This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
Scripting and breakpointing is also part of this process.  
Proficient programming thus usually requires expertise in several different subjects, including knowledge of the application domain, specialized algorithms, and formal logic.  
Use of a static code analysis tool can help detect some possible problems.  
Transpiling on the other hand, takes the source-code from a high-level programming language and converts it into bytecode.  
Normally the first step in debugging is to attempt to reproduce the problem.  
For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software.  
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.  
The purpose of programming is to find a sequence of instructions that will automate the performance of a task (which can be as complex as an operating system) on a computer, often for solving a given problem.  
Techniques like Code refactoring can enhance readability.  
In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
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.  
FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research.