

Unreadable code often leads to bugs, inefficiencies, and duplicated code.

Trial-and-error/divide-and-conquer is needed: the programmer will try to remove some parts of the original test case and check if the problem still exists. There are many approaches to the Software development process. When debugging the problem in a GUI, the programmer can try to skip some user interaction from the original problem description and check if remaining actions are sufficient for bugs to appear. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly. 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. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers. 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. 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. 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. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. 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. It is very difficult to determine what are the most popular modern programming languages. 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. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.