


## Ada Lovelace



# ADA LOVELACE

In 1844, while Morse was demonstrating his telegraph in America, British scientists were discussing a paper recently published by a certain A.A.L. It dealt with the Analytical Engine, a mythical machine being developed by English mathematician Charles Babbage.

A.A.L. explained how this machine could handle complex operations, but also envisioned a time when it would be able to deal with all kinds of tasks such as creating music.

Twenty years after her death A.A.L. became publicly recognized as Augusta Ada Lovelace, estranged daughter of the illustrious poet Lord Byron.

While Babbage's machine was never completed, the set of commands Lovelace created for it to generate Bernoulli numbers is considered *the first computer program*. Charles and Ada were a century ahead of their time.

Ada Lovelace was one of the influential mathematicians and English writers of her time. She has written instructions for the first computer program in the mid 1800s. She also wrote the program for Charles Babbage's mechanical computer, the analytical engine.

She was born on December 10, 1815 to the poet Lord Byron and Anne Isabella Milbanke. She was also the only legitimate child of her father but had no relationship with her father. Lord Byron left his wife and daughter continuing his affair with a stage actress and died when Ada was just nine years old.

In 1833 she met Charles Babbage, an inventor and mechanical engineer and they became good friends.

Lovelace was extremely interested in Babbage's plans for a complicated device called the Analytical Engine. It was never built, but the design had all the essential elements of a modern computer.

Lovelace studied the plans for the Analytical Engine and wrote lots of her own comments about how the machine could work - which have been described as early computer programmes.

She described how codes could be created for the device to handle letters and symbols along with numbers. She also created a method for the engine to repeat a series of instructions, a process known as 'looping' that computer programmes still use today.



## Alan Turing



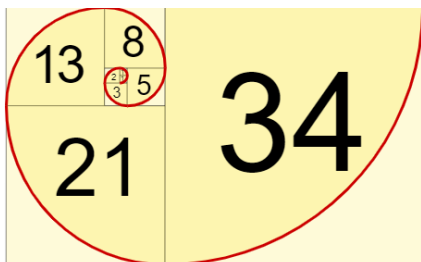
British mathematician Alan Turing greatly contributed to the fields of mathematics, computer science, and artificial intelligence.

© Fine Art Images—Heritage Images/age fotostock

Alan Turing was a British **mathematician**. He made major contributions to the fields of mathematics, computer science, and **artificial intelligence**. He worked for the British government during **World War II**, when he succeeded in breaking the secret code Germany used to communicate.

In 2019 the Bank of England announced that Turing would be featured on the new 50-pound banknote. The note was expected to enter circulation in 2021.

In 1945, after the end of World War II, Turing was recruited to create an electronic **computer**. However, the machine he designed was thought to be too difficult to build. A much smaller machine was built instead. Turing then moved to the University of Manchester. The world's first working digital computer was built there in 1948. Turing designed an input-output system and the programming system for the computer.



## Fibonacci Sequence

The Fibonacci Sequence is the series of numbers:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...

The next number is found by adding up the two numbers before it:

- the 2 is found by adding the two numbers before it (1+1),
- the 3 is found by adding the two numbers before it (1+2),
- the 5 is (2+3),
- and so on!

Example: the next number in the sequence above is 21+34 = 55

It is that simple!

Here is a longer list:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657, 46368, 75025, 121393, 196418, 317811, ...