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)..  
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.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
Ideally, the programming language best suited for the task at hand will be selected.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process.  
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.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
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.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
 The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
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.  
It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages.  
  
The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'.