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).  
Use of a static code analysis tool can help detect some possible problems.  
To produce machine code, the source code must either be compiled or transpiled.  
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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.  
Their jobs usually involve:  
 Although programming has been presented in the media as a somewhat mathematical subject, some research shows that good programmers have strong skills in natural human languages, and that learning to code is similar to learning a foreign language.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
Ideally, the programming language best suited for the task at hand will be selected.  
He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
Integrated development environments (IDEs) aim to integrate all such help.  
Also, those involved with software development may at times engage in reverse engineering, which is the practice of seeking to understand an existing program so as to re-implement its function in some way.  
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However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory.  
Programming languages are essential for software development.  
 In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form.