

Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. 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. 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. Normally the first step in debugging is to attempt to reproduce the problem. 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. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. 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. 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. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Allen Downey, in his book *How To Think Like A Computer Scientist*, writes: Many computer languages provide a mechanism to call functions provided by shared libraries. 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. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Programs were mostly entered using punched cards or paper tape. Scripting and breakpointing is also part of this process. Debugging is often done with IDEs. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line. Code-breaking algorithms have also existed for centuries. It affects the aspects of quality above, including portability, usability and most importantly maintainability. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. 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. Following a consistent programming style often helps readability.