

There exist a lot of different approaches for each of those tasks. It is very difficult to determine what are the most popular modern programming languages. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. 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. Whatever the approach to development may be, the final program must satisfy some fundamental properties. It affects the aspects of quality above, including portability, usability and most importantly maintainability. However, readability is more than just programming style. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Some languages are very popular for particular kinds of applications, while some languages are regularly used to write many different kinds of applications. Different programming languages support different styles of programming (called programming paradigms). Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. Following a consistent programming style often helps readability. The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems. Programs were mostly entered using punched cards or paper tape. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. 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. Many applications use a mix of several languages in their construction and use. 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. Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment. 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. Computer programmers are those who write computer software. 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). One approach popular for requirements analysis is Use Case analysis. Scripting and breakpointing is also part of this process.