# Who Needs to Know How to Code

Learning to code is gaining popularity, from 10-year-olds taking private lessons to immersion coding "bootcamps" for adults trying to make a career change. Angela Chen takes a look at why coding is going mainstream. Photo: Brian Harkin for The Wall Street Journal.

Like many 10-year-olds, Nick Wald takes private lessons. His once-a-week tutor isn't helping him with piano scales or Spanish conjugations, but teaching him how to code.

Nick, a fifth-grader in New York, went in with no experience and has since learned enough HTML, JavaScript and CSS to build a simple website. He is now working in Apple's AAPL +0.10% XCode environment to finish an app named "Clockie" that can be used to set alarms and reminders. He plans to offer it in the iOS App Store for free.

"I always liked to get apps from the app store, and I always wanted to figure out how they worked and how I could develop it like that," Nick says.
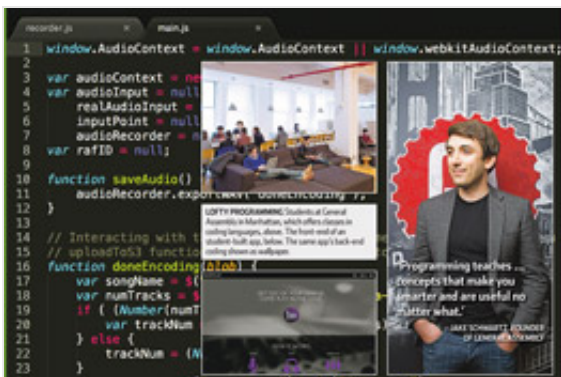
Brian Harkin for The Wall Street Journal (2)

As the ability to code, or use programming languages to build sites and apps, becomes more in demand, technical skills are no longer just for IT professionals. Children as young as 7 can take online classes in Scratch programming, while 20-somethings are filling up coding boot camps that promise to make them marketable in the tech sector. Businesses such as American Express Co. AXP -0.32% send senior executives to programs about data and computational design not so they can build websites, but so they can better manage the employees who do.

"I equate coding to reading and writing and basic literacy," says Adam Enbar, founder of New York's Flatiron School, which offers 12-week, $12,000 programs to turn novices into developers. "Not everyone needs to be Shakespeare, just as not everyone needs to be

an amazing developer," he says. "But...we're entering a world where every job if not already, will be technical."

Programming languages vary in popularity and difficulty, and it takes hundreds of hours to become even a junior developer. But understanding what "code" is and knowing what's possible and what's not, when working with an IT team, is generally more important than being able to make apps yourself.

The Younger Set

Johns Hopkins University's Center for Talented Youth offers online courses in everything from essay writing to music theory, but Web-development classes have been "a juggernaut in terms of level of interest," says Patricia Wallace, senior director of CTY Online. The courses are geared toward elementary- and middle-school students. In 2009, 63 children signed up for Introduction to Web Design, one of the few coding classes then offered. This year, there are already 762 enrollments.

The classes, which began with Introduction to Web Design and soon may include Intermediate Scratch Programming, are growing because there aren't many opportunities to learn coding in elementary and middle school, says Ms. Wallace. Some parents want children to learn programming as early as possible.

In-person coding programs for kids are springing up across the country. CoderDojo Twin Cities, a Minneapolis-based volunteer program, holds free, daylong coding programs. It has filled each of its 20 sessions with about 80 students since it launched in April. "We've had to turn students away at every event," says CoderDojo Twin Cities co-founder Matt Gray. The kids build games with Ruby, work with Linux, and—in one of the most popular programs—learn Python to build things in the world of Minecraft, a popular videogame.

Another group has started in Rochester, Minn., and a girls-only camp, Katie CoderDojo, had its first session last month.

The Job Seekers

At a recent Web Development Immersive class offered by General Assembly, an education startup that offers coding and design courses, about 25 students—mostly men, mostly in their 20s and each with a MacBook—listened to a lecture on how to use JavaScript to add check boxes to pages. Previously, the students each had completed a project using coding language Ruby. One example: A website showed nearby restaurants' health ratings.

Alina Guzman, 23, recently paid the $11,500 tuition to take the 12-week course. She graduated from Baruch College in 2013 with a degree in digital marketing. "I had worked in a marketing agency before and did stuff with a small-scale e-commerce website, but I wanted to do something different and I had always been interested in tech and websites," she says.

She took classes from 9 a.m. to 5 p.m. weekdays to learn Ruby and JavaScript. Two months after the course ended, she was hired as a junior engineer by New York-based startup Superhuman, which builds personal assistant applications.

General Assembly also has programs in San Francisco, Los Angeles, London, Boston, Hong Kong and Sydney. According to a General Assembly spokeswoman, 95% of its students world-wide find jobs within three months.

Co-founder and CEO Jake Schwartz says that coding is important because it teaches a different way of thinking. "Programming teaches logic, higher-level math and learning concepts that make you smarter and are useful no matter what," he says.

The majority of students at Flatiron and General Assembly are between 20 and 30. Flatiron accepts 8% of its applicants.

"The vast majority of our students are those who, later in life, realize that this is a really interesting career and also one where there are a lot of jobs," he says.

James Vanneman, 27, was in the first class at Flatiron School. A former professional poker player, he had been teaching himself to code with books and websites. "I'd get stuck and it'd get frustrating because I felt like I needed a place to get me over the hump of learning," he says. A few weeks after graduating he was hired as a software engineer at Concierge Live, a ticket-management service.

The Corporate Managers

Even people who don't plan on becoming developers may hear at work that they ought to learn to code.

American Express Co., General Electric Co. GE -0.54% , Staples Inc., SPLS -1.03% Merck & Co., Inc. and PepsiCo Inc. PEP -0.80% have worked with General Assembly, Mr. Schwartz says. These corporations have sent senior teams to two-day programs on topics such as Introduction to Big Data and Rapid Prototyping, also known as computer-aided design.

Summit Group, an Atlanta-based marketing company, has sent employees for the past three years to learn HTML 5 and basic Web development, says Jill Hood, Summit's director of strategic initiatives.

"People learning these skills become more self-sufficient," says Ms. Hood. Training employees in coding saves the company from having to use additional IT managers to help manage client accounts, she adds.

Lynda.com, based in Carpinteria, Calif., sells online education videos on everything from Photoshop to JavaScript. Its customers include Patagonia Inc., Volkswagen Group VOW3.XE +3.46% and Penguin Random House, says co-founder and executive chair Lynda Weinman.

Patagonia, the outdoor-gear retailer, will require its employees learn technical skills through Lynda.com in the next six months, says Ceci Saez, global director of organizational development. Half of Patagonia's 800 American employees have

voluntarily taken courses through Lynda.com.

"Technology is not something in the past that we would strive for on a regular basis," says Ms. Saez. "But things have changed. There's a different cohort of people joining the company and it's necessary."

Corrections & Amplifications

Lynda Weinman is co-founder and executive chair of Lynda.com. An earlier version of this article incorrectly identified her as CEO.