

A large, glowing, brain-shaped structure made of many small, interconnected nodes, resembling a neural network or data visualization, set against a dark background. A silhouette of a person is visible in the foreground, looking at the structure.

# 2018 Women in Tech Report

Insights based on  
14,616 developers

# Progress

As software is increasingly pervasive in our lives, it's more important than ever for builders to be representative of the people we're impacting. Having spent 10+ years immersed in technical hiring — first as an engineer, then as an author, and now as a tech hiring consultant — there's a lot of work to be done in building a more inclusive culture.

And, no doubt, many people are working hard on this issue. Through anti-bias programs, expanded support for mothers and fathers, diversity-focused networking groups, skills-based screening methods, and even interview trainings, companies are trying to create cultures that welcome diversity in its many forms.

There are signs of progress. According to [HackerRank's](#) study — which surveyed over 14,000 professional software developers, nearly 2,000 of which were women — the gender gap for when developers learn to code is slowly, but surely, shrinking.

But there's still more work to be done. Engineers, managers, recruiters, and CEOs have an opportunity to drive change for future generations of developers — and therefore the world. It starts with understanding the problem from as many angles as possible. This dataset is one such angle.

We'd love to hear from you — share your thoughts on the findings below, and tell us: What are the largest issues you see facing women in CS? Where should the tech industry go from here? What types of initiatives have been working? Discuss at [/r/compsci](#).



**Gayle Laakmann McDowell**

Founder / CEO of CareerCup  
Author of *Cracking the Coding Interview*

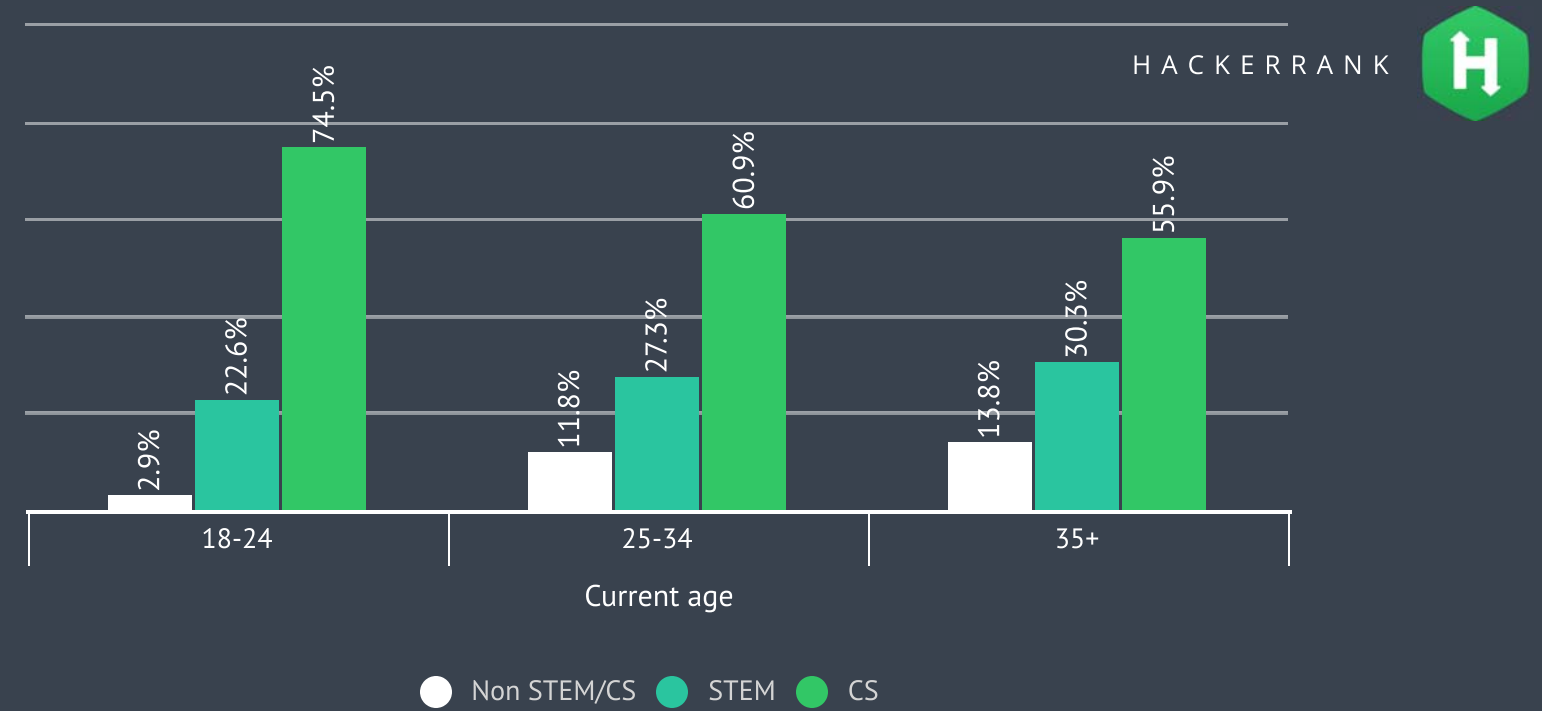
## Computer Science (CS) is growing in popularity with young women

