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..  
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.  
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.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
 Programs were mostly entered using punched cards or paper tape.  
It is usually easier to code in "high-level" languages than in "low-level" ones.  
 Different programming languages support different styles of programming (called programming paradigms).  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
 It is very difficult to determine what are the most popular modern programming languages.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
 A similar technique used for database design is Entity-Relationship Modeling (ER Modeling).  
While these are sometimes considered programming, often the term software development is used for this larger overall process – with the terms programming, implementation, and coding reserved for the writing and editing of code per se.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.