

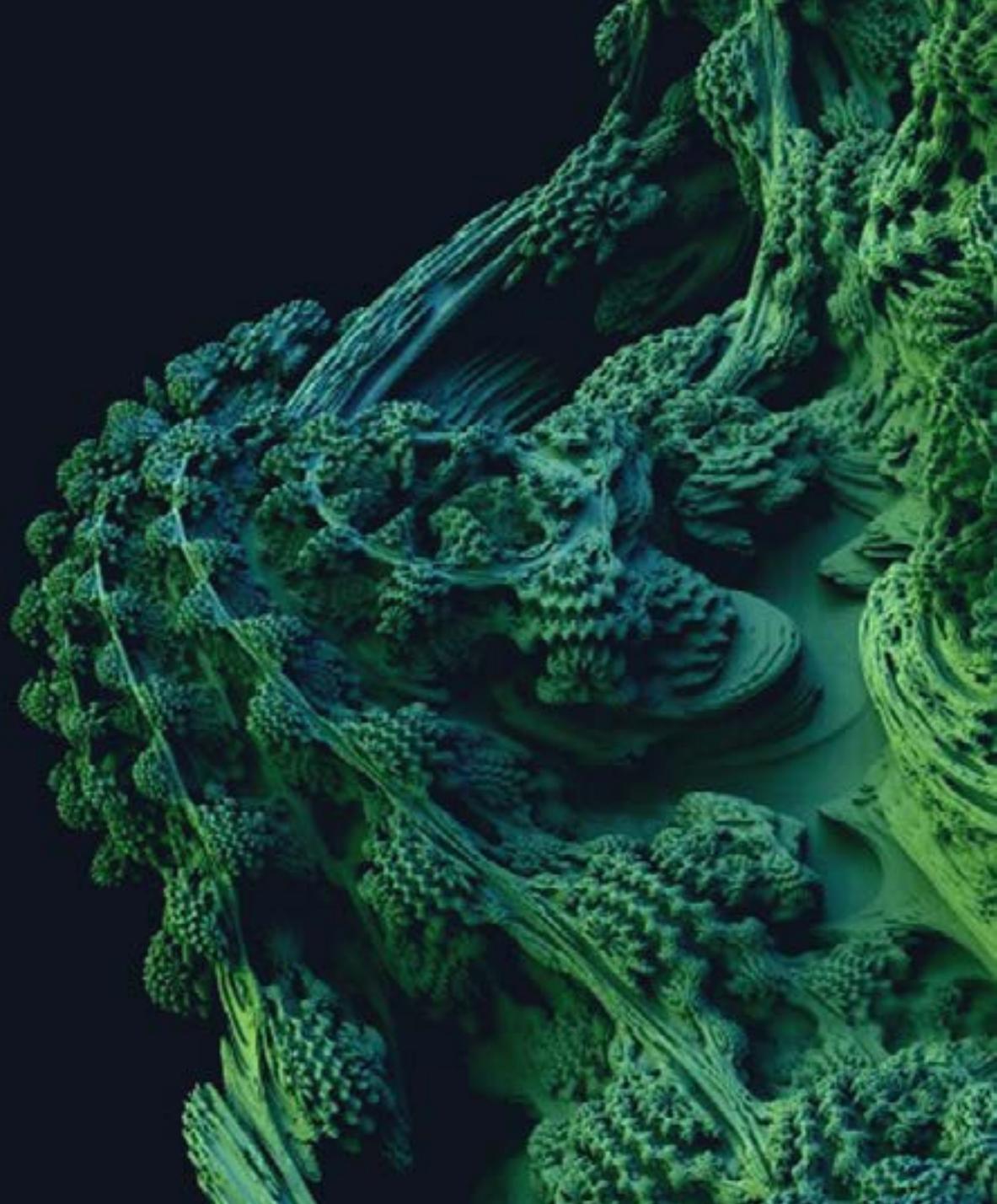


# 2018 Developer Skills Report

[research.hackerrank.com](https://research.hackerrank.com)

**39,441 developers**

took the survey



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# Hello World

The future of work will be very different. Irrespective of your job, it will become important for everyone to learn how to code. Coding helps enrich your computational thinking, which is powerful in making decisions. The traditional resume will go away and hiring will happen based on your skills first.

We launched HackerRank in late 2012 with the goal of matching every developer to the right job. And the growth has been amazing — we reached 3.2M developers in the community and powered 2% of all developer hires last year.

For the first time, we surveyed the HackerRank community to get a pulse on developer skills (when did they push code for the first time, how do they learn coding, what are the favorite languages and frameworks, what do they want in a job, what hiring managers want in a candidate, and more). There are some great insights, from 39,441 responses, that we are happy to share with you today. Did you know that 1 in 4 developers learned to code before they could drive?