It used to be that many female software developers came from a variety of different majors outside of Computer Science and STEM (Science, Technology, Engineering or Math). And men were more likely to take CS than women.

Today that's changing.

When looking at the specialty of degrees, young women today are 33% more likely to study computer science compared with women born before 1983.

What's the focus of your degree?



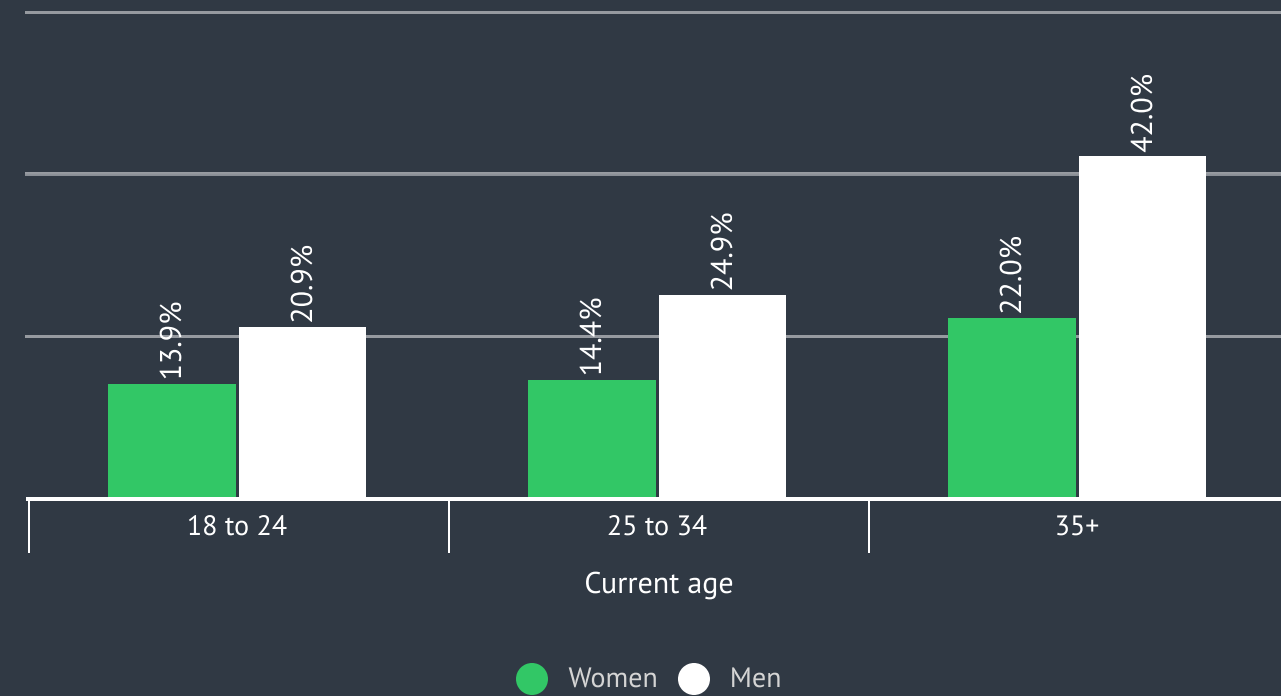
## And the gender gap in age of learning to code is shrinking

As a result of the PC Revolution, kids of the 1980s were especially curious to learn how to code at a young age. Over time, as technology has been embedded in society, the drive to start coding before the age of 16 has been declining overall.

