

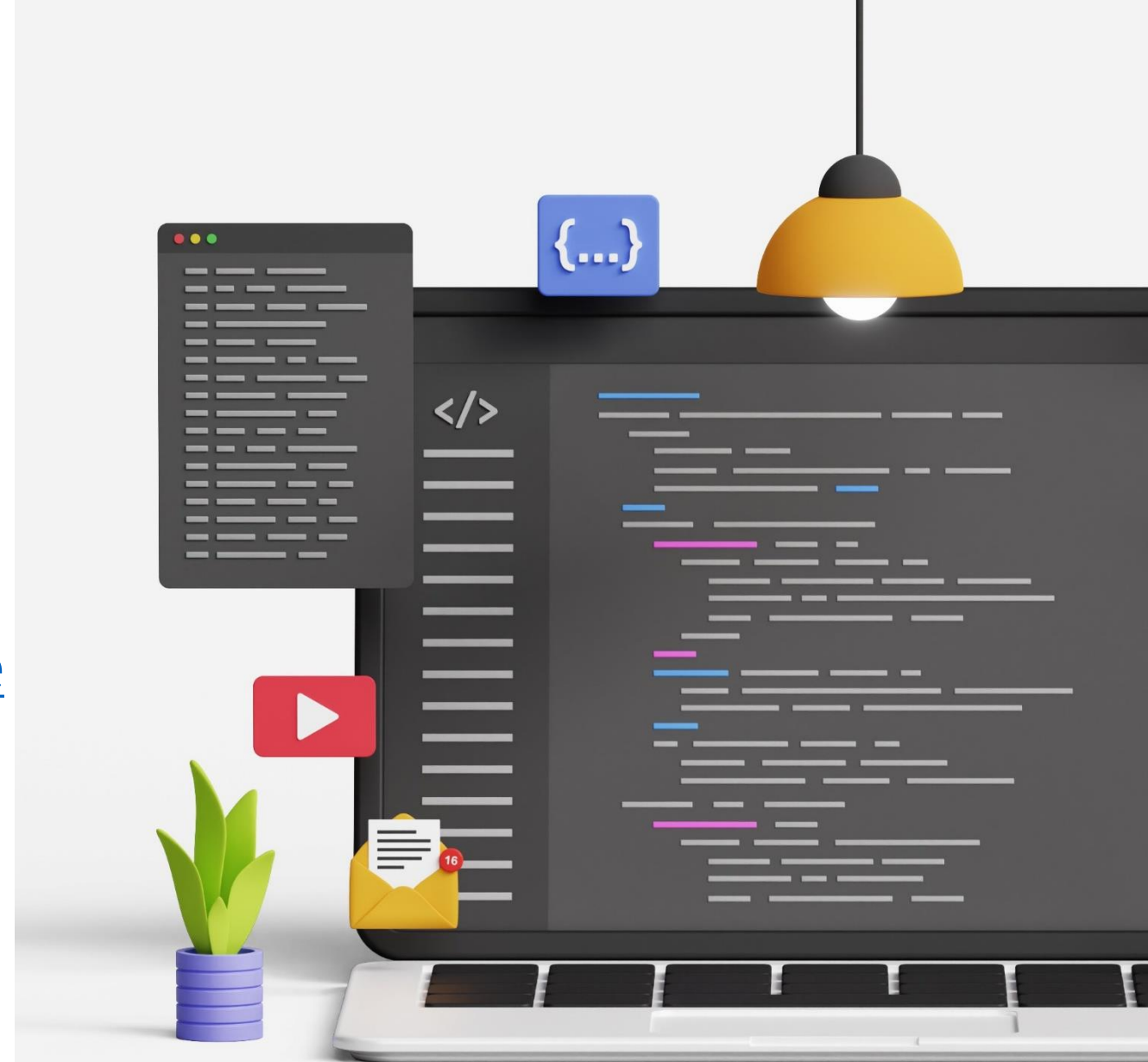
Information, Computation, Communication

Learning Python

About the Course

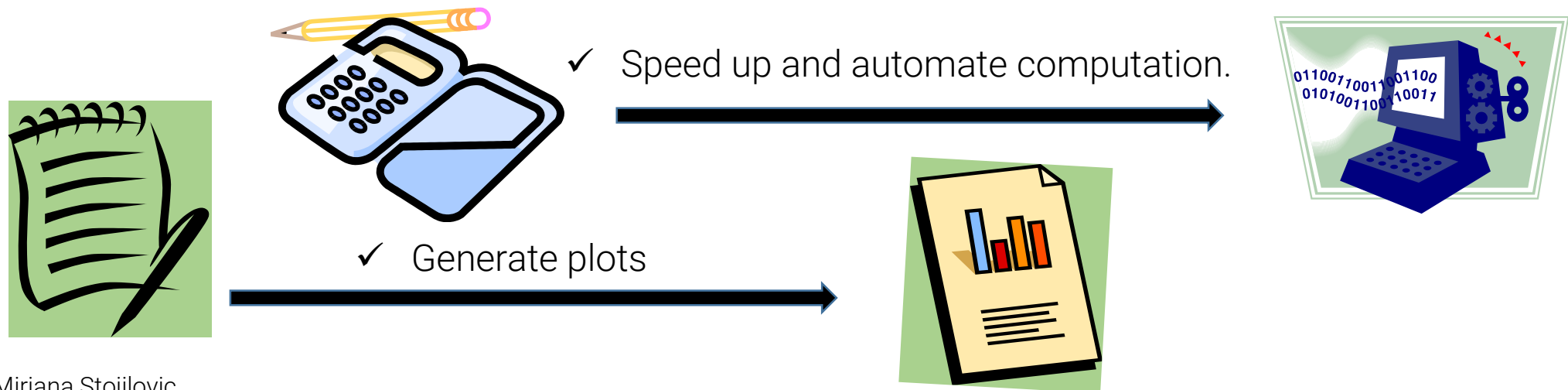
Agenda

- [Objectives](#)
- [General information](#)
- [Exercise sessions](#)
- [What to do at home](#)
- [Semester planning & schedule](#)
- [How to learn programming](#)
- [Using LLMs](#)
- [Programming basics](#)



