

It affects the aspects of quality above, including portability, usability and most importantly maintainability. Computer programmers are those who write computer software. Normally the first step in debugging is to attempt to reproduce the problem. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Code-breaking algorithms have also existed for centuries. Also, specific user environment and usage history can make it difficult to reproduce the problem. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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. Normally the first step in debugging is to attempt to reproduce the problem. Programs were mostly entered using punched cards or paper tape. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Scripting and breakpointing is also part of this process. Programming languages are essential for software development. Methods of measuring programming language popularity include: counting the number of job advertisements that mention the language, the number of books sold and courses teaching the language (this overestimates the importance of newer languages), and estimates of the number of existing lines of code written in the language (this underestimates the number of users of business languages such as COBOL). It affects the aspects of quality above, including portability, usability and most importantly maintainability. 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. Code-breaking algorithms have also existed for centuries. 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. Also, specific user environment and usage history can make it difficult to reproduce the problem. Unreadable code often leads to bugs, inefficiencies, and duplicated code. Ideally, the programming language best suited for the task at hand will be selected. 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.