In 1206, the Arab engineer Al-Jazari invented a programmable drum machine where a musical mechanical automaton could be made to play different rhythms and drum patterns, via pegs and cams.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
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.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
Ideally, the programming language best suited for the task at hand will be selected.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
Integrated development environments (IDEs) aim to integrate all such help.  
Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly.  
  
 Computer programming is the process of performing particular computations (or more generally, accomplishing specific computing results), usually by designing and building executable computer programs.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
Methods of measuring programming language popularity include: counting the number of job advertisements that mention the language, the number of books sold and courses teaching the language (this overestimates the importance of newer languages), and estimates of the number of existing lines of code written in the language (this underestimates the number of users of business languages such as COBOL).  
It is usually easier to code in "high-level" languages than in "low-level" ones.