

Unreadable code often leads to bugs, inefficiencies, and duplicated code. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). 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. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Use of a static code analysis tool can help detect some possible problems. New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation). Following a consistent programming style often helps readability. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). They are the building blocks for all software, from the simplest applications to the most sophisticated ones. Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). One approach popular for requirements analysis is Use Case analysis. For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation). Trial-and-error/divide-and-conquer is needed: the programmer will try to remove some parts of the original test case and check if the problem still exists. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. In 1206, the Arab engineer Al-Jazari invented a programmable drum machine where a musical mechanical automaton could be made to play different rhythms and drum patterns, via pegs and cams. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. Also, specific user environment and usage history can make it difficult to reproduce the problem. Some languages are more prone to some kinds of faults because their specification does not require compilers to perform as much checking as other languages. Different programming languages support different styles of programming (called programming paradigms).