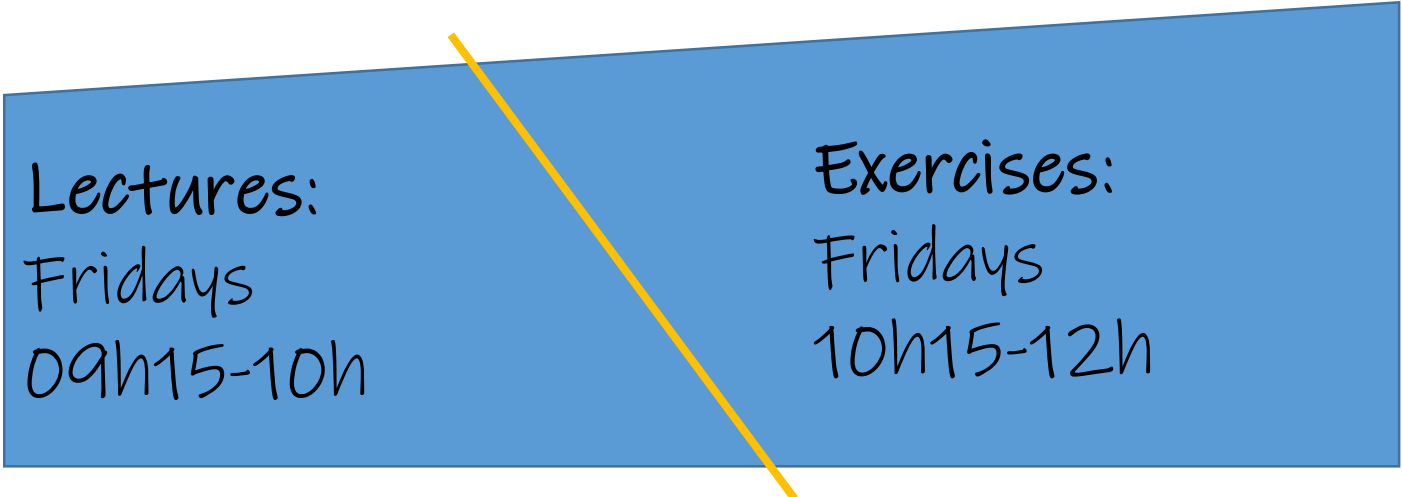
Objectives

- Get familiar with the **basics** of programming in Python
- Translate an **algorithm** into a Python program
- **Solve** a computational problem by writing a program
- **Understand** and **modify** a given program to fit new requirements
- Use programming as a **tool**



General Information

- No prior programming experience required
- Course language: **French**
- Programming lectures: **English**
- Lectures introduce Python language concepts
- Hands-on exercises: **practice by coding**
- Ed Discussion: ask questions and participate



Lectures:
Fridays
09h15-10h

Exercises:
Fridays
10h15-12h

Exercise Sessions



- In person
- Bring your laptop and/or use the virtual machines
- Recommended VM:
 - **IC-CO-IN-SC-INJ-2026-Fall**

[Connection instructions: vdi.epfl.ch \(log in to access\)](https://vdi.epfl.ch)

Exercise Sessions



- Teaching assistants are there for you — ask for help
- **Discuss with students around you**
 - Asking a question and explaining the problem is already a step towards solving it
- Try to understand and debug the problem yourself
 - If you are stuck, ask a teaching assistant
- If you do not finish all exercises during the session, do try to finish them later

Exercise Sessions: Team and Rooms

Room	Equipped with PCs?	Max capacity	Staff
BC 07	YES	35	Solomée Asnake, Raid Taha
BC 08	YES	39	Stephan Ferrieri, Lina Hmamouchi
CM 1 103	YES	40	Alexandre Marichez-Liew, Lilya Ouarrach
CM 1 110	YES	20	Yassine El Harti
CM 1 112	YES	36	Ghaith Skhiri, Alexia Stoian
INF 2	NO	98	Iskandar Ghobril, Mohamed Nourira

** Head TA: Ana Zarić*

** Adjustments possible during the semester*

What to Do at Home

- **Connect remotely to the virtual machines, if needed**
- **Finish exercises and write code yourself**
- Experiment: change your code and see what happens
