The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging)..  
 Programmable devices have existed for centuries.  
Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute.  
 After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug.  
Expert programmers are familiar with a variety of well-established algorithms and their respective complexities and use this knowledge to choose algorithms that are best suited to the circumstances.  
 High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
 Readability is important because programmers spend the majority of their time reading, trying to understand, reusing and modifying existing source code, rather than writing new source code.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
There exist a lot of different approaches for each of those tasks.  
 Whatever the approach to development may be, the final program must satisfy some fundamental properties.  
This can be a non-trivial task, for example as with parallel processes or some unusual software bugs.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.  
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.  
 These compiled languages allow the programmer to write programs in terms that are syntactically richer, and more capable of abstracting the code, making it easy to target varying machine instruction sets via compilation declarations and heuristics.