We hope you find the 2018 Developer Skills Report insightful and would love to discuss the findings with you. E-mail us at [research@hackerrank.com](mailto:research@hackerrank.com)



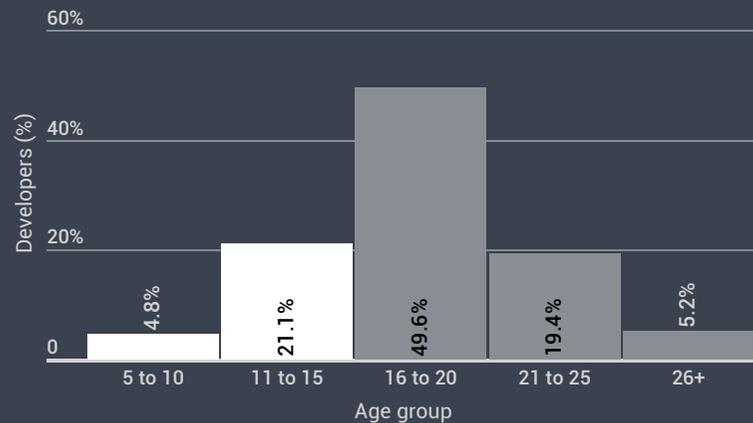
**Vivek Ravisankar**  
Co-founder & CEO

# 1 in 4 developers started coding before they could drive ■

It's never too early — or too late! — to start coding. Of the roughly 39,000 developers surveyed across all professional levels, more than a quarter of developers wrote their first piece of code before they were 16 years old.

Meanwhile, of all the developers who started coding after the age of 26, 36% are now senior or even higher-level developers, growing quickly in their careers.

When did you start coding?



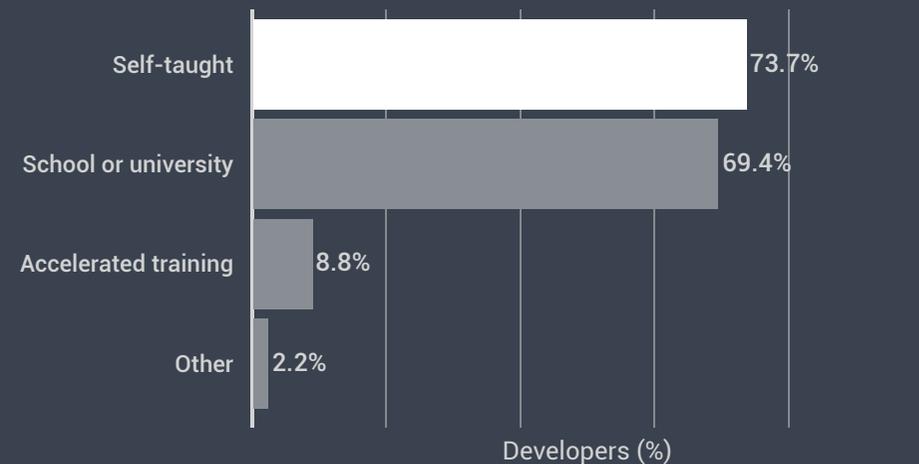
# Nearly all developers have an insatiable thirst for learning

It seems like every year there's a new hallmark programming language, framework or library that proliferates across developer blogs. First, it was all about Backbone.js. Now, everyone is raving about AngularJS and React. Self-teaching is the norm for developers of all ages. Even though 67% of developers have CS degrees, roughly 74% said they were at least partially self-taught.

On average, developers know 4 languages, and they want to learn 4 more. The degree of thirst for learning varies by generations — young developers between 18 and 24 plan to learn 6 languages, whereas folks older than 35 only plan to learn 3.

Since programming is centered on independent research aimed at solving new challenges, self-teaching is a major part of being a successful developer. In choosing what to learn next, the best guiding principle is to plant yourself in one discipline and learn tools as a means to grow. Tools will always change. Ultimately, it's curiosity and genuine interest in programs that should fuel the drive to learn new tools and adapt to tech's evolving landscape.

How did you learn to code?



## Almost all employers prioritize problem-solving skills first

Problem-solving skills are almost unanimously the most important qualification that employers look for....more than programming languages proficiency, debugging, and system design. Demonstrating computational thinking or the ability to break down large, complex problems is just as valuable (if not more so) than the baseline technical skills required for a job.

There are, however, some nuances between what small companies care about most versus what large companies care about. For instance, smaller companies look for framework proficiency in candidates more than medium-sized to large companies.

The difference may exist because having the right knowledge of frameworks is more important for startups since they need to launch code quickly, and frameworks help developers push code faster.

Which core competencies do employers look for?

