

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. 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. Normally the first step in debugging is to attempt to reproduce the problem. There exist a lot of different approaches for each of those tasks. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. 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. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. When debugging the problem in a GUI, the programmer can try to skip some user interaction from the original problem description and check if remaining actions are sufficient for bugs to appear. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. 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. Scripting and breakpointing is also part of this process. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Unreadable code often leads to bugs, inefficiencies, and duplicated code. 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. 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. There are many approaches to the Software development process. Following a consistent programming style often helps readability. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages.