These compiled languages allow the programmer to write programs in terms that are syntactically richer, and more capable of abstracting the code, making it easy to target varying machine instruction sets via compilation declarations and heuristics. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. 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. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Integrated development environments (IDEs) aim to integrate all such help. 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. For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash. 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. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. There exist a lot of different approaches for each of those tasks. 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. Integrated development environments (IDEs) aim to integrate all such help. 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. Programs were mostly entered using punched cards or paper tape. 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. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. 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. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Whatever the approach to development may be, the final program must satisfy some fundamental properties. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. Auxiliary tasks accompanying and related to programming include analyzing requirements, testing, debugging (investigating and fixing problems), implementation of build systems, and management of derived artifacts, such as programs' machine code. One approach popular for requirements analysis is Use Case analysis.