

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. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA). Code-breaking algorithms have also existed for centuries. 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. The following properties are among the most important: In computer programming, readability refers to the ease with which a human reader can comprehend the purpose, control flow, and operation of source code. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it. He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. 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. Programming languages are essential for software development. There exist a lot of different approaches for each of those tasks. Programs were mostly entered using punched cards or paper tape. It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Following a consistent programming style often helps readability. The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference. 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. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. 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. Provided the functions in a library follow the appropriate run-time conventions (e.g., method of passing arguments), then these functions may be written in any other language. They are the building blocks for all software, from the simplest applications to the most sophisticated ones. One approach popular for requirements analysis is Use Case analysis. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers.