

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. Unreadable code often leads to bugs, inefficiencies, and duplicated code. 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. It affects the aspects of quality above, including portability, usability and most importantly maintainability. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. 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. It is usually easier to code in "high-level" languages than in "low-level" ones. 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. Some of these factors include: The presentation aspects of this (such as indents, line breaks, color highlighting, and so on) are often handled by the source code editor, but the content aspects reflect the programmer's talent and skills. Allen Downey, in his book *How To Think Like A Computer Scientist*, writes: Many computer languages provide a mechanism to call functions provided by shared libraries. 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. 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. Readability is important because programmers spend the majority of their time reading, trying to understand, reusing and modifying existing source code, rather than writing new source code. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. 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. The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference. Computer programmers are those who write computer software. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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). Different programming languages support different styles of programming (called programming paradigms). One approach popular for requirements analysis is Use Case analysis.