Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Title: Biography of an influential software engineer

Submitted By: Catalina Alexandra Rete

Student number: 16328870

Date: 01.11.2018

Submitted For:

Module: Software Engineering

Programme: TR033-Integrated Computer Science

Lecturer: Stephen Barrett

GRACE HOPPER

Short description

Grace Hopper was born in 1906 in New York and died in 1992 in Virginia. She was an American mathematician and rear admiral in the U.S Navy. She was also a pioneer in developing computer technology. Among the things she helped devise is the UNIVAC I, the first commercial electronic computer. She also popularized the idea of machine-independent programming languages, which led to the development of COBOL.

Reason for choosing her

The reason I chose her is based on my recent experience attending the largest conference in the world for women in technology. The conference was dedicated in her name: Grace Hopper Celebration and it was held, this year, in Houston, Texas. I received a travel grant to attend this conference and hearing so much about her name I decided to research and find out the reason she was famous and seen as a role-model for girls around the world. I must say I did not know anything about her before going to this event, but I left truly impressed about her achievements. She brought new ideas to the computing world, despite being told they were impossible, and she was a pioneer in many technologies that shaped programming as we know it today.

Achievements worth mentioning

She tried to join the U.S Navy early in World War II, but she was rejected. However she still joined the Navy Reserves.

Grace Hopper graduated first in her class in 1944 and was assigned to the Bureau of Ships Computation Project at Harvard University. She was part of the Mark I computer programming staff. Mark I is the IBM Automatic Sequence Controlled Calculator (ASCC), a general purpose electromechanical computer. She co-authored three papers on Mark.

In 1949, she became an employee at Eckert-Muchly Computer Corporation, the company that built the ENIAC. Hopper joined the team developing the UNIVAC I (Universal Automatic Computer), the first commercial computer produced in the UNITED STATES. The company was bought by Remington Rand and Hopper served as UNIVAC Director of Automatic Programming Development.

Then comes the part where she has an idea that nobody believes in for at least 3 years. She believed that computers are capable of more than just doing arithmetic, that they could understand English. She published her first paper on compilers in 1952. The first work she did on compilers is known as the A compiler and the first version was A-0.

Her department went on to release MATH-MATIC and FLOW-MATIC.

MATH-MATIC is the marketing name for the AT-3 compiler, an early programming language for the UNIVAC I and UNIVAC II.

FLOW-MATIC (Business Language version 0) was the first English-like data processing language. It had a strong influence on the development of COBOL. In addition to this, after being promoted to the captain position she developed a validation software for COBOL and its compiler as part of the "COBOL standardization program" for the entire Navy. The tests she developed for these standards were later assumed by the National Bureau of Standards.

Although she wasn't accepted in the Navy at first, she was later called to duty and at the time of retirement she was the oldest-active duty officer in the UNITED STATES (79 years).

During her lifetime she received more than 40 honorary awards and a college at Yale was renamed in her honor. She also received the National Medal of Technology, and after her death Barack Obama awarded her the Presidential Medal of Freedom.

Things that I find interesting personally

Beyond her many accomplishments mentioned above, one of the things that needs to be in the spotlight from my perspective is her influence on young people. She didn't just invent some technology and worked away in her field, she participated at several events and conference trying to inspire and influence others into pursuing their ambitions. She said this herself: "The most important thing I've accomplished, other than building the compiler, is training young people. They come to me, you know, and say, 'Do you think we can do this?' I say, "Try it." And I back 'em up. They need that. I keep track of them as they get older and I stir 'em up at intervals so they don't forget to take chances."

Even after her death, she continues to inspire people through all the events and scholarships that are given in her name, including the conference that I attended.

And one last fun fact is that while she was working on the Mark II, the relay was broken for a while because of a moth stuck inside. They never mentioned the word "bug" in their logs, but the incident is held as the first instance of "debugging".

Conclusion

With the current interest of getting more girls into computer science, I think that the best approach to this would be simply to highlight women that have accomplished a lot in this field, so that girls can have role-models in their career. With that being said, Grace Hopper is a great inspirational woman for everyone out there.