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.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
The following properties are among the most important:  
  
 In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code.  
Trial-and-error/divide-and-conquer is needed: the programmer will try to remove some parts of the original test case and check if the problem still exists.  
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.  
Programming languages are essential for software development.  
Expert programmers are familiar with a variety of well-established algorithms and their respective complexities and use this knowledge to choose algorithms that are best suited to the circumstances.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
One approach popular for requirements analysis is Use Case analysis.  
 The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging).  
 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).  
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.  
Programming involves tasks such as analysis, generating algorithms, profiling algorithms' accuracy and resource consumption, and the implementation of algorithms (usually in a particular programming language, commonly referred to as coding).  
 Programs were mostly entered using punched cards or paper tape.