

Following a consistent programming style often helps readability. 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. 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. 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. 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. 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. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. One approach popular for requirements analysis is Use Case analysis. Different programming languages support different styles of programming (called programming paradigms). 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. 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. Techniques like Code refactoring can enhance readability. Programmable devices have existed for centuries. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). 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. Code-breaking algorithms have also existed for centuries. Following a consistent programming style often helps readability. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Methods of measuring programming language popularity include: counting the number of job advertisements that mention the language, the number of books sold and courses teaching the language (this overestimates the importance of newer languages), and estimates of the number of existing lines of code written in the language (this underestimates the number of users of business languages such as COBOL). Following a consistent programming style often helps readability. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit. 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.