HOW SOFTWARE WORKS · BEGINNER · 14 MIN READ

Python basics: your first scripts

Write and run your first Python: print, variables, if, loops, lists and functions, how indentation works, how to read a traceback, and how Python compares with JavaScript.

Pass the check (4 of 5) online to earn the “Python Starter” badge:
https://digitalbuilders757.com/university/study/python-basics-first-scripts

Why Python, and where to run it

Python reads almost like English, which is why many schools teach it first. It's widely used for data, automation, AI and science, and the ideas you learn carry over to every other language.

You can run it without installing anything in Google Colab, a free notebook in your browser that needs a Google account (check your school's rules first). Or install Python from python.org and run a script in the terminal with python3 hello.py. A notebook mixes notes and code cells: run a cell with Shift+Enter and the output appears underneath.

The basics

- print("Hello") shows text. name = "Sam" stores a value in a variable; no let or const needed.
- Indentation is part of the language: the lines inside an if, a loop or a function are indented, usually by 4 spaces, and that's how Python knows where the block ends.
- Decisions: if score >= 80: then an indented line, with elif and else for other cases.
- Lists and loops: scores = [72, 95, 88], then for score in scores: and an indented print(score). range(5) counts 0 to 4.
- Functions: def total(numbers): then an indented return sum(numbers).
- f-strings put values into text: print(f"Hi {name}, you scored {score}").
- Comments start with #. True, False and None are capitalised.

Reading a traceback

When Python hits an error it prints a traceback. Read it from the bottom: the last line names the error and the message, and the lines above point to the file and line number.

- NameError: name 'scroe' is not defined usually means a typo, or a variable used before it was set.

- IndentationError means the spaces don't line up; make every line in a block start at the same place.
- TypeError: can only concatenate str (not "int") to str means you tried to join text and a number with +. Use an f-string, or str(score).
- Paste the whole traceback into your AI helper and ask for the cause before the fix.

Python next to JavaScript

If you've read our JavaScript guides, you already know the ideas; only the spelling changes. print() is console.log(). def is function. Indentation does the job of curly braces. elif is else if. True and None are true and null. # starts a comment instead of //.

Python shines for scripts that tidy files and spreadsheets, cleaning CSV data, exploring data in notebooks and calling AI APIs with official libraries. Keep API keys out of any notebook you share: use a secret or an environment variable, never a code cell.

Key terms

Python
A popular programming language that reads almost like English, used for data, automation, AI and teaching.

Traceback
Python's error report. Read it from the bottom: the last line names the error, the lines above show where.

Variable
A named value in code, like const price = 20.

Function
A named, reusable recipe in code that takes inputs and can return an output.

API key
A secret code that identifies your app to a service and is often tied to billing.

Indentation
Spaces at the start of a line. In Python they show which lines belong inside an if, a loop or a function.

Notebook (Jupyter, Colab)
A document that mixes notes and runnable code cells, with each cell's output shown underneath.

Loop
Code that repeats for each item in a list or until something changes.

Conditional (if/else)
Code that runs only when something is true, otherwise something else.

Try it: Your first Python notebook

1. Open Google Colab (or Python on your computer) and run print("Hello, world").
2. Make a list of five scores and use a for loop to print each one.
3. Write a function that returns the average of a list, and print the average of your scores with an f-string.
4. Break it on purpose: remove the indent inside the loop, run it, and read the traceback from the bottom up.
5. Paste your code into an AI helper and ask it to explain each line, then ask it to quiz you on one.

KNOWLEDGE CHECK

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5 questions. Circle one answer for each; 4 or more correct passes. Answers are at the back.

1. In Python, what are the indented lines under an if statement?

A. Nothing special: Python indentation is only there to look tidy
B. Comments that the computer skips
C. The lines that run when the condition is true
D. Lines that run first, before the if is checked

2. name is "Sam". What does print(f"Hi {name}") show?

A. Hi {name}, exactly as it's written
B. fHi Sam, with the f at the front
C. An error, because f-strings need a + sign to join text
D. Hi Sam

3. Python says NameError: name 'scroe' is not defined. The most likely cause?

A. A typo: the variable is called score
B. Python can't store numbers in a variable called score
C. The computer needs a restart before new names work
D. The file is too long for Python

4. Which line is the Python version of console.log("Done")?

A. echo("Done")
B. print("Done")
C. console.print("Done")
D. System.out.println("Done")

5. You'll share a Colab notebook that calls an AI API. Where should the API key go?

A. In the first cell, so anyone who runs it has everything they need
B. In a comment, because comments are never shared
C. Not in the notebook: in a secret or an environment variable
D. In the notebook's title

Official sites

The Python Tutorial (python.org): https://docs.python.org/3/tutorial/
Google Colab: https://colab.research.google.com/

Last reviewed 2026-11-25. AI tools change fast; check each tool's own site for current features, plans and prices.

ANSWER KEY

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1. C: The lines that run when the condition is true
Indentation marks the block. Lines that line up under the if belong to it; the first line back at the edge is outside it.

2. D: Hi Sam
The f before the quotes tells Python to put values into the curly braces.

3. A: A typo: the variable is called score
NameError means Python doesn't know that name. Check the spelling, and that the variable is set before the line that uses it.

4. B: print("Done")
print() writes to the output in Python, the way console.log() does in JavaScript.

5. C: Not in the notebook: in a secret or an environment variable
Anything in a shared notebook, comments included, can be read and copied. Keep keys in a secret store and rotate any key that was shared.