

Ada Lovelace is known as the first computer programmer. She was born on December 10, 1815, and later passed away in 1852, at age 37. Ada Lovelace never met her father, due to the dangers he posed to her success. Her father, Lord Byron, wished to suppress Lovelaces' imagination, and for that reason, her parents split a month after Ada's birth and Anabella Byron, her mother, moved Ada out of their London home and away from her fathers influence. Lovelace never saw her dad again and was raised by a strong, single mother. She was tutored privately and self educated, but later was helped by mathematician-logician Augustus De Morgan. Lovelace was always fascinated by math and numbers. Her career began in 1833 when Mary Somerville introduced Babbage to her. Charles Babbage first designed a machine called the Difference Engine, in which Lovelace had a great interest in. The difference engine was an automatic mechanical calculator that could tabulate polynomial functions with the turn of a handle. They shared an interest in math and became lifelong friends and partners.

After the difference engine was invented, Babbage already had a new project in mind, the Analytical Engine, in which Lovelace would serve as its key interpreter. In 1843, Lovelace translated a French paper that Italian mathematician Luigi Menabrea wrote about the analytical engine. She added thousands of her own annotations and detailed ideas, especially her description of how the engine could be programmed to compute Bernoulli numbers and carry out an extensive amount of mathematical operations. The translated paper ended up being about three times the length of the original memoir. In the paper, she discovered and explained in great detail that the engine could follow a sequence of instructions and therefore could compute complex calculations. She also speculated that the engine could be used to perform operations on other things, such as musical notes, not just numbers. Lovelace said, "the Analytical Engine weaves algebraic patterns, just as the Jacquard-loom weaves flowers and leaves."

Unfortunately, the Analytical Engine was never completed, however Lovelaces' efforts are still remembered till this day. She gave her name to the early programming language Ada

and every second Tuesday of October is Ada Lovelace day on which the contributions of women to STEM are celebrated and honored.

Overall, Lovelace was an abnormal example of a woman for her time because she was not only allowed to learn mathematics but also encouraged to learn mathematics. Despite the hardships in her journey, she proved what women can do when given a chance.