Proficient programming thus usually requires expertise in several different subjects, including knowledge of the application domain, specialized algorithms, and formal logic.  
Relatedly, software engineering combines engineering techniques and principles with software development.  
Scripting and breakpointing is also part of this process.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
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.  
Programming involves tasks such as analysis, generating algorithms, profiling algorithms' accuracy and resource consumption, and the implementation of algorithms (usually in a particular programming language, commonly referred to as coding).  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
Programming involves tasks such as analysis, generating algorithms, profiling algorithms' accuracy and resource consumption, and the implementation of algorithms (usually in a particular programming language, commonly referred to as coding).  
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 A similar technique used for database design is Entity-Relationship Modeling (ER Modeling).  
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.  
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.  
To produce machine code, the source code must either be compiled or transpiled.  
One approach popular for requirements analysis is Use Case analysis.