Debugging is often done with IDEs.. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line.  
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.  
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.  
 Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display.  
 Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Use of a static code analysis tool can help detect some possible problems.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
  
  
 Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
 These compiled languages allow the programmer to write programs in terms that are syntactically richer, and more capable of abstracting the code, making it easy to target varying machine instruction sets via compilation declarations and heuristics.  
 Code-breaking algorithms have also existed for centuries.  
Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation.  
 Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA).