There exist a lot of different approaches for each of those tasks..  
 New languages are generally designed around the syntax of a prior language with new functionality added, (for example C++ adds object-orientation to C, and Java adds memory management and bytecode to C++, but as a result, loses efficiency and the ability for low-level manipulation).  
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.  
However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
  
 Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks.  
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.  
 The first computer program is generally dated to 1843, when mathematician Ada Lovelace published an algorithm to calculate a sequence of Bernoulli numbers, intended to be carried out by Charles Babbage's Analytical Engine.  
In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them.  
 Programs were mostly entered using punched cards or paper tape.  
Later a control panel (plug board) added to his 1906 Type I Tabulator allowed it to be programmed for different jobs, and by the late 1940s, unit record equipment such as the IBM 602 and IBM 604, were programmed by control panels in a similar way, as were the first electronic computers.  
In the 9th century, the Arab mathematician Al-Kindi described a cryptographic algorithm for deciphering encrypted code, in A Manuscript on Deciphering Cryptographic Messages.  
 Debugging is often done with IDEs. Standalone debuggers like GDB are also used, and these often provide less of a visual environment, usually using a command line.  
 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.  
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.  
Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards.