

One approach popular for requirements analysis is Use Case analysis. 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. 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. Programs were mostly entered using punched cards or paper tape. 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. There are many approaches to the Software development process. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA. 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. The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. 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. 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. Machine code was the language of early programs, written in the instruction set of the particular machine, often in binary notation. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). 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. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Sometimes software development is known as software engineering, especially when it employs formal methods or follows an engineering design process. Text editors were also developed that allowed changes and corrections to be made much more easily than with punched cards. In 1801, the Jacquard loom could produce entirely different weaves by changing the "program" – a series of pasteboard cards with holes punched in them. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. After the bug is reproduced, the input of the program may need to be simplified to make it easier to debug. Computer programming or coding is the composition of sequences of instructions, called programs, that computers can follow to perform tasks. Computer programmers are those who write computer software. The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.