Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks..  
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.  
 Computer programmers are those who write computer software.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash.  
 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.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Techniques like Code refactoring can enhance readability.  
Integrated development environments (IDEs) aim to integrate all such help.  
Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
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.  
Programming languages are essential for software development.