

Computer coding, a women's world?

Walk into any tech headquarters in London, New York, Silicon Valley or Shanghai and it's easy to forget that coding was once dominated by women. In fact, coding and computer engineering were pioneered by women. Ada Lovelace, born in 1815 was the first-ever computer programmer. She was a young London-born woman who wrote the first machine algorithm in the world.

Electronic Numerical Integrator and Computer (ENIAC) was the first programmable general-purpose digital computer, built in America during World War II and programmed by a team of six women. These women included Jean Bartik who also programmed the BINAC (Binary Automatic Computer) and the UNIVAC I (UNIVersal Automatic Computer I).

The women were pictured in the press for the ENIAC computer but weren't named and so weren't recognised for their revolutionary achievements until they were in their 70s. All of the women were inducted into the Women in Technology International Hall of Fame in 1997 and now this history is thoroughly documented, though for many, even for those who work in tech, the early domination by women in computer programming is a surprise.

Today, women coders are in the minority

The women in tech trend continued and throughout the 1940s right up to the 1960s, women made up 90% of computer programmers. In 2019, Wired reported that that percentage had shrunk down to 17%. In the UK, just 15% of employees across STEM roles are women.

A recent Statista report conducted in February 2020 found that women made up 23% of jobs at tech giants Apple, Facebook, Google and 20% at Microsoft. "I've worked for a tech start-up where there was Bro culture and gatekeeping which made it more challenging in trying to upskill in the hopes of being promoted," mentions Operations Engineer Olivia Campbell who got her career start by utilising various coding workshops before building a Minimal Viable Product (MVP) on a 9-week web development course. She summarises "nevertheless, it taught me to be resilient and not to be afraid to speak up or ask awkward questions."

In contrast to this, Senior Software Developer and Founder of Coding Black Females, Charlene Hunter who wrote her first line of code at the age of 10 and went on to earn a BSc in Mathematical Sciences and an MSc in Computer Science before embarking on a professional career in coding mentions "to be honest, I don't think I have faced any difficulties or challenges as a female coder. I don't tend to look at a situation and think it happened because I'm a woman, I tend to look at situations and see what I can learn in order to improve." Despite the small numbers of women coders, some women are optimistic about working in the tech space.

After an incomplete course in Data Science, learning programming language Python and embarking on a software engineering course "the rest was history" for UI Engineer Jenny Judova who speaks of the positive changes taking place. "At the moment, I inhabit the part of the London tech scene where there is a LOT of encouragement and optimism around fresh blood entering tech and that, of course, includes the diversification of people in tech."

What about women coders of colour?

If the *numbers of women in tech are small*, the numbers of women of colour in tech are even smaller and largely unreported. Historically, black women have made pioneering contributions to tech and coding. Dr Marsha Rhea Williams was the first African American woman to earn a PhD in Computer Science and became a professor at Tennessee State in the Computer Science Department in 1990. Dorothy Vaughan was a computer programmer who contributed to the US space program, later called NASA and Melba Roy Mouton, a computer

programmer also worked for NASA.

“The challenges that come with being both a woman and a woman of colour [in tech] extend beyond just coding as you’re having to learn how to navigate the predominately white male working environments which have their own unwritten rules or practices. You might not have people there to support you or your career progression either and you can sometimes appear to be a threat if you know more than they do instead of gaining recognition for your achievements,” says Olivia. Though she stresses the importance of seeking a strong and supportive network:

“Therefore, it’s crucial to find or create your own network externally who can support and guide you as this will help your overall wellbeing.”

Charlene also recognises the lack of women of colour in coding. “I haven’t noticed specific challenges as a woman of colour in coding, but in the last 11 years as a developer, I have only encountered one other black female developer. So this was less of a challenge, and more of an observation that black women are not well represented in tech.”

Things may be looking up for women in tech

Companies are being set up to tackle tech’s lack of women across the UK and the world. Women Who Code, Coding Black Females (founded by Charlene) and Code First Girls all work to provide events, resources and above all, a community for women and girls who wish to get into coding. “Coding Black Females aims to showcase the talent of black women in tech, and provide support for women in the industry or who would like to get into the industry,” explains Charlene.

The Tech Talent Charter (TTC) is an initiative that works with a number of tech organisations and aims to increase the diversity of their workforces. It is supported by the Department of Digital, Culture, Media and Sport and the UK Digital Strategy.

But when it comes to actually working in the industry, how many women cross paths with other women? “That is a good question,” says Jenny. “I was actually

thinking about it recently. From my first summer job, I have primarily worked for women. In almost every job I've ever had, my line manager was a woman or the business I was working for was owned or co-owned by a woman. I would love to say that this was part of a plan but it was mostly a fortunate circumstance. My current line manager is a woman." "Uniquely, I've worked with quite a few women in my career at different levels and all amazing," adds Charlene.

"I've worked with two women developers on an internal project recently. We worked well together although the project didn't go according to plan - initially it was a positive learning experience," says Olivia.

Though, if the stats are anything to go on, these occurrences are the exception and not the rule. "Let's face it, the white male is still considered by many as the default human (walk into any tech office). You will not know if what you are getting paid or how you are being treated is normal/less/better unless you have male allies to compare notes with," remarks Jenny.

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Are women focused courses a good thing?

Being able to compare salaries and treatment in the workplace to male counterparts is important in getting to the bottom of tech's diversity issue, but where do women only tech courses fit into this?

As the popularity of coding increases and efforts to get girls to study STEM subjects and pursue STEM careers are being made, some initiatives and courses are made for women only. While it seems like an obvious step, some argue that it only creates a bigger problem as they devalue the profession instead of fixing the power structures that exist in the tech industry.

"More needs to be done for women to be visible in senior tech roles so that girls can inspire to become [senior tech leaders] later in life," argues Olivia (in the UK, only 5% of STEM leadership roles are made up by women). "It's a good initiative to create a safe space for women and girls to learn and make mistakes," she continues. As "a lot of times we fear failure as it feeds into the notion of not being good enough which often holds women and girls back from wanting to take a calculated risk due to this."

Jenny agrees that women only coding courses are mostly a positive thing. “There are same-sex schools, women-only sports clubs, gyms, coworking spaces, it only makes sense that there are same-sex coding schools. Learning to code is intense. You should be able to choose an environment that you will be most comfortable in.” But adds “That said, I strongly encourage women to have men in their peer group and as allies.”

“Some people feel comfortable learning in mixed settings, some feel comfortable learning in a single-sex group,” mentions Charlene. “I think it’s a good idea to have environments that everyone feels comfortable in. As we know that women are underrepresented in tech, I think it makes sense to have targeted learning environments for women.”

The world knows about tech’s diversity problem.....now what?

The conversation about the lack of women in tech is clearly being had across the industry and internet and with so many initiatives being set up to tackle the problem, it’s a wonder why it still is one.

A recent article in The Guardian pointed out that women in tech are often discouraged as they just aren’t getting promoted into senior tech roles and lack confidence when applying for superior positions. The writer also points out that some companies simply hire women to check a diversity box which doesn’t work out in the long run. The intrinsic trend in society that separates “men’s work” from “women’s work” makes it a struggle for women to break into tech and succeed in the male-dominated industry.

Change takes time and often culture and attitudes change before concrete policies and strategies are put into place. Hopefully, the steps being implemented now will come to fruition in the years to come.

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