

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. Computer programmers are those who write computer software. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. However, readability is more than just programming style. 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. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems. The following properties are among the most important: In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Ideally, the programming language best suited for the task at hand will be selected. Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Allen Downey, in his book *How To Think Like A Computer Scientist*, writes: Many computer languages provide a mechanism to call functions provided by shared libraries. 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). Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in *A Manuscript on Deciphering Cryptographic Messages*. 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.