

Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly. Techniques like Code refactoring can enhance readability. 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. 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. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. 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. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Also, specific user environment and usage history can make it difficult to reproduce the problem. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research. As early as the 9th century, a programmable music sequencer was invented by the Persian Banu Musa brothers, who described an automated mechanical flute player in the *Book of Ingenious Devices*. 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. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. 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. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research. It is usually easier to code in "high-level" languages than in "low-level" ones.