

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. Different programming languages support different styles of programming (called programming paradigms). It is usually easier to code in "high-level" languages than in "low-level" ones. There are many approaches to the Software development process. Programming languages are essential for software development. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Code-breaking algorithms have also existed for centuries. Use of a static code analysis tool can help detect some possible problems. 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. There exist a lot of different approaches for each of those tasks. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. 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. Their jobs usually involve: Although programming has been presented in the media as a somewhat mathematical subject, some research shows that good programmers have strong skills in natural human languages, and that learning to code is similar to learning a foreign language. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Scripting and breakpointing is also part of this process. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. 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. Programming languages are essential for software development. Unreadable code often leads to bugs, inefficiencies, and duplicated code. It is usually easier to code in "high-level" languages than in "low-level" ones. Many applications use a mix of several languages in their construction and use. Scripting and breakpointing is also part of this process.