In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
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.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
However, readability is more than just programming style.  
In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them.  
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Many programmers use forms of Agile software development where the various stages of formal software development are more integrated together into short cycles that take a few weeks rather than years.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
Ideally, the programming language best suited for the task at hand will be selected.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
To produce machine code, the source code must either be compiled or transpiled.  
  
The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'.  
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