

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. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. 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. Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language. 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. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. One approach popular for requirements analysis is Use Case analysis. 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. Code-breaking algorithms have also existed for centuries. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Code-breaking algorithms have also existed for centuries. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. 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. 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. Programs were mostly entered using punched cards or paper tape. Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display. As early as the 9th century, a programmable music sequencer was invented by the Persian Banu Musa brothers, who described an automated mechanical flute player in the Book of Ingenious Devices. 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 affects the aspects of quality above, including portability, usability and most importantly maintainability. 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. However, readability is more than just programming style. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA).