

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. Programming languages are essential for software development. Also, specific user environment and usage history can make it difficult to reproduce the problem. Also, specific user environment and usage history can make it difficult to reproduce the problem. Programmable devices have existed for centuries. Computer programmers are those who write computer software. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. There are many approaches to the Software development process. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash. 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. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. In 1206, the Arab engineer Al-Jazari invented a programmable drum machine where a musical mechanical automaton could be made to play different rhythms and drum patterns, via pegs and cams. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. Many applications use a mix of several languages in their construction and use. 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. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. Also, specific user environment and usage history can make it difficult to reproduce the problem. Scripting and breakpointing is also part of this process. Computer programmers are those who write computer software.