

There are many approaches to the Software development process. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. 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. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. Following a consistent programming style often helps readability. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. Some languages are more prone to some kinds of faults because their specification does not require compilers to perform as much checking as other languages. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. Also, specific user environment and usage history can make it difficult to reproduce the problem. Different programming languages support different styles of programming (called programming paradigms). After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. Techniques like Code refactoring can enhance readability. Also, specific user environment and usage history can make it difficult to reproduce the problem. Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. 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. 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. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. Ideally, the programming language best suited for the task at hand will be selected. Code-breaking algorithms have also existed for centuries.