Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. Compilers harnessed the power of computers to make programming easier by allowing programmers to specify calculations by entering a formula using infix notation. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. 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. 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). It involves designing and implementing algorithms, step-by-step specifications of procedures, by writing code in one or more programming languages. The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems. Many applications use a mix of several languages in their construction and use. Implementation techniques include imperative languages (object-oriented or procedural), functional languages, and logic languages. The academic field and the engineering practice of computer programming are both largely concerned with discovering and implementing the most efficient algorithms for a given class of problems. Programs were mostly entered using punched cards or paper tape. It affects the aspects of quality above, including portability, usability and most importantly maintainability. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). Languages form an approximate spectrum from "low-level" to "high-level"; "low-level" languages are typically more machine-oriented and faster to execute, whereas "high-level" languages are more abstract and easier to use but execute less quickly. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Debugging is a very important task in the software development process since having defects in a program can have significant consequences for its users. As early as the 9th century, a programmable music sequencer was invented by the Persian Banu Musa brothers, who described an automated mechanical flute player in the Book of Ingenious Devices. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. For example, COBOL is still strong in corporate data centers often on large mainframe computers, Fortran in engineering applications, scripting languages in Web development, and C in embedded software. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. Some languages are more prone to some kinds of faults because their specification does not require compilers to perform as much checking as other languages. Integrated development environments (IDEs) aim to integrate all such help. Also, specific user environment and usage history can make it difficult to reproduce the problem.