The History of Computer Programming

Many historians attribute the first written computer program to Ada Lovelace. Ada was an English mathematician who described an algorithm to compute Bernoulli numbers using an early computer called the Analytical Engine in the year 1842. The next step in the evolution of programming came from Herman Hollerith in 1889 who developed the tabulating machine. This machine could programmatically count and tabulate data. After the invention of the Hollerith machine there was not much linguistical change in the way computers were programmed. They mainly relied on the use of physical methods of writing programs like punch cards or switches and plugs to store algorithms. Because early programs were written in physical objects, a moth was able to cause an early program to repeatedly fail and had to be removed to execute the program. This act of 'debugging" a moth in 1947 is what coined the term associated with errors in code today.

In 1954, the first high level computer language was developed by John Backus of IBM. The first language was called Fortran and was the first example of a computer program being separate from the physical components of the machine. Following the invention of Fortran many new languages began being invented in the following few years. Some of these languages include LISP, COBOL, and BASIC. In 1965 Simula became what is considered the first object-oriented programming language. After the creation of Simula many new similar languages came to the scene including BCPL, MUMPS, Logo, Pascal, C, and prolog. In 1972 Xerox's Smalltalk became the second object-oriented programming language invented and became the first true Integrated Development Environment. In 1974 an important database language was invented by Edgar Codd known as SQL. The major development of the IDE by Alan Kay at Xerox opened a pandora's box of new languages in the following decades that we as scientists are more familiar with. Some of these languages include C++, Java, HTML, Python, and MATLAB. These languages while different in name and structure rely upon the same basic principles of the first high level language Fortran. The reason for the development of such a wide array of languages has to do with each respective application. For experimental calculations, a programmer would most likely prefer to use MATLAB rather than a language such as PHP which is especially geared towards use with web development. Today there are thousands of coding languages and each has its own group of devotees. While this can serve as a huge obstacle for a person attempting to learn how to code, it serves an important role in increasing the efficiency and simplicity of today's extremely demanding programs.

Photo # NH 96566-KN (Color) First Computer "Bug", 1947