In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form..  
Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
 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.  
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.  
 A similar technique used for database design is Entity-Relationship Modeling (ER Modeling).  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them.  
Ideally, the programming language best suited for the task at hand will be selected.  
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.  
  
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.  
Their jobs usually involve:  
 Although programming has been presented in the media as a somewhat mathematical subject, some research shows that good programmers have strong skills in natural human languages, and that learning to code is similar to learning a foreign language.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.