Grace Hopper - Inventor of the compiler, US Navy programmer since WWII (USA)

Rear Admiral Grace Brewster Murray Hopper was an American computer scientist who was born in 1906 in New York City.

Even when she was very young, Grace was curious about all sorts of things. At the age of seven, she wanted to know how her alarm clock worked, so she dismantled seven clocks in the house to see inside them before her mother could stop her! After that, she was only allowed to pull apart her own clock.

Grace was an excellent student at school, where her curiosity only grew. She studied maths and physics at college, and later became a mathematics professor. She was known for her ability to explain tricky concepts in a clear way that was easy to understand.

When the United States entered the Second World War, Grace wanted to lend her aid to her country; but she was rejected by the navy several times - once for being too small and once for being too old. Grace never gave up; in 1943 she joined the US Naval Reserve. They had a program called WAVES (Women Accepted for Volunteer Emergency Service) for which she enlisted. Because of her experience, Grace was selected for a very special and secret project - the navy was building the *first ever* electromechanical computer in the United States in the hope it would help them win the war. But they needed someone who could program it first!

The Harvard Mark I computer was 15.5 metres long (that's about as big as a bus!), and nobody had ever seen or used one before. But just like the alarm clock, Grace figured it out. Her job was to write the first ever computer manual, so other people could drive it too!

After the war, Grace worked at a company overseeing the programming of the first commercial computer - one that would be sold in stores to everyday people, instead of just to universities and governments. Grace thought it would be a lot easier for everyday people if they could speak to the computer in plain English, but her mathematician colleagues laughed at her idea. Eventually she tried it anyway, and her team ended up creating the early stages of COBOL, the most useful programming language ever. Grace was once quoted as saying "The only phrase I've ever disliked is, 'But we've always done it that way.' I always tell young people, 'Go ahead and do it. You can always apologize later.'"

Grace went back to the navy at sixty years of age, to help them standardise their programming languages, and worked with them until she retired at seventy-nine! When she finally retired, Grace was the oldest active-duty commissioned officer in the navy.

Grace had a skill for taking complicated ideas and translating them into information that anyone could understand. She has been recognised in many amazing ways for her contributions to computer science:

- Grace Hopper was awarded 40 honorary degrees from universities worldwide during her lifetime.
- *Born with Curiosity: The Grace Hopper Story* is an upcoming documentary film.
- Nvidia is naming an upcoming GPU generation *Hopper* after Grace Hopper.
- The Navy's *Hopper Information Services Center* is named for her.
- The Navy named a guided-missile destroyer *USS Hopper* after her.
- Grace Hopper Avenue in Monterey, California, is the location of the Navy's *Fleet Numerical Meteorology and Oceanography Center* as well as the National Weather Service's San Francisco Bay Area forecast office.
- Grace M. Hopper Navy Regional Data Automation Center at Naval Air Station, North Island, California.
- Grace Murray Hopper Park, located on South Joyce Street in Arlington, Virginia, is a small memorial park in front of her former residence (River House Apartments) and is now owned by Arlington County, Virginia.
- Google in 2020 named its new undersea network cable 'Grace Hopper', the cable will connect the US, UK and Spain.
- Her legacy was an inspiring factor in the creation of the Grace Hopper Celebration of Women in Computing. Held yearly, this conference is designed to bring the research and career interests of women in computing to the forefront.