

After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Ideally, the programming language best suited for the task at hand will be selected.

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. There exist a lot of different approaches for each of those tasks. 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. It is very difficult to determine what are the most popular modern programming languages. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. 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.

Programs were mostly entered using punched cards or paper tape. Programmable devices have existed for centuries. Whatever the approach to development may be, the final program must satisfy some fundamental properties. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Scripting and breakpointing is also part of this process. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. 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.

Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Techniques like Code refactoring can enhance readability. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. Expert programmers are familiar with a variety of well-established algorithms and their respective complexities and use this knowledge to choose algorithms that are best suited to the circumstances. For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. There are many approaches to the Software development process. For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software.