Also, specific user environment and usage history can make it difficult to reproduce the problem.  
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.  
Assembly languages were soon developed that let the programmer specify instruction in a text format (e.g., ADD X, TOTAL), with abbreviations for each operation code and meaningful names for specifying addresses.  
Scripting and breakpointing is also part of this process.  
To produce machine code, the source code must either be compiled or transpiled.  
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.  
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.  
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.  
Transpiling on the other hand, takes the source-code from a high-level programming language and converts it into bytecode.  
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.  
Programming languages are essential for software development.  
 In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
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