Compiling takes the source code from a low-level programming language and converts it into machine code.  
To produce machine code, the source code must either be compiled or transpiled.  
Proficient programming thus usually requires expertise in several different subjects, including knowledge of the application domain, specialized algorithms, and formal logic.  
Techniques like Code refactoring can enhance readability.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
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.  
Some languages are more prone to some kinds of faults because their specification does not require compilers to perform as much checking as other languages.  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
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.  
Normally the first step in debugging is to attempt to reproduce the problem.  
 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.  
Use of a static code analysis tool can help detect some possible problems.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.  
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.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.