Meanwhile, an interesting trend is taking shape in parallel. By the time students enroll in CS 101 today, young men and women more likely to start on equal footing than older generations.

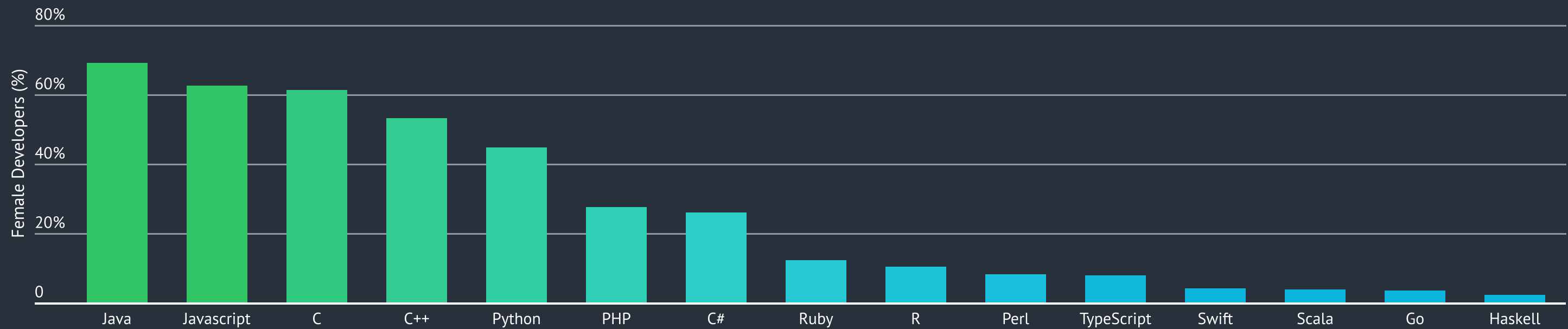
More specifically, there was a 20 percentage point gap between men and women over 35 who began coding before 16 years old. Today that gap has shrunk down to just 7 percentage points.

Did you start coding before you were 16 years old?



## Women know in-demand languages across back-end & front-end

Which programming languages do you know?



The most common programming languages that women say they have proficiency in are: Java, Javascript, C, C++, and Python. As it turns out, these are the exact same languages that are most in-demand for roles across front-end, back-end, and full-stack, according to our 2018 Developer Skills Report.

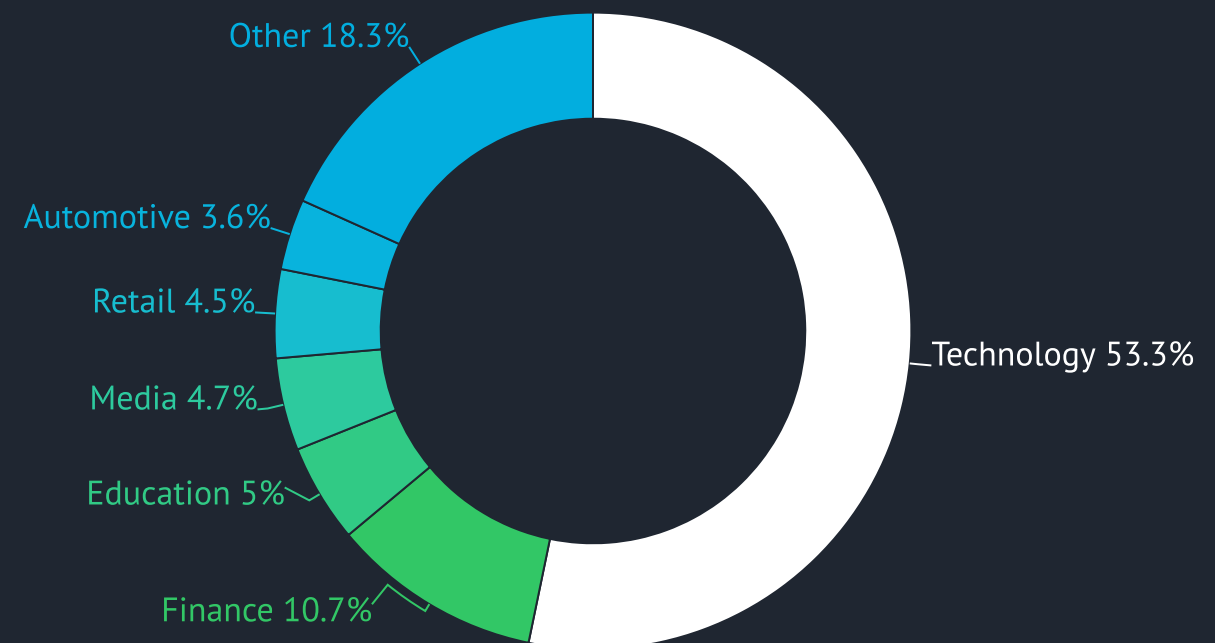
## INDUSTRY

# And they're working in tech, finance, & education

As every company becomes a software company, women in programming are working on building software across a variety of industries, from technology (which includes hardware and security) to automotive.

The most popular industries are: technology (53.2%), finance (10.7%), and education (4.7%).

Which industry do you work in?





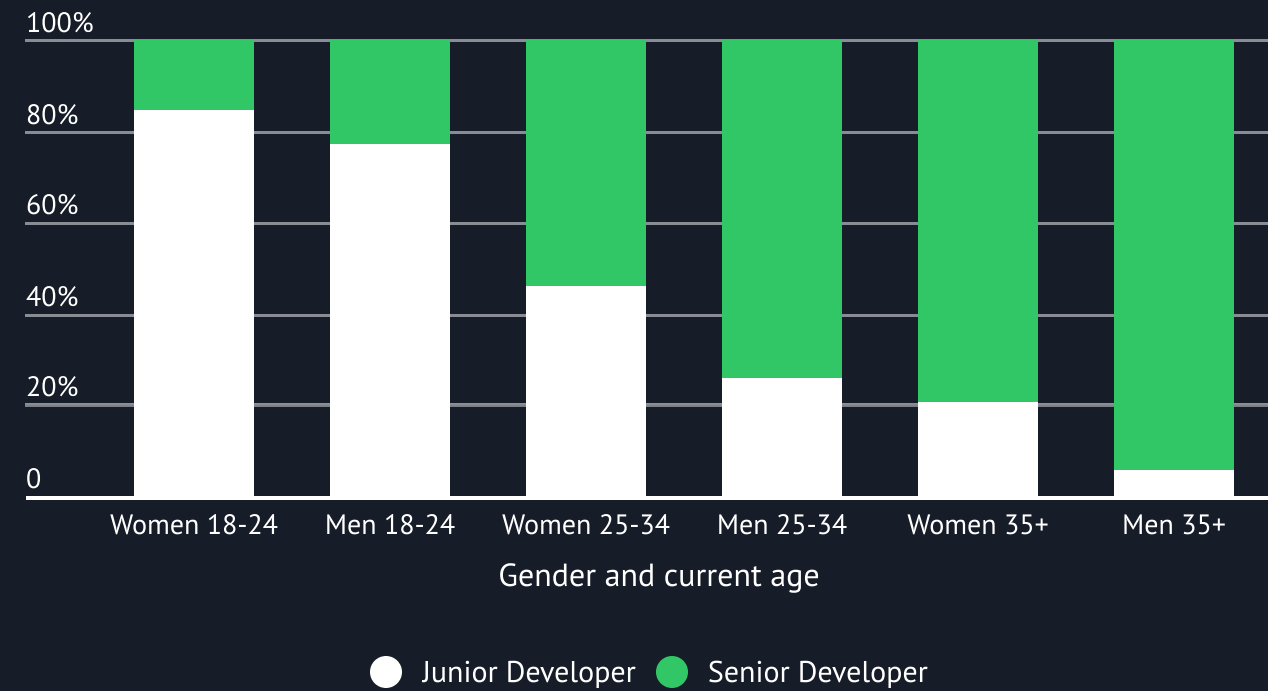
## But more women, of all ages, are in junior positions

The tides are turning. But there's one fact that's hard to ignore: Women are by far more likely to be in junior positions than men...regardless of age.

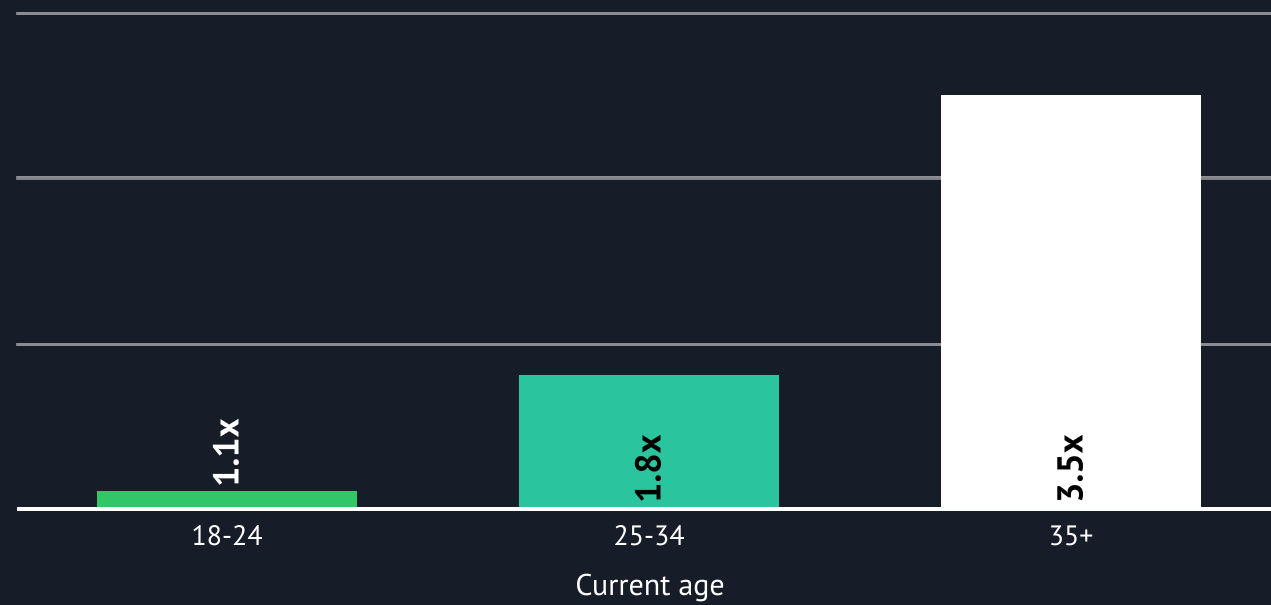
In fact, over 20% of women over the age of 35 are still in junior positions.

\* For clarity, we defined junior developers as Level 1 software engineers. Senior developers are grouped as anyone with the title of senior, manager, director, VP or C-level.

What is your employment level?\*



## How likely are women to be in junior roles compared to men?



In other words, women over 35 are 3.5x more likely to be in junior positions than men. Although it's not clear when these women started their careers, it is interesting that either women are starting their careers relatively later in life or are, generally, stuck in junior positions.



CALL TO ACTION

## What can you do?

Managers, directors, VPs, and C-level execs have an opportunity to accelerate change for a more equal field.

Share which initiatives have worked to help empower more women in tech. Email us at [research@hackerrank.com](mailto:research@hackerrank.com) or we'd love to discuss our findings at [reddit.com/r/compsci](https://reddit.com/r/compsci).

Want to see our full dataset? We've open sourced our data on Kaggle, the largest community of data scientists, so anyone can discover more insights.

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# Methodology

HackerRank conducted a study of developers to identify trends in developer education, skills and hiring practices. A total of 14,616 professional developers (1,981 women and 12,635 men) completed the 10-minute online survey from October 16 to November 1, 2017. Respondents who identify as “non-binary” (N=76) were excluded from the male-female comparisons.

The survey was hosted by SurveyMonkey and HackerRank recruited respondents via email from their community of 3.2 million members and through social media sites.

Tests of significant differences were conducted at the .01 level (99% probability that the difference is real, not by chance). Percentages may not always add to 100% due to rounding.



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