

The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. 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. 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. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. Programming languages are essential for software development. High-level languages made the process of developing a program simpler and more understandable, and less bound to the underlying hardware. Following a consistent programming style often helps readability. 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. Techniques like Code refactoring can enhance readability. Programmers typically use high-level programming languages that are more easily intelligible to humans than machine code, which is directly executed by the central processing unit. 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. Different programming languages support different styles of programming (called programming paradigms). 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. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. 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. For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Techniques like Code refactoring can enhance readability. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. However, readability is more than just programming style. Integrated development environments (IDEs) aim to integrate all such help. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. Ideally, the programming language best suited for the task at hand will be selected.