analysis is Use Case analysis.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
Many applications use a mix of several languages in their construction and use.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.