- Read when you need another explanation
 - *Learning Python by Mark Lutz*
 - *Python Crash Course: A Hands-On, Project-Based Introduction to Programming by Eric Matthes (EPFL library)*

Semester Planning

- Weeks 1–7: Lectures and exercises
- Week 8: **6 Nov 2026, morning**
 - **Midterm exam**
 - 40% of the final grade
 - Theory-related part of the course takes place as usual in the afternoon
- Weeks 9–13: Lectures and exercises
 - Weeks 11–12: **Mini programming project**, individual or in pairs (recommended)
 - 15% of the final grade
- Week 14: **18 Dec 2026, morning**
 - **Final exam**
 - 40% of the final grade
- **Quiz on cybersecurity**
 - 5% of the final grade

Schedule

CS-119(h) ICC-P Fall 2026-27 Schedule		
No. Week	Friday	
	Lecture (1 x 45')	Exercise/TP (2 x 45')
1 11-Sep-2026	[2x45'] Intro to the course; Interactive interpreter; Variables, Numbers, Booleans, Operators	Exercises
2 18-Sep-2026	[Mirjana absent] No lecture	Exercises
3 25-Sep-2026	[Watch the recorded video] If-else, scripting	Exercises
4 2-Oct-2026	[2x45'] Loops (intro, with if-elif-else); Lists (intro, with loops, list slicing, list comprehension)	Exercises
5 9-Oct-2026	Nested loops, early exit, iteration skip, nested lists	Exercises
6 16-Oct-2026	[Mirjana absent] No lecture	Exercises
7 30-Oct-2026	Fall Break	
	Functions (intro)	Exercises; Previous midterm exam as an example
8 6-Nov-2026	Midterm exam (no ICC-P, yes ICC-T in the afternoon)	Midterm exam
9 13-Nov-2026	Recursive functions	Exercises
10 20-Nov-2026	Tuples and sets	Exercises
11 27-Nov-2026	Dictionaries	Mini-project
12 4-Dec-2026	Code examples; exam-like questions	Mini-project (contd.), Exercises
13 11-Dec-2026	Numpy and Matplotlib (with Jupyter Notebook) → not required for the exam	Previous final exam as an example
14 18-Dec-2026	Final exam (no ICC-P, no ICC-T)	Final exam

How Do You Learn Programming?

Getting stuck is part of learning to program.

- By programming
 - Write code yourself
 - Run it
- Make mistakes and read the error
- Fix it
- Repeat

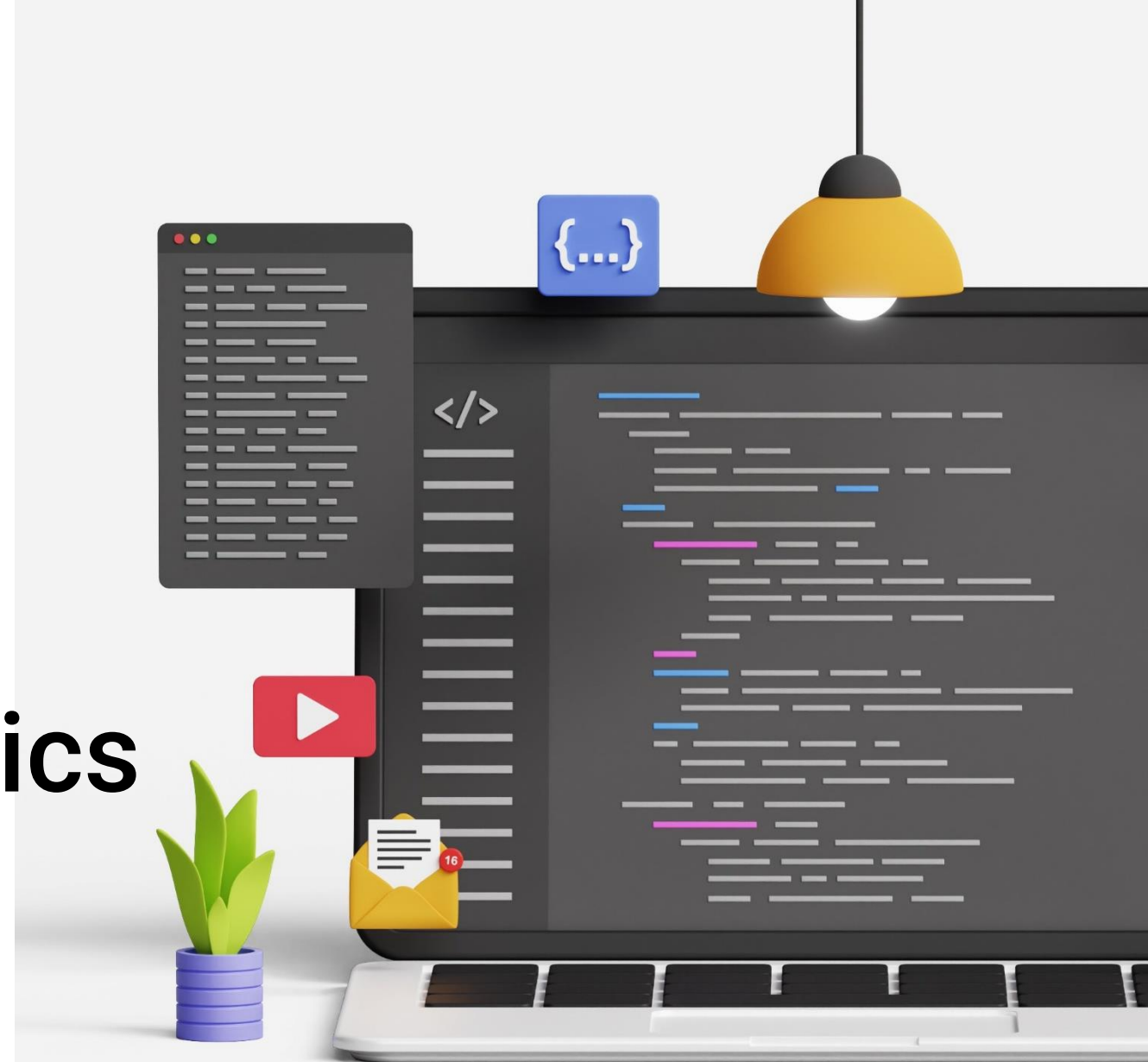
Should You Use LLMs?

