

Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. 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. 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. 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). Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Code-breaking algorithms have also existed for centuries. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. One approach popular for requirements analysis is Use Case analysis. 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. 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. Code-breaking algorithms have also existed for centuries. Following a consistent programming style often helps readability. The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). There exist a lot of different approaches for each of those tasks. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. Following a consistent programming style often helps readability. 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. 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. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. 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.