

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. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Programming languages are essential for software development. 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. There are many approaches to the Software development process. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Ideally, the programming language best suited for the task at hand will be selected. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Many applications use a mix of several languages in their construction and use. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. It affects the aspects of quality above, including portability, usability and most importantly maintainability. 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. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. 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. Computer programmers are those who write computer software. 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. One approach popular for requirements analysis is Use Case analysis. Programmable devices have existed for centuries. There exist a lot of different approaches for each of those tasks. 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. As early as the 9th century, a programmable music sequencer was invented by the Persian Banu Musa brothers, who described an automated mechanical flute player in the Book of Ingenious Devices. Unreadable code often leads to bugs, inefficiencies, and duplicated code. 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. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.