

It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Trial-and-error/divide-and-conquer is needed: the programmer will try to remove some parts of the original test case and check if the problem still exists. 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. There are many approaches to the Software development process. Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly. Techniques like Code refactoring can enhance readability. This can be a non-trivial task, for example as with parallel processes or some unusual software bugs. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). However, readability is more than just programming style. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. Programs were mostly entered using punched cards or paper tape. Various visual programming languages have also been developed with the intent to resolve readability concerns by adopting non-traditional approaches to code structure and display. Techniques like Code refactoring can enhance readability. Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic. In the 1880s, Herman Hollerith invented the concept of storing data in machine-readable form. Different programming languages support different styles of programming (called programming paradigms). One approach popular for requirements analysis is Use Case analysis. Proficient programming usually requires expertise in several different subjects, including knowledge of the application domain, details of programming languages and generic code libraries, specialized algorithms, and formal logic. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. 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. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. 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.