

Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic. Debugging is often done with IDEs. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line. Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. 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. Scripting and breakpointing is also part of this process. One approach popular for requirements analysis is Use Case analysis. The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. 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. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. 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. It is usually easier to code in "high-level" languages than in "low-level" ones. There are many approaches to the Software development process. Use of a static code analysis tool can help detect some possible problems. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language. Following a consistent programming style often helps readability.