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.  
Programming languages are essential for software development.  
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).  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
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.  
Also, those involved with software development may at times engage in reverse engineering, which is the practice of seeking to understand an existing program so as to re-implement its function in some way.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute.  
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.  
 In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
 High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware.  
However, while these might be considered part of the programming process, often the term software development is more likely used for this larger overall process – whereas the terms programming, implementation, and coding tend to be focused on the actual writing of code.  
Trial-and-error/divide-and-conquer is needed: the programmer will try to remove some parts of the original test case and check if the problem still exists.  
Also, those involved with software development may at times engage in reverse engineering, which is the practice of seeking to understand an existing program so as to re-implement its function in some way.