Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
One approach popular for requirements analysis is Use Case analysis.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
Many applications use a mix of several languages in their construction and use.  
Proficient programming thus usually requires expertise in several different subjects, including knowledge of the application domain, specialized algorithms, and formal logic.  
Transpiling on the other hand, takes the source-code from a high-level programming language and converts it into bytecode.  
However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
  
 Computer programming is the process of performing particular computations (or more generally, accomplishing specific computing results), usually by designing and building executable computer programs.  
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.  
 Debugging is often done with IDEs. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.