If you cannot tell whether the generated code is correct, an LLM is not yet a shortcut—it is a risk.

- Use LLMs with caution
 - They can explain code, comment on your code, and suggest improvements
 - They can also produce plausible-looking code with subtle errors
- Never use code you do not understand
- While learning, practice writing and debugging code yourself
- LLMs will not be allowed for the project or exam

Programming Basics

- What is programming?
- Python language
- IDE



Programming Tools

What does programming mean?

- Programming means
 - Using a programming language
 - **Creating a program that solves a given problem**
 - A program is a sequence of **instructions**
 - Instructions follow the **rules** of the programming language
 - Running the program so the computer carries out those instructions

Programming Tools

Which programming **language** will we study?

- **Python**
- Why do we call it a **language**?
 - It has a **grammar**
 - Rules for combining language elements
 - It has a **vocabulary**
 - Keywords such as `if`, `for`, `while`, `def`, and `return`

Brief History of Python



- Invented in The Netherlands in the early 90s by Guido van Rossum
https://en.wikipedia.org/wiki/Guido_van_Rossum
- Guido is a fan of Monty Python's Flying Circus, a famous TV comedy show in the 70s
- The Python language was named after Monty Python
- Open-sourced from the beginning

Applications of Python

- Science
 - Including AI and data analysis
- System administration
 - Unix systems
 - Web logic
- Web application development
 - Graphical interfaces
- Testing scripts
- Databases
- Gaming...and many more

