

Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers. It is very difficult to determine what are the most popular modern programming languages. Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. In 1206, the Arab engineer Al-Jazari invented a programmable drum machine where a musical mechanical automaton could be made to play different rhythms and drum patterns, via pegs and cams. Also, specific user environment and usage history can make it difficult to reproduce the problem. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. However, readability is more than just programming style. Normally the first step in debugging is to attempt to reproduce the problem. 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. It is usually easier to code in "high-level" languages than in "low-level" ones. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). Unreadable code often leads to bugs, inefficiencies, and duplicated code. 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. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Different programming languages support different styles of programming (called programming paradigms). The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.