Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
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.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
Integrated development environments (IDEs) aim to integrate all such help.  
Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation.  
Programming languages are essential for software development.  
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.  
 High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware.  
 A similar technique used for database design is Entity-Relationship Modeling (ER Modeling).  
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.  
Normally the first step in debugging is to attempt to reproduce the problem.  
 Debugging is often done with IDEs. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line.  
Use of a static code analysis tool can help detect some possible problems.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.