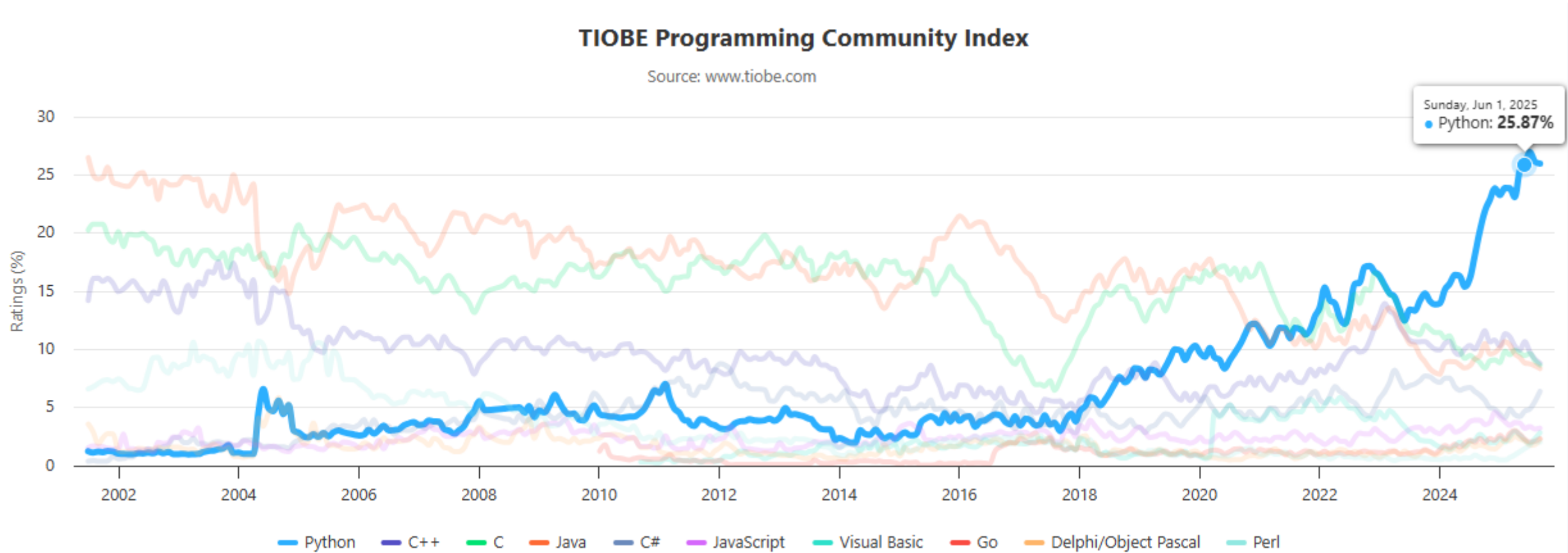


Who Uses Python Today

- Google in its web search and YouTube
 - Uber
 - PayPal
 - Netflix
 - Facebook
 - Dropbox
 - Intel, Cisco, Hewlett-Packard, Qualcomm, IBM, etc., for hardware testing
- ... and many more



How Popular is Python?



<https://www.tiobe.com/tiobe-index/>

Programming IDE Tools

Which programming environment will we use?

- There are many **integrated development environments (IDEs)**
- We will use **Visual Studio Code**
- It is installed on the EPFL virtual machines

Code in any language

VS Code supports almost every major programming language. Several ship in the box, like JavaScript, TypeScript, CSS, and HTML, but extensions for others can be found in the VS Code Marketplace.

JS JavaScript

TS TypeScript

 Python

C# C#

C++ C++

 HTML

J Java

{ } JSON

 PHP

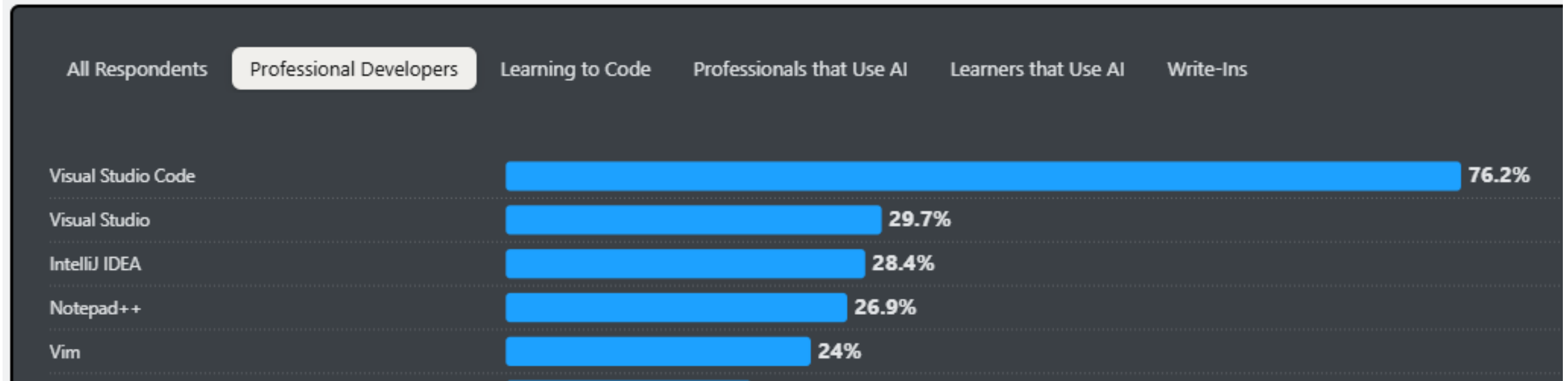
 Markdown

> Powershell

! YAML

How Popular is Visual Studio Code?

- ...most popular among developers and those learning to code, according to the 2025 Developer Survey



<https://survey.stackoverflow.co/2025/technology#most-popular-technologies-dev-envs-prof>

Enough talking. Let's program.

Next: First steps in Python with the interactive interpreter