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History of Computer Programming

The first recorded instance of what would be considered computer programming was written by Ana Lovelace in 1843. She translated an Italian article discussing Charles Babbage's Analytical Engine, known as the first computer. She published the first algorithm with the notes from this translation that would calculate Bernoulli numbers using this “first computer”. Controlling the computer took manual movements to execute its tasks. She was later honored by the naming of a programming language used by the United States Department of Defense.

Later the use of storing data on punched cards invented by Herman Hollerith revolutionized computing. Using the punched cards with a tabulator and sorter to keep track of information, Hollerith was able to make the process of the 1890 census extremely more efficient, speeding it up to three months as opposed to previously taking 10 years. Hollerith later invented a wiring panel for his 1906 Type 1 Tabulator which allowed it to do different jobs than just the 1890 census. His company would become International Business Machine Corporation, or IBM.

The IBM602 and IBM604 used the punch card method of programming, and later computers such as the Mark I from IBM used stored-programs in order to do computations. This way, the computer’s memory handled both the programs and the data the same. Computers could now be electronically programmed. Earlier computers ran on machine code which consisted of binary. In order to communicate with the machine, assembly code was used, which tended to vary with each machine.

In 1957, a team at IBM came up with the first widespread high-level coding language with FORTRAN, short for FORMula TRANslation. This allowed programmers to control computers with statements like IF and data types like integers, doubles, and logic variables. This language was mainly used for engineering and scientific computations so COBOL, or Common Business-Oriented Language, was used for taking input and output used heavily in business programming. LISP was a language focused on slightly higher level coding, with a focus on Artificial Intelligence research. Developed in 1958, the Algol language used a more formal grammar structure. It introduced nested code structures and recursive functions. This set of languages led to many widespread programming languages used today such as C, C++, and Java. In 1972, C was developed alongside the Unix System, and is still the language mainly used for operating systems as it could handle dynamic variables, input, output, and multitasking.

The addition of text editors on computers made computer programming much more accessible. In 1969, a lawsuit against IBM deemed bundling software with hardware anti-competition, and a later push for open software allowed programming to become much more widespread as opposed to just something done in research or within computer companies. The creation of the internet helped break down more of that barrier, with people connecting and spreading code through the world wide web. More modern subjects computer programming explores includes quantum computing, artificial intelligence, and security.

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