Code-breaking algorithms have also existed for centuries..  
In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them.  
 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.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
Some text editors such as Emacs allow GDB to be invoked through them, to provide a visual environment.  
 Auxiliary tasks accompanying and related to programming include analyzing requirements, testing, debugging (investigating and fixing problems), implementation of build systems, and management of derived artifacts, such as programs' machine code.  
 High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware.  
Programming languages are essential for software development.  
 New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation).  
There exist a lot of different approaches for each of those tasks.  
Normally the first step in debugging is to attempt to reproduce the problem.  
Scripting and breakpointing is also part of this process.  
FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research.  
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.  
 Programs were mostly entered using punched cards or paper tape.