

However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages. 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. Programmable devices have existed for centuries. 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). Ideally, the programming language best suited for the task at hand will be selected. 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. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Computer programmers are those who write computer software. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Programmable devices have existed for centuries. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Following a consistent programming style often helps readability. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Following a consistent programming style often helps readability. Expert programmers are familiar with a variety of well-established algorithms and their respective complexities and use this knowledge to choose algorithms that are best suited to the circumstances. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. 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). In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. Different programming languages support different styles of programming (called programming paradigms). Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. It is usually easier to code in "high-level" languages than in "low-level" ones. However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory. Programs were mostly entered using punched cards or paper tape. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.