Computer programmers are those who write computer software. Normally the first step in debugging is to attempt to reproduce the problem. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. 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. 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. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. Computer programmers are those who write computer software. It affects the aspects of quality above, including portability, usability and most importantly maintainability. Many applications use a mix of several languages in their construction and use. 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. 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. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. 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. 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. Normally the first step in debugging is to attempt to reproduce the problem. Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses. Normally the first step in debugging is to attempt to reproduce the problem. Whatever the approach to development may be, the final program must satisfy some fundamental properties. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. Whatever the approach to development may be, the final program must satisfy some fundamental properties.