

Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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. 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. 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. 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. 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 first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). 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*. The following properties are among the most important: In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code. Also, specific user environment and usage history can make it difficult to reproduce the problem. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Many applications use a mix of several languages in their construction and use. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. 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. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. One approach popular for requirements analysis is Use Case analysis. Scripting and breakpointing is also part of this process. Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language. Scripting and breakpointing is also part of this process. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. Normally the first step in debugging is to attempt to reproduce the problem. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Computer programmers are those who write computer software.