

Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic 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. 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. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). 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. There exist a lot of different approaches for each of those tasks. 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. 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. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. 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. Integrated development environments (IDEs) aim to integrate all such help. 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. Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display. It is very difficult to determine what are the most popular modern programming languages. Programmable devices have existed for centuries. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. There are many approaches to the Software development process. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. 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. 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.