Relatedly, software engineering combines engineering techniques and principles with software development.  
When debugging the problem in a GUI, the programmer can try to skip some user interaction from the original problem description and check if remaining actions are sufficient for bugs to appear.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
For this purpose, algorithms are classified into orders using so-called Big O notation, which expresses resource use, such as execution time or memory consumption, in terms of the size of an input.  
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.  
In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them.  
Programming involves tasks such as analysis, generating algorithms, profiling algorithms' accuracy and resource consumption, and the implementation of algorithms (usually in a particular programming language, commonly referred to as coding).  
To produce machine code, the source code must either be compiled or transpiled.  
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.  
Transpiling on the other hand, takes the source-code from a high-level programming language and converts it into bytecode.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
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.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
Ideally, the programming language best suited for the task at hand will be selected.  
Many programmers use forms of Agile software development where the various stages of formal software development are more integrated together into short cycles that take a few weeks rather than years.