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 applications use a mix of several languages in their construction and use.  
Normally the first step in debugging is to attempt to reproduce the problem.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
Integrated development environments (IDEs) aim to integrate all such help.  
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.  
 Programs were mostly entered using punched cards or paper tape.  
 The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems.  
Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic.  
While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se.  
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.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.