However, with the concept of the stored-program computer introduced in 1949, both programs and data were stored and manipulated in the same way in computer memory..  
Normally the first step in debugging is to attempt to reproduce the problem.  
Scripting and breakpointing is also part of this process.  
 In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
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.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.  
Programming languages are essential for software development.  
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.  
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.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
  
Integrated development environments (IDEs) aim to integrate all such help.  
 The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging).  
 Allen Downey, in his book How To Think Like A Computer Scientist, writes:  
 Many computer languages provide a mechanism to call functions provided by shared libraries.