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..  
 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.  
Use of a static code analysis tool can help detect some possible problems.  
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 academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
 New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation).  
 Programmable devices have existed for centuries.  
 Code-breaking algorithms have also existed for centuries.  
 Whatever the approach to development may be, the final program must satisfy some fundamental properties.  
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.  
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).  
 In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form.  
 Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.