Also, specific user environment and usage history can make it difficult to reproduce the problem.  
This is interpreted into machine code.  
To produce machine code, the source code must either be compiled or transpiled.  
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.  
Ideally, the programming language best suited for the task at hand will be selected.  
Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly.  
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.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
Programming languages are essential for software development.  
There exist a lot of different approaches for each of those tasks.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
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.  
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.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.