BBVA
Open Innovation

Coding the innovation of the future: a portrait of the new programmer

Between lines of code and proofs of concept, **programmers never stop evolving**. The progression towards mature artificial intelligence systems, new environments such as the metaverse or the rise of technologies such as blockchain require these professionals, who are **increasingly in demand**, to acquire knowledge, use cutting-edge tools and specialise.

A BOOMING SECTOR

The digitalisation of companies due to the pandemic increased the demand for programming professionals, a trend that will continue.

45 million programmers by 2030

31 million programmers worldwide

THE DEVELOPER'S PROFILE: YOUNG, EDUCATED... AND MALE

A sector linked to innovation is an ideal breeding ground for **adding young talent**, but there is still progress to be made in gender equality.

Predominance of professionals under 35 years of age

With university education

- **42.4%** Bachelor's degree
- **21%** Master's degree
- **12.7%** Non-degree university studies
- **11.4%** Secondary education

Other studies · 12.5%

And it's all men

- **81.7%** Men
- **17.1%** Female

Initiatives to **boost visibility of and support for women programmers:**

- Adalab
- Women Who Code
- Mujeres Tech

PROGRAMMING BRANCHES

Most-employed developer profiles, according to developers

- **49.4% Full-stack** — In charge of back-end and front-end.
- **43.7% Back-end** — Work on the server side.
- **27.4% Front-end** — Deal with the user interface.
- **16.6% Desktop** — Development for Windows, macOS and Linux.
- **14.7% Mobile** — Create solutions on IOS and Android.

Other related roles

- **Expert in machine learning** — Responsible for **developing machine learning algorithms** to create predictions.
- **DevOps Specialist** — Link between software developers and IT teams to **unify and automate processes.**
- **Data Scientist** — Manages and **interprets large volumes of data** to get them into useful assets for the company.
- **Cybersecurity expert** — Responsible for the **security of the** company's **computer systems** to solve and avoid vulnerabilities.
- **Cloud engineer** — Manages, **designs and monitors cloud systems,** and guides the company to adapt to new environments.

A SUMMARY OF SKILLS: CODE SNIPPING ISN'T EVERYTHING

Programming requires **proficiency in several languages**, an eye for the latest trends and soft skills.

Which programming languages are most popular?

64% of professionals like a particular language **because of the ecosystem**. The libraries are well-updated and useful to them.

python · Java · TypeScript · GO · C# · C++ · TS · HTML · PHP

What are the latest trends to develop your work?

'Low code' and 'no code'
Tools to create applications or **automate tasks in an intuitive way** to launch prototypes and streamline processes.
- Webflow
- Typeform
- Zapier

Automation
Some platforms allow you to automate tasks to **avoid errors and check lines of code.**
- Github Copilot
- Kite
- Tabnine

API
Using application programming interfaces (APIs) enables **collaboration between professionals** and speeds up work.
- BBVA API Market
- Amazon API Gateway
- Mulesoft

Cloud
The giants' applications help them **reduce costs and maximise their time**, in addition to offering them specific resources.
- AWS
- Azure
- Google Developers

Which technologies should you track?

- **Artificial intelligence and big data** — To create **predictive** and problem-solving **systems** on their own.
- **Metaverse, virtual and augmented reality** — To develop **specific applications** in new virtual environments.
- **Web3** — To **store information** safely thanks to blockchain.
- **Quantum computing** — To **build and design new products** that apply quantum technologies.

Beyond technique... What other skills do you need to develop?

Communication
On a day-to-day basis, you must **coordinate with various teams.**

Emotional intelligence
It is advisable to maintain control in **challenging situations**, such as solving problems and web crashes.

Creativity
Approaching tasks differently is key to creating **customised digital products.**

Leadership
To lead the **development of the digital product** and to collect all the functionalities.

Flexibility
High capacity to adapt to change and speed to **develop MVP** (minimum viable products).

CONSTANT LEARNING

Programming is a task that requires constant training.

Ways to learn to program

Most programmers **acquire new web development skills** through online sites.

- **59.5%** Videos and blogs
- **53.5%** Formal education
- **51.5%** Books and physical media
- **48.3%** Online courses
- **31.6%** Online forums

Free platforms to get started

In addition to **bootcamps, bachelor's and master's degrees**, there are platforms for learning to program for free.

codecademy · freeCodeCamp(A) · coursera

BBVA has recently reached an agreement with Code.org to **promote programming** among the sons and daughters of employees.

Websites for sharing and testing

Whether to continue learning or to improve their projects, developers have several alternatives for **exchanging knowledge**.

GitHub · CODEPEN · dabblet

INNOVATING BY CRACKING CODE

Software developers shape the next digital products. Without their work, decoding the innovations of the future would be nearly impossible.

Do you want to test your knowledge as a programmer?

The **BBVA 2022 Hackathon** will take place on **21st, 22nd and 23rd October**. The bank's units will test your skills with challenges that you will have to solve in multidisciplinary teams.

REGISTER FOR THE BBVA HACKATHON!

Sources: DeveloperNation, Randstad, Deloitte, Glassdoor, Hired, Stack Overflow, IDC, BBVA, Forbes' and US Bureau of Labor Statistics