

Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Methods of measuring programming language popularity include: counting the number of job advertisements that mention the language, the number of books sold and courses teaching the language (this overestimates the importance of newer languages), and estimates of the number of existing lines of code written in the language (this underestimates the number of users of business languages such as COBOL). Readability is important because programmers spend the majority of their time reading, trying to understand, reusing and modifying existing source code, rather than writing new source code. While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. 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 languages are more prone to some kinds of faults because their specification does not require compilers to perform as much checking as other 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. It affects the aspects of quality above, including portability, usability and most importantly maintainability. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). It is very difficult to determine what are the most popular modern 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). The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. The following properties are among the most important: In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code. In 1206, the Arab engineer Al-Jazari invented a programmable drum machine where a musical mechanical automaton could be made to play different rhythms and drum patterns, via pegs and cams. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. Many applications use a mix of several languages in their construction and use. However, readability is more than just programming style. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se.