	1 to 100 employees	101 to 1,000 employees	1,001+ employees	Average
Problem-solving	94.2%	94.7%	95.9%	94.9%
Programming language proficiency	55.2%	55.2%	59.0%	56.6%
Debugging	47.1%	45.0%	48.5%	47.1%
System design	37.0%	39.8%	44.1%	40.3%
Performance optimization	34.0%	35.0%	37.0%	36.0%
Code review capability	36.3%	36.3%	35.0%	35.8%
Testing	35.9%	34.4%	34.1%	34.8%
Frameworks proficiency	26.1%	23.3%	22.8%	24.2%
Database design	23.2%	20.5%	18.8%	20.9%
Codebase navigation	17.6%	14.2%	13.2%	15.1%

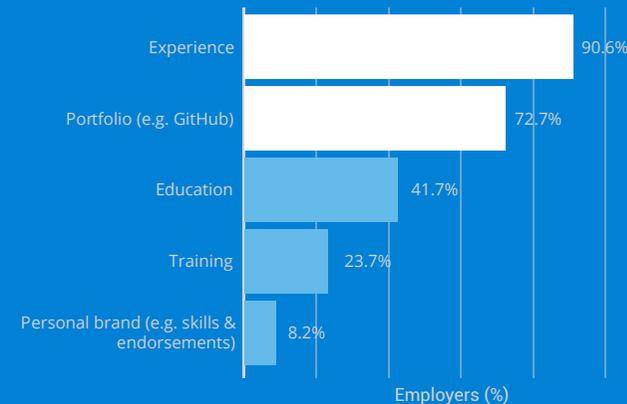
## What you do matters more than what's on your resume

There's a popular belief that recruiters favor candidates with CS degrees from prestigious universities. But it turns out that they actually care about what you've done — not where you went to school. An overwhelming majority of hiring managers said they look for proven skill, such as previous work, years of experience, and projects/Github. Regardless of company size, 9 out of 10 hiring managers say previous experience and years of experience — both indicators of skill — are among the most popular qualifications.

What you do matters more than anything else. Small companies place the higher value on the portfolio: 80% versus 66% of large companies.

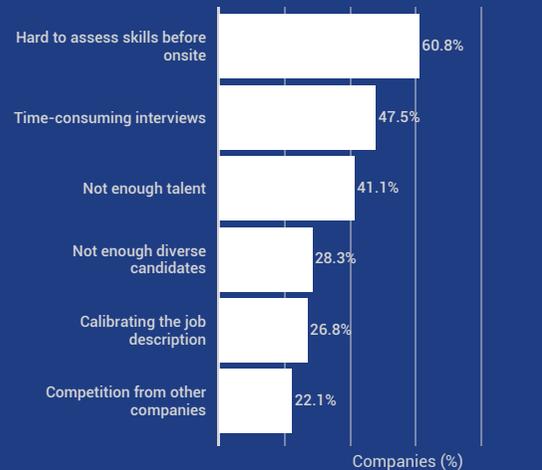
Qualifications that generally bolster the resume (prestige of degree, education level, skill endorsements or certificates) rank the lowest among what companies care about the most. These factors are not indicative of proven skill. The only top-ranked qualification that's easily screenable from a resume is "years of experience" since work experience and portfolio are sometimes correlated with this qualifier. Since it's more difficult to review individual portfolios at scale, years of experience is an alternative, resume-based signal for proven skill — although this completely neglects high performers who grew quickly in their roles.

What qualifications do employers look for by company size?



# Assessing skills proves to be the biggest hiring challenge, more than talent shortage

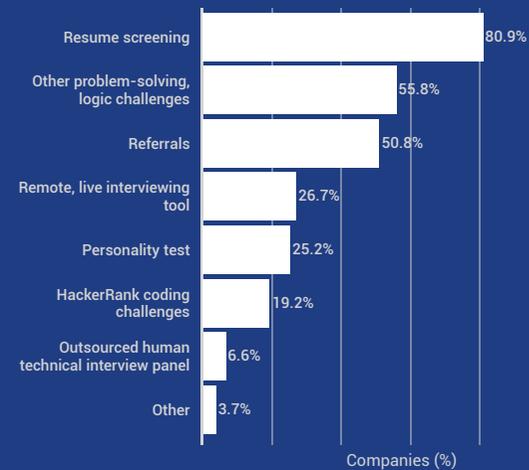
What’s the biggest challenge when hiring talent?



According to 7,000+ employers, resumes are still by far the most common way developers are assessed today, according to our survey — 81% of hiring managers say they use resumes as the first step in the applicant screening process.

When asked what the biggest hiring challenge is, the same hiring managers said assessing skill is their number one problem — as opposed to lack of talent. Meanwhile, only 55% of developers said resumes were a good reflection of their abilities.

Which assessment tools do employers use most?



