Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses.  
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.  
To produce machine code, the source code must either be compiled or transpiled.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
The purpose of programming is to find a sequence of instructions that will automate the performance of a task (which can be as complex as an operating system) on a computer, often for solving a given problem.  
As early as the 9th century, a programmable music sequencer was invented by the Persian Banu Musa brothers, who described an automated mechanical flute player in the Book of Ingenious Devices.  
Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability.  
There exist a lot of different approaches for each of those tasks.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
 High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware.  
 Different programming languages support different styles of programming (called programming paradigms).  
 Programmable devices have existed for centuries.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
Many programmers use forms of Agile software development where the various stages of formal software development are more integrated together into short cycles that take a few weeks rather than years.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.