For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash..  
 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.  
While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se.  
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.  
 New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation).  
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.  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.  
It affects the aspects of quality above, including portability, usability and most importantly maintainability.  
 Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications.  
As early as the 9th century, a programmable music sequencer was invented by the Persian Banu Musa brothers, who described an automated mechanical flute player in the Book of Ingenious Devices.  
 Whatever the approach to development may be, the final program must satisfy some fundamental properties.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
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.  
 Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display.  
Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language.