

Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). There are many approaches to the Software development process. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. It is very difficult to determine what are the most popular modern programming languages. Following a consistent programming style often helps readability. 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. Programming languages are essential for software development. 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. 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. Scripting and breakpointing is also part of this process. 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 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). 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. 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. 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. Scripting and breakpointing is also part of this process. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. Computer programmers are those who write computer software. 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. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. One approach popular for requirements analysis is Use Case analysis. 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.