

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. However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages. 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). 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. Whatever the approach to development may be, the final program must satisfy some fundamental properties. Many factors, having little or nothing to do with the ability of the computer to efficiently compile and execute the code, contribute to readability. Many programmers use forms of Agile software development where the various stages of formal software development are more integrated together into short cycles that take a few weeks rather than years. 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. 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. The first step in most formal software development processes is requirements analysis, followed by testing to determine value modeling, implementation, and failure elimination (debugging). He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm. The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference. A similar technique used for database design is Entity-Relationship Modeling (ER Modeling). The first compiler related tool, the A-0 System, was developed in 1952 by Grace Hopper, who also coined the term 'compiler'. However, because an assembly language is little more than a different notation for a machine language, two machines with different instruction sets also have different assembly languages. There are many approaches to the Software development process. There are many approaches to the Software development process. 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. 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. Programs were mostly entered using punched cards or paper tape. Techniques like Code refactoring can enhance readability. There are many approaches to the Software development process. Scripting and breakpointing is also part of this process. 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.