

The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Techniques like Code refactoring can enhance readability. 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. FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research. 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. 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. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. One approach popular for requirements analysis is Use Case analysis. 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. 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. 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. Normally the first step in debugging is to attempt to reproduce the problem. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. 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. Techniques like Code refactoring can enhance readability. Ideally, the programming language best suited for the task at hand will be selected. Computer programmers are those who write computer software. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Use of a static code analysis tool can help detect some possible problems. Some of these factors include: The presentation aspects of this (such as indents, line breaks, color highlighting, and so on) are often handled by the source code editor, but the content aspects reflect the programmer's talent and skills. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Different programming languages support different styles of programming (called programming paradigms). It affects the aspects of quality above, including portability, usability and most importantly maintainability.