

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. Different programming languages support different styles of programming (called programming paradigms). 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. 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. Normally the first step in debugging is to attempt to reproduce the problem. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. There are many approaches to the Software development process. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. 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. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Scripting and breakpointing is also part of this process. 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. 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). 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. 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. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Ideally, the programming language best suited for the task at hand will be selected. Following a consistent programming style often helps readability. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Many applications use a mix of several languages in their construction and use. Unreadable code often leads to bugs, inefficiencies, and duplicated code. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. 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. 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.