It is usually easier to code in "high-level" languages than in "low-level" ones..  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
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.  
 Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA).  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
There are many approaches to the Software development process.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
Expert programmers are familiar with a variety of well-established algorithms and their respective complexities and use this knowledge to choose algorithms that are best suited to the circumstances.  
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.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
 Whatever the approach to development may be, the final program must satisfy some fundamental properties.  
Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute.  
  
 Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks.  
Normally the first step in debugging is to attempt to reproduce the problem.