Programming languages are essential for software development.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
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.  
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.  
However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages.  
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However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory.  
Relatedly, software engineering combines engineering techniques and principles with software development.  
Compiling takes the source code from a low-level programming language and converts it into machine code.  
The following properties are among the most important:  
  
 In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
 The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.