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..  
 Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages.  
 Popular modeling techniques include Object-Oriented Analysis and Design (OOAD) and Model-Driven Architecture (MDA).  
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.  
By the late 1960s, data storage devices and computer terminals became inexpensive enough that programs could be created by typing directly into the computers.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
 Auxiliary tasks accompanying and related to programming include analyzing requirements, testing, debugging (investigating and fixing problems), implementation of build systems, and management of derived artifacts, such as programs' machine code.  
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.  
A study found that a few simple readability transformations made code shorter and drastically reduced the time to understand it.  
They are the building blocks for all software, from the simplest applications to the most sophisticated ones.  
Programming languages are essential for software development.  
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.  
Methods of measuring programming language popularity include: counting the number of job advertisements that mention the language, the number of books sold and courses teaching the language (this overestimates the importance of newer languages), and estimates of the number of existing lines of code written in the language (this underestimates the number of users of business languages such as COBOL).  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
FORTRAN, the first widely used high-level language to have a functional implementation, came out in 1957, and many other languages were soon developed—in particular, COBOL aimed at commercial data processing, and Lisp for computer research.