

Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). One approach popular for requirements analysis is Use Case analysis. It is usually easier to code in "high-level" languages than in "low-level" ones. 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. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Use of a static code analysis tool can help detect some possible problems. Also, specific user environment and usage history can make it difficult to reproduce the problem. It is usually easier to code in "high-level" languages than in "low-level" ones. 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. One approach popular for requirements analysis is Use Case analysis. 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. Scripting and breakpointing is also part of this 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. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. It is usually easier to code in "high-level" languages than in "low-level" ones. 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. Programs were mostly entered using punched cards or paper tape. 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. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation). 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. 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. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.