Programming languages are essential for software development..  
Unreadable code often leads to bugs, inefficiencies, and duplicated code.  
 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.  
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.  
In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
Use of a static code analysis tool can help detect some possible problems.  
 Readability is important because programmers spend the majority of their time reading, trying to understand, reusing and modifying existing source code, rather than writing new source code.  
 Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users.  
 Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation.  
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).  
 Programs were mostly entered using punched cards or paper tape.  
 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.  
Trade-offs from this ideal involve finding enough programmers who know the language to build a team, the availability of compilers for that language, and the efficiency with which programs written in a given language execute.  
  
 Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks.