

System Setup



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System Setup

Programs and Environment



1. Install Python



Visual Studio Code

or



Cursor

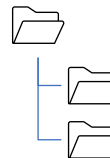
2. Install IDE



3. Install git



4. Config &
Get Course Material



5. Set up Environment



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System Setup

Programs and Environment: Cloud



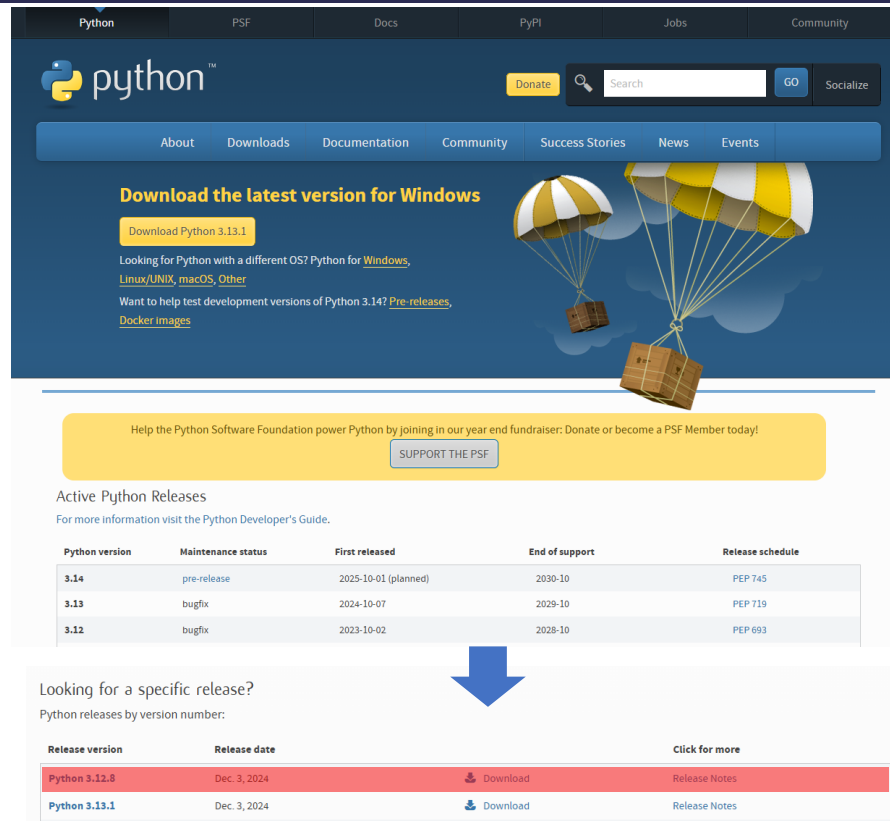
Allows coding in the browser

```
1 packages
2 import os
3 from langchain.groq import ChatGroq
4 from dotenv import load_dotenv, find_dotenv
5 load_dotenv(find_dotenv(usecwd=True))
6 # %%
7 # Model overview: https://console.groq.com/docs/models
8 MODEL_NAME = 'llama-3.3-70b-versatile'
9 model = ChatGroq(model_name=MODEL_NAME,
10                  temperature=0.5, # controls creativity
11                  api_key=os.getenv('GROQ_API_KEY'))
12
13 # %% Run the model
14 res = model.invoke("What is a Huggingface?")
15 # %% find out what is in the result
16 res.model_dump()
17 # %% only print content
18 print(res.content)
19 # %%
```

URL: <https://studio.firebase.google.com/mypoetrytest-73499963>

System Setup

Python Installation



The screenshot shows the Python.org website. At the top, there's a navigation bar with links: Python, PSF, Docs, PyPI, Jobs, and Community. Below this is a search bar and a 'Donate' button. The main content area features a large banner with the text 'Download the latest version for Windows' and a button 'Download Python 3.13.1'. Below the banner, there's a section for 'Active Python Releases' with a table of releases. A blue arrow points from the table to a section titled 'Looking for a specific release?' which shows a list of releases by version number.

Help the Python Software Foundation power Python by joining in our year end fundraiser: Donate or become a PSF Member today!

SUPPORT THE PSF

Active Python Releases

For more information visit the Python Developer's Guide.

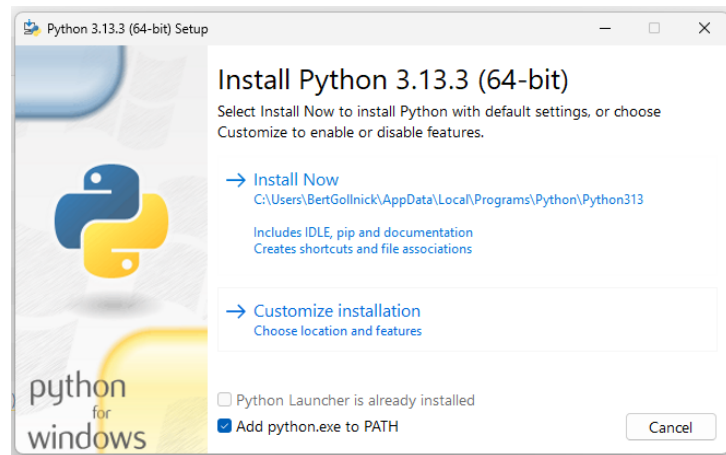
Python version	Maintenance status	First released	End of support	Release schedule
3.14	pre-release	2025-10-01 (planned)	2030-10	PEP 745
3.13	bugfix	2024-10-07	2029-10	PEP 719
3.12	bugfix	2023-10-02	2028-10	PEP 693

Looking for a specific release?

Python releases by version number:

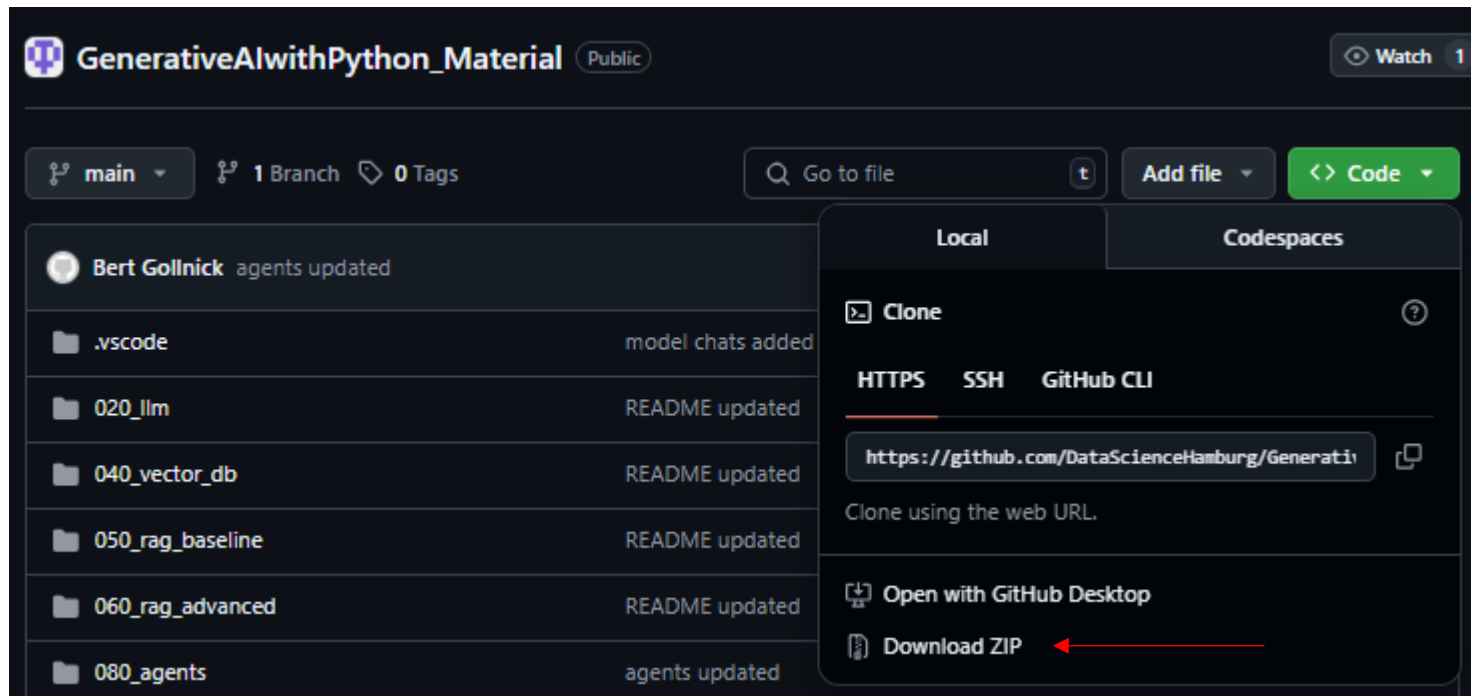
Release version	Release date	Click for more
Python 3.12.8	Dec. 3, 2024	Download Release Notes
Python 3.13.1	Dec. 3, 2024	Download Release Notes

Source: <https://www.python.org/downloads/>



System Setup

Git – Option 1 (beginner)



The screenshot shows the GitHub interface for the repository **GenerativeAIwithPython_Material**, which is public. The repository has 1 branch (main) and 0 tags. The file list on the left includes:

- Bert Gollnick** agents updated
- .vscode** model chats added
- 020_llm** README updated
- 040_vector_db** README updated
- 050_rag_baseline** README updated
- 060_rag_advanced** README updated
- 080_agents** agents updated

The right sidebar shows the **Local** tab selected, with the **Clone** button. Below it, the **HTTPS** method is selected, showing the URL: `https://github.com/DataScienceHamburg/Generati`. The **Download ZIP** option is highlighted with a red arrow.



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Git – Option 2 (advanced)

1. Download Git and Install: <https://git-scm.com/downloads>

2. Configure git

```
git config --global user.name "John Doe"
```

```
git config --global user.email johndoe@example.com
```


3. Clone Repo:

```
git clone https://github.com/DataScienceHamburg/GenerativeKlmitPython\_Material.git
```





System Setup

VS Code Extension



**Jupyter**🕒 789ms

Jupyter notebook support, inte...

ms-toolsai 

**Python**🕒 36ms

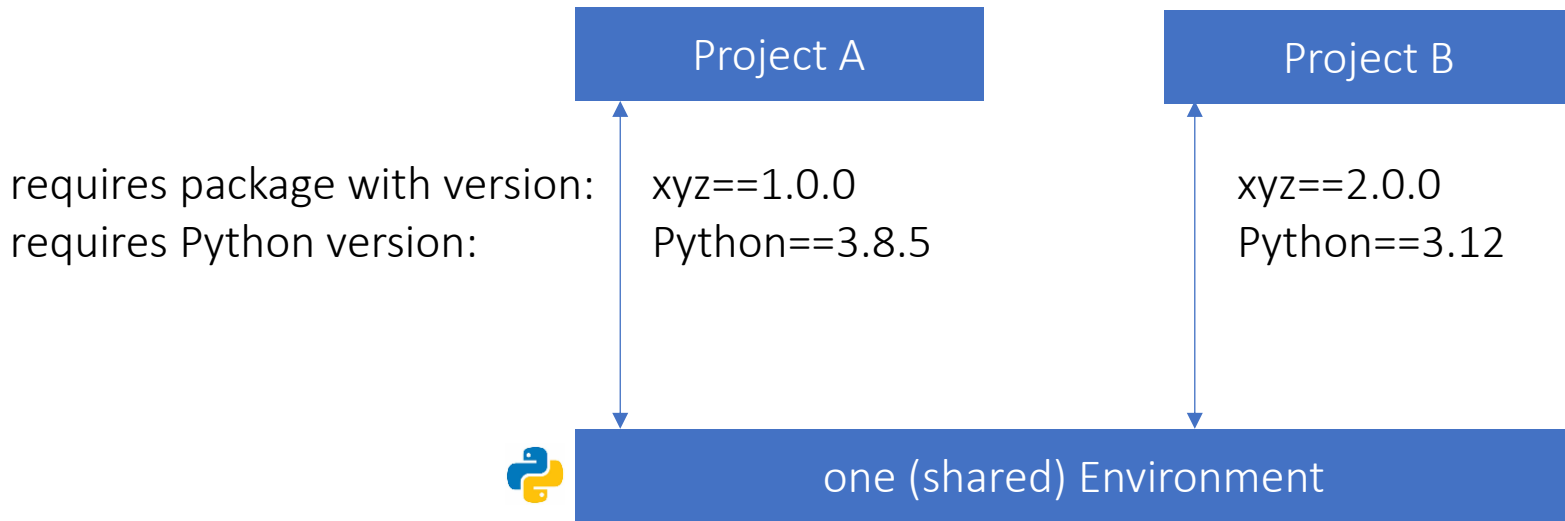
Static type checking for Python

 **Anysphere** 



System Setup

Environment: Problem

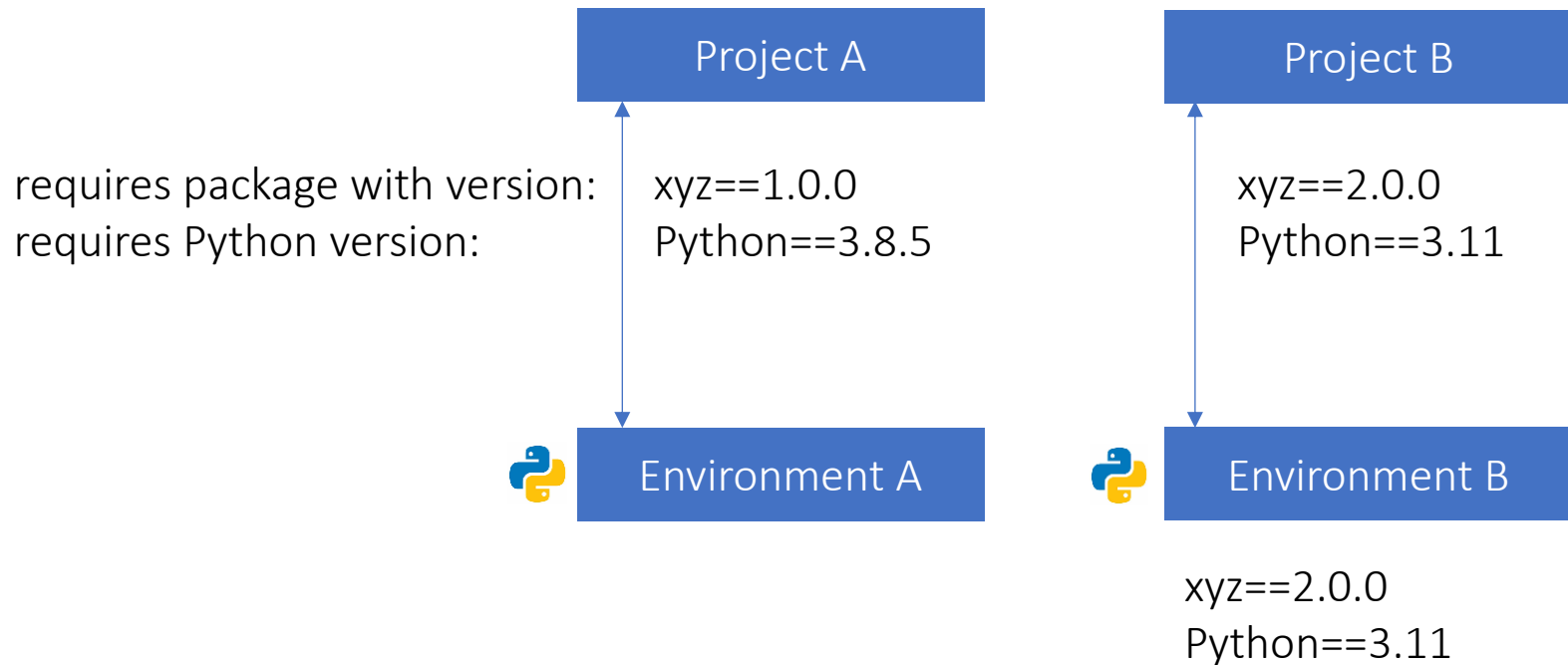


package xyz can be available only in one version
Python only available in one version



System Setup

Environment: Solution



System Setup

Python Environment

An Environment is an isolated bundle of packages and Python versions.

It allows to

- avoid conflicts of packages
- easy setup for a project on another computer
- Available Environments:

Conda
(requires Anaconda
installation)

venv

Poetry

uv

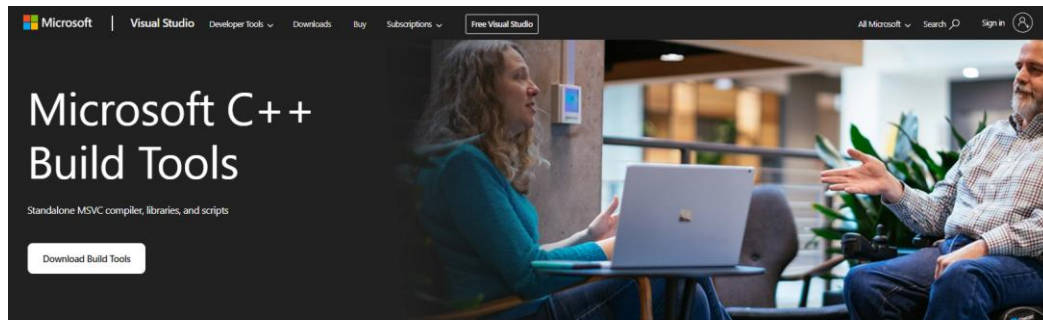


System Setup

Python Environment – venv

Windows: install C++ Build Tools

Mac: use faiss-cpu



The Microsoft C++ Build Tools provides MSVC toolsets via a scriptable, standalone installer without Visual Studio. Recommended if you build C++ libraries and applications targeting Windows from the command-line (e.g. as part of your continuous integration workflow). Includes tools shipped in Visual Studio 2015 Update 3, Visual Studio 2017, Visual Studio 2019, and latest version of Visual Studio 2022.

[Walkthrough: Compiling a Native C++ Program on the Command Line ->](#)

How you can use the Build Tools

<https://visualstudio.microsoft.com/visual-cpp-build-tools/>



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System Setup

OpenAI API Key

Personal

Course_VectorDbRagAgents

Playground

Dashboard

SETTINGS

Your profile

ORGANIZATION

General

API keys

Admin keys

Members

Projects

Billing

Limits

Usage

Data controls

Verifications

PROJECT

General

API keys

Members

Limits

Billing

Overview

Payment methods

Billing history

Preferences

Pay as you go

Credit balance ⓘ

\$7.75

Auto recharge is off

When your credit balance reaches \$0, your API requests will stop working. Enable automatic recharge to automatically keep your balance topped up.

Enable auto recharge

Add to credit balance

Cancel plan

Payment methods

Add or change payment method

Preferences

Manage billing information

Pricing

View pricing and FAQs

Billing history

View past and current invoices

Usage limits

Set monthly spend limits

Create new secret key

Owned by

You

Service account

This API key is tied to your user and can make requests against the selected project. If you are removed from the organization or project, this key will be disabled.

Name

Optional

My Test Key

Project

Select project

Permissions

All

Restricted

Read Only

Cancel

Create secret key