Unreadable code often leads to bugs, inefficiencies, and duplicated code..  
  
The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'.  
 Code-breaking algorithms have also existed for centuries.  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
 Different programming languages support different styles of programming (called programming paradigms).  
 These compiled languages allow the programmer to write programs in terms that are syntactically richer, and more capable of abstracting the code, making it easy to target varying machine instruction sets via compilation declarations and heuristics.  
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.  
Integrated development environments (IDEs) aim to integrate all such help.  
It affects the aspects of quality above, including portability, usability and most importantly maintainability.  
For this purpose, algorithms are classified into orders using so-called Big O notation, which expresses resource use, such as execution time or memory consumption, in terms of the size of an input.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
There exist a lot of different approaches for each of those tasks.  
 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).  
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.