Normally the first step in debugging is to attempt to reproduce the problem..  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers.  
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.  
 Readability is important because programmers spend the majority of their time reading, trying to understand, reusing and modifying existing source code, rather than writing new source code.  
When debugging the problem in a GUI, the programmer can try to skip some user interaction from the original problem description and check if remaining actions are sufficient for bugs to appear.  
 Auxiliary tasks accompanying and related to programming include analyzing requirements, testing, debugging (investigating and fixing problems), implementation of build systems, and management of derived artifacts, such as programs' machine code.  
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.  
 It is very difficult to determine what are the most popular modern programming languages.  
Use of a static code analysis tool can help detect some possible problems.  
 Whatever the approach to development may be, the final program must satisfy some fundamental properties.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.