While technical hiring managers still primarily rely on the resume to evaluate software developers as the first step of the interview, almost all agree that assessing skill is one of the hardest challenges when filling technical roles — there’s a mismatch in what they’re looking for and the tools they’re using to evaluate it. Screening with resumes is a barrier for hiring managers to find the proven skill because the factors that hiring managers care most about (proven skills) are not screenable from resumes.

## Work-life balance beats perks

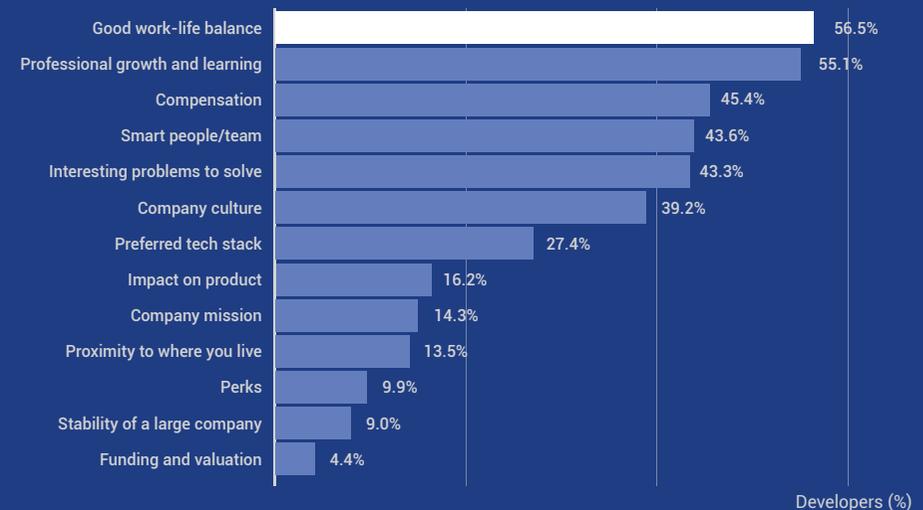
If you look at any typical career page for technology job descriptions, hiring managers commonly highlight tech stack, mission statement, and perks to entice developers to apply. This is not what hiring managers should be focusing on when competing for talent.

Instead, the number one thing that developers want most above all is a strong work-life balance. Developers ranked work-life balance as the most desired trait, slightly more than professional growth and learning, which came in second. More specifically, the Americans crave work-life balance more than developers in other regions like Asia and Europe.

Though it was ranked slightly less important to people working at smaller companies, it was still in the top three. Work-life balance is most important to developers 25 years and older, and — unsurprisingly — ranked less important to developers between 18 and 24.

Geographically, the distinctions aren't too major, with a few exceptions. Canadians care most about compensation, while Australians cite company culture as the #1 thing they care about in a job.

What do developer candidates want most when job searching?



In some ways, we've discovered a slight contradiction here. Developers want work-life balance but they also have an insatiable thirst and need for learning. In fact, the number of new tools to learn can sometimes feel overwhelming for developers. But the best fuel for learning is curiosity and genuine interest in technologies that develop in your domain. Focusing on doing what you enjoy (as opposed to trying to learn everything) can help strike a better work-life balance.

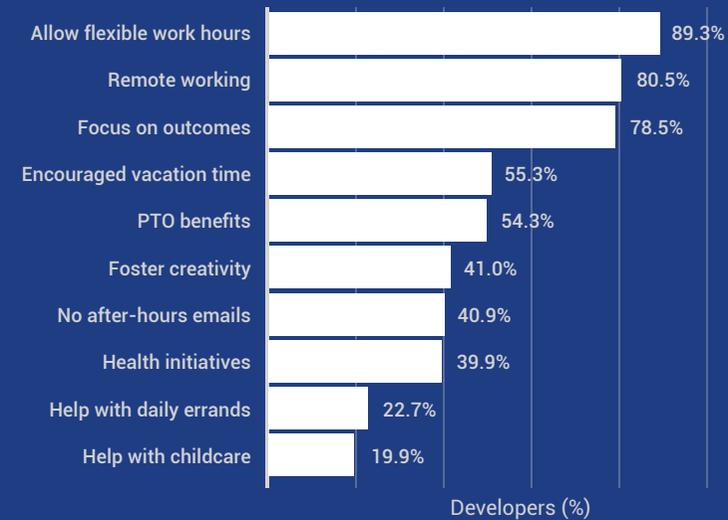
## Flexible work schedules are huge

We realize work-life balance could mean a lot of things to different people. So, we dug a bit deeper into what developers really want.

By and large, work-life balance can be supported with flexible hours — 10 am to 8 pm schedules are commonplace.

Developers want to work for managers that focus on output, not time spent in the office chair. And telecommuting options are helpful as well. Remote working is a particularly strong desire for developers 25 and older, and folks between 25 - 44 are the strongest proponents of shutting down email after hours.

How can employers improve work-life balance?





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