Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers.  
Proficient programming thus usually requires expertise in several different subjects, including knowledge of the application domain, specialized algorithms, and formal logic.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
Use of a static code analysis tool can help detect some possible problems.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
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.  
It affects the aspects of quality above, including portability, usability and most importantly maintainability.  
The source code of a program is written in one or more languages that are intelligible to programmers, rather than machine code, which is directly executed by the central processing unit.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
 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).  
 Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA).  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
 A similar technique used for database design is Entity-Relationship Modeling (ER Modeling).  
Compiling takes the source code from a low-level programming language and converts it into machine code.