

System Setup



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System Setup

Programs and Environment



1. Install Python



Visual Studio Code

or



Cursor

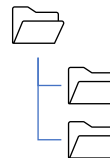
2. Install IDE



3. Install git



4. Config &
Get Course Material



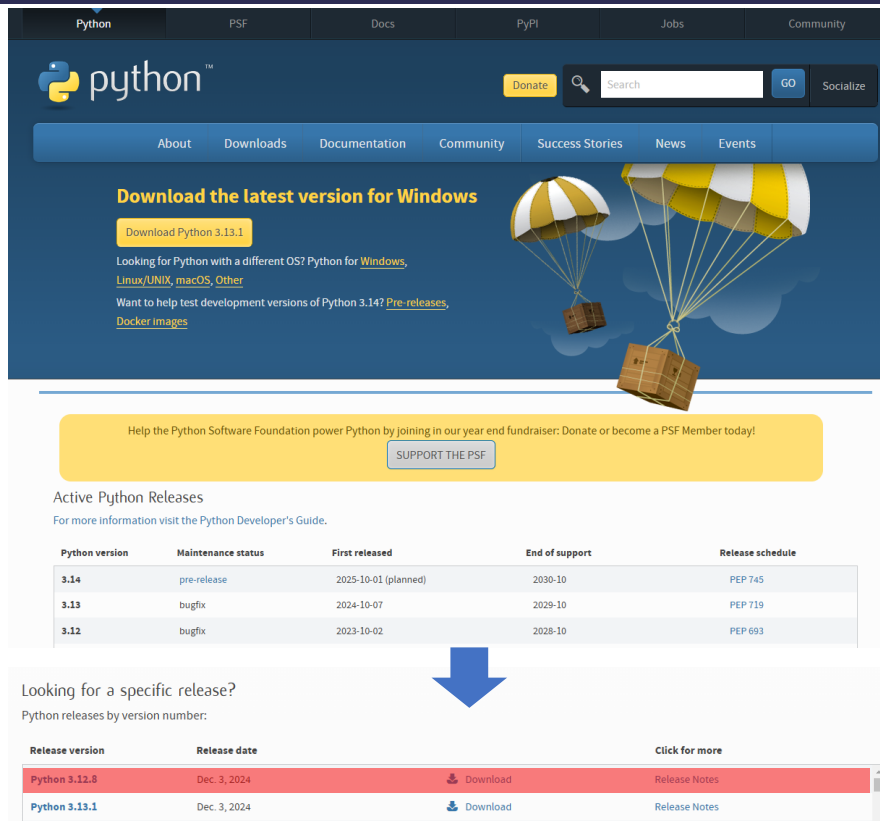
5. Set up Environment



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Python Installation



The screenshot shows the Python.org website. At the top, there's a navigation bar with links to Python, PSF, Docs, PyPI, Jobs, and Community. Below this is a search bar and a 'Donate' button. A secondary navigation bar contains links to About, Downloads, Documentation, Community, Success Stories, News, and Events. The main content area features a large banner for downloading the latest version for Windows, with a 'Download Python 3.13.1' button. Below the banner, there are links for other operating systems and pre-releases. A yellow banner promotes supporting the PSF. The 'Active Python Releases' section includes a table with columns for Python version, Maintenance status, First released, End of support, and Release schedule. A large blue arrow points from this table to a section titled 'Looking for a specific release?' which shows a list of releases with download links.

Download the latest version for Windows

Download Python 3.13.1

Looking for Python with a different OS? Python for [Windows](#), [Linux/UNIX](#), [macOS](#), [Other](#)

Want to help test development versions of Python 3.14? [Pre-releases](#), [Docker images](#)

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/>



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Git

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



Pylance

🕒 552ms

A performant, feature-rich lang...

