

Use of a static code analysis tool can help detect some possible problems. Following a consistent programming style often helps readability. New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation). Unreadable code often leads to bugs, inefficiencies, and duplicated code. 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. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. 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. 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. 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. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Programming languages are essential for software development. 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. Programming languages are essential for software development. Programmable devices have existed for centuries. It is very difficult to determine what are the most popular modern programming languages. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Different programming languages support different styles of programming (called programming paradigms). Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. 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. 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. Techniques like Code refactoring can enhance readability. 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. 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. Programming languages are essential for software development. Computer programmers are those who write computer software.