

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. Many applications use a mix of several languages in their construction and use. For this purpose, algorithms are classified into orders using so-called Big O notation, which expresses resource use, such as execution time or memory consumption, in terms of the size of an input. It is usually easier to code in "high-level" languages than in "low-level" ones. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Normally the first step in debugging is to attempt to reproduce the problem. 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. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Following a consistent programming style often helps readability. Normally the first step in debugging is to attempt to reproduce the problem. Expert programmers are familiar with a variety of well-established algorithms and their respective complexities and use this knowledge to choose algorithms that are best suited to the circumstances. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Unreadable code often leads to bugs, inefficiencies, and duplicated code. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). 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. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory.