

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. 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. Normally the first step in debugging is to attempt to reproduce the problem. Computer programmers are those who write computer software. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. Normally the first step in debugging is to attempt to reproduce the problem. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Many applications use a mix of several languages in their construction and use. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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. 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. Following a consistent programming style often helps readability. However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages. 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. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). 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*. Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display. However, readability is more than just programming style. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. Many applications use a mix of several languages in their construction and use. Ideally, the programming language best suited for the task at hand will be selected. It is usually easier to code in "high-level" languages than in "low-level" ones. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses.