CSU33012 Software Engineering
Prof. Stephen Barrett
Xiaolei Zhang 18343799
October 27, 2021

Biography of Ada Lovelace

Ada Lovelace, the daughter of the 19th-century poet Byron, is a mathematician. The founder of the puncher program established the concept of cycles and subroutines. She drew up "algorithms" for computing programs and wrote the first "program design flow chart", which was regarded as "the first person to write programs for computers" and was also the first woman among the world's computer pioneers. I heard the introduction of Ada a long time ago by these few sentences that list achievements and honours, and since I was a child, I have liked to learn about the stories of previous people, so I have searched a lot about her. She is an intelligent and beautiful person, which impresses me. Later, when I read books "A Brief History of Computers" and "A Brief History of Information", I found that Ada could be seen everywhere. It is precise because of this deep-rooted impression and admiration in my mind that when I talk about software engineers, I think of her the first time. I want to share all the little stories I have learned about her over the past few years.

She was born in London in 1815 who is the daughter of the famous British poet L. Byron. Due to the breakdown of her parents' marriage, she has been living with her mother after five weeks of birth. Her mother is not only well-educated but also a mathematician. Ada did not inherit her father's poetic and romantic passion but inherited her mother's mathematical talents. When she was 12 years old, she wanted to fly. She found some bird wings and feathers to study the speed of flight. Later, she wrote a "flying" guide. This experience was later stopped by her mother, but Ada, therefore, embarked on a theoretical road rather than a fantasy. Writing books at such a young age, even some great writers rarely have this ability.

Charles Babbage was the designer of the first programmable mechanical computer. At a party, when Babbage was telling people about ‘difference

engine' and his new invention of 'analytical engine', most of the visitors did not understand the purpose of these machines, except for the 18-year-old Ada. The magic machine fascinated her, and she was exposed to computational thinking for the first time. Ada married Count William Lovelace at 19, so she is also called Lady Lovelace in many stories. After marriage, she gave birth to 3 children and lived a happy life, but she is still committed to researching the production and promotion of analytical machines. Since Babbage could hardly speak due to throat problems in his later years, the text introducing the analysis machine was mainly completed by Ada for him. She was the only person who could understand Babbage. In the process of helping Babbage to study the analysis machine, she suggested replacing the original decimal number with binary numbers. Her genius theory became the source of software development in the following decades. She also developed some instructions for specific calculations, programmed them, and predicted that machines like this could be used to do complex things in the future, such as drawing, creating music, and using them in scientific research, which was indeed very bold at the time. In the second year, when she helped Babbage deal with the translation of the paper, she added many unique insights, which won the praise of Professor Babbage.

Ada designed a program to solve Bernoulli's equation on the Babbage analysis machine and proved that the analyzer could be used to solve many problems. She even established the concepts of loops and subroutines. Because of her pioneering work in programming, Ada Lovelace is known as the world's first programmer. From the current point of view, Ada first drew up an "algorithm" for computers, and then wrote a "program design flow chart". This precious plan is regarded by people as "the first computer program." However, Ada's life is short, but her foresight of computers is a whole century ahead of her. Ada died young at the age of 36, similar to her father, Byron. In the last ten years of her short life, she fully assisted Babbage in her work and even sold her jewellery and accessories to help Babbage tide over the economic difficulties.

The US Department of Defense has spent ten years mixing all the functions of the required software in one computer language, hoping that it will become the standard for thousands of computers in the military. In 1981, this language was officially named ADA (Ada) language to celebrate this "world's first software

engineer". In 2009, someone initiated Ada Lovelace Day, which is on the second Tuesday of every October, to commemorate her and encourage and support women working in science, technology, engineering, and mathematics.

Ada's life can be said to be vigorous; although short, it is of extraordinary significance. Such a young and outstanding woman can be regarded as a benchmark in the field of science and technology. She not only established novel ideas but also proved that women can also shine in the scientific world. As I learned more and more about her, I came to my current major learning software. This ongoing research and abiding belief in algorithms and computers made me admire and encouraged me to continue on this road.

Reference

Ada Lovelace honoured by Google doodle. (2012, December). Retrieved from https://www.theguardian.com/technology/2012/dec/10/ada-lovelace-honoured-google-doodle

A&E Television Networks. (2021, May 6). *Ada Lovelace Biography*. Retrieved from https://www.biography.com/scholar/ada-lovelace

Finding Ada. (n.d.). Retrieved from https://findingada.com/

Lena-Phillips, A. (n.d.). *Crowdsourcing Gender Equity*. Retrieved from https://web.archive.org/web/20180323030925/https://www.americanscientist.org/article/crowdsourcing-gender-equity

Wikipedia. (2021, October 19). *Ada Lovelace*. Retrieved from https://en.wikipedia.org/wiki/Ada_Lovelace