

Programming languages are essential for software development. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Techniques like Code refactoring can enhance readability. Use of a static code analysis tool can help detect some possible problems. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Following a consistent programming style often helps readability. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. 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. Scripting and breakpointing is also part of this process. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. 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. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. There are many approaches to the Software development process. Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display. 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. 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. 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.