

Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. It is very difficult to determine what are the most popular modern programming languages. 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. Also, specific user environment and usage history can make it difficult to reproduce the problem. Whatever the approach to development may be, the final program must satisfy some fundamental properties. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. There exist a lot of different approaches for each of those tasks. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. Normally the first step in debugging is to attempt to reproduce the problem. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Techniques like Code refactoring can enhance readability. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). Techniques like Code refactoring can enhance readability. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Also, specific user environment and usage history can make it difficult to reproduce the problem. In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. One approach popular for requirements analysis is Use Case analysis. 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. There are many approaches to the Software development process. Integrated development environments (IDEs) aim to integrate all such help.