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. In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages. Also, specific user environment and usage history can make it difficult to reproduce the problem. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. 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. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. 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). Ideally, the programming language best suited for the task at hand will be selected. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Programmable devices have existed for centuries. 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. 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). Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. Computer programmers are those who write computer software. Also, specific user environment and usage history can make it difficult 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. Expert programmers are familiar with a variety of well-established algorithms and their respective complexities and use this knowledge to choose algorithms that are best suited to the circumstances. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. 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. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Many applications use a mix of several languages in their construction and use.