

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). 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. There exist a lot of different approaches for each of those tasks. For this purpose, algorithms are classified into orders using so-called Big O notation, which expresses resource use, such as execution time or memory consumption, in terms of the size of an input. 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. While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se. 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. 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. 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. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. 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. 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. It is usually easier to code in "high-level" languages than in "low-level" ones. 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). Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se. Whatever the approach to development may be, the final program must satisfy some fundamental properties. It is usually easier to code in "high-level" languages than in "low-level" ones. 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. 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. There are many approaches to the Software development process. One approach popular for requirements analysis is Use Case analysis.