It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages..  
Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit.  
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.  
 Computer programmers are those who write computer software.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
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.  
 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.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
Many applications use a mix of several languages in their construction and use.  
Use of a static code analysis tool can help detect some possible problems.  
Methods of measuring programming language popularity include: counting the number of job advertisements that mention the language, the number of books sold and courses teaching the language (this overestimates the importance of newer languages), and estimates of the number of existing lines of code written in the language (this underestimates the number of users of business languages such as COBOL).