He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. They are the building blocks for all software, from the simplest applications to the most sophisticated 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. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. 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. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Scripting and breakpointing is also part of this process. Programming languages are essential for software development. 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. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Ideally, the programming language best suited for the task at hand will be selected. 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. 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. The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). 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. 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. It is very difficult to determine what are the most popular modern programming languages. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference. The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference. Use of a static code analysis tool can help detect some possible problems. 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.