

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. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. Programming languages are essential for software development. 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. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se. Unreadable code often leads to bugs, inefficiencies, and duplicated code. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. 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. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Techniques like Code refactoring can enhance readability. 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. 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. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Ideally, the programming language best suited for the task at hand will be selected. Also, specific user environment and usage history can make it difficult to reproduce the problem. 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. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Programmable devices have existed for centuries. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. 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.