Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. 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. 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. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. It is usually easier to code in "high-level" languages than in "low-level" ones. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. 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. Allen Downey, in his book How To Think Like A Computer Scientist, writes: Many computer languages provide a mechanism to call functions provided by shared libraries. 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. Their jobs usually involve: Although programming has been presented in the media as a somewhat mathematical subject, some research shows that good programmers have strong skills in natural human languages, and that learning to code is similar to learning a foreign language. Allen Downey, in his book How To Think Like A Computer Scientist, writes: Many computer languages provide a mechanism to call functions provided by shared libraries. Their jobs usually involve: Although programming has been presented in the media as a somewhat mathematical subject, some research shows that good programmers have strong skills in natural human languages, and that learning to code is similar to learning a foreign language. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Many applications use a mix of several languages in their construction and use. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Integrated development environments (IDEs) aim to integrate all such help. 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. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.