He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm..  
In 1206, the Arab engineer Al-Jazari invented a programmable drum machine where a musical mechanical automaton could be made to play different rhythms and drum patterns, via pegs and cams.  
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.  
Integrated development environments (IDEs) aim to integrate all such help.  
Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers.  
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.  
The following properties are among the most important:  
  
 In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code.  
Scripting and breakpointing is also part of this process.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
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.  
 The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging).  
 Code-breaking algorithms have also existed for centuries.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
 Different programming languages support different styles of programming (called programming paradigms).  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.