He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm..  
  
 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.  
 Code-breaking algorithms have also existed for centuries.  
Programming languages are essential for software development.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
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.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
 Debugging is often done with IDEs. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line.  
 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.  
 Whatever the approach to development may be, the final program must satisfy some fundamental properties.  
Techniques like Code refactoring can enhance readability.  
 The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging).