After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Programmable devices have existed for centuries. In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages. There are many approaches to the Software development process. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Many programmers use forms of Agile software development where the various stages of formal software development are more integrated together into short cycles that take a few weeks rather than years. Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly. Scripting and breakpointing is also part of this process. Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute. Unreadable code often leads to bugs, inefficiencies, and duplicated code. However, Charles Babbage had already written his first program for the Analytical Engine in 1837. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. 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. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. 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). Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. 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). Also, specific user environment and usage history can make it difficult to reproduce the problem. Normally the first step in debugging is to attempt to reproduce the problem. They are the building blocks for all software, from the simplest applications to the most sophisticated ones.