

Different programming languages support different styles of programming (called programming paradigms). Use of a static code analysis tool can help detect some possible problems. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Some languages are more prone to some kinds of faults because their specification does not require compilers to perform as much checking as other languages. 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. 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. Many applications use a mix of several languages in their construction and use. Normally the first step in debugging is to attempt to reproduce the problem. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. 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. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. 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. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. 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. 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. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. 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. Also, specific user environment and usage history can make it difficult to reproduce the problem. Following a consistent programming style often helps readability. Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit. 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. Unreadable code often leads to bugs, inefficiencies, and duplicated code.