

Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. There exist a lot of different approaches for each of those tasks. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. Unreadable code often leads to bugs, inefficiencies, and duplicated code. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. Computer programmers are those who write computer software. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Ideally, the programming language best suited for the task at hand will be selected. For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. 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. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses. Ideally, the programming language best suited for the task at hand will be selected. However, readability is more than just programming style. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Programmable devices have existed for centuries. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Scripting and breakpointing is also part of this process. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. Programming languages are essential for software development.