

# ICT Innovators

Pioneer of Computer Programming

## Dr. Grace Hopper

1906 - 1992

Dr Grace Hopper was a mathematician and rear admiral in the US Navy. She began her career as a mathematics professor at Vassar College before joining the Navy in 1943. She was assigned to a computational project in 1944 where she worked on Mark I, the first large-scale automatic calculator which would go on to be a precursor to modern computers.

She helped create ways to program computers using plain English, including COBOL (COmmon Business-Oriented Language), a computer code many business operations still rely on today.



I've always been more interested in the future than in the past.

**Grace Hopper**



Some day, on the corporate balance sheet, there will be an entry which reads, 'Information', for in most cases, the information is more valuable than the hardware which processes it.

**Ada Lovelace**

### Fast facts

Awarded the **National Medal of Technology** in 1991 and the Presidential Medal of Freedom posthumously in 2016



101010101  
10101

Developed one of the first **programming languages** that understood English commands



Retired in 1986 at 79 years, as the **oldest officer** on active duty in the **US Navy**

Named the first computer science **'Man of the Year'** by the Data Processing Management Association in 1969



Encyclopædia Britannica. (2019). Grace Hopper. Retrieved from <https://www.britannica.com/biography/Grace-Hopper>  
Images: Captain Grace Hopper, ca 1975. [Image] (1975). Retrieved from <https://www.si.edu/spotlight/women-mathematicians/grace-hopper-the-navy-and-computers> Vectors from [www.freepik.com](http://www.freepik.com)

# ICT Innovators

## Activity: Coding your name with a compiler

A compiler is a program used in digital systems to turn words that humans can understand into a code that a computer can understand.

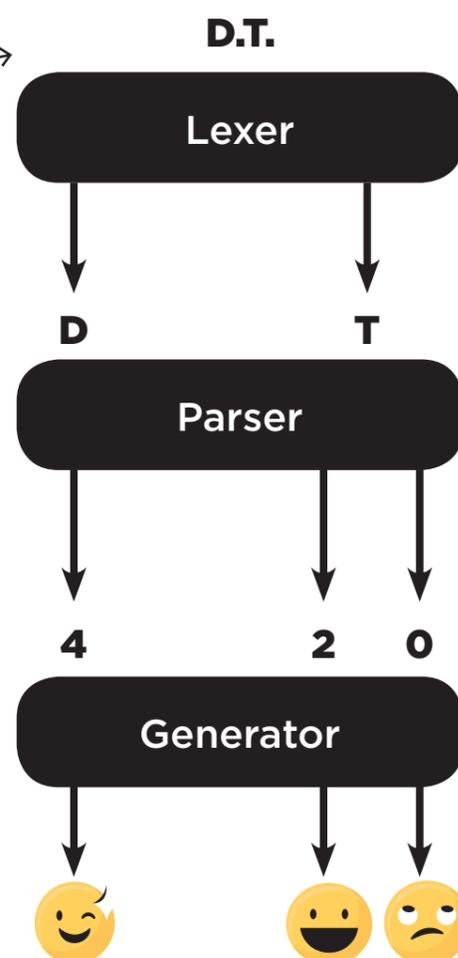
### How does a compiler work?

Enter the text you want to code

Splits the letters up

Assigns a number to each letter based on where they sit in the alphabet

Turns the numbers into a code the computer can read



### Compiling Activity

1. Compile your initials into a secret emoji code
2. Give the emoji code to your partner and see if they can decode it



### Challenge

Can you code a secret message to your friend for them to decode?

### Algorithmic Thinking

Sometimes different letters can produce the same combination of emojis. How could we improve the compiler to make a unique code every time?

In actual computers, code can only be understood in binary. Compilers turn code into 1s and 0s for the computer to understand.



→ Compiler → 1010110101010101  
10101

Images: Vectors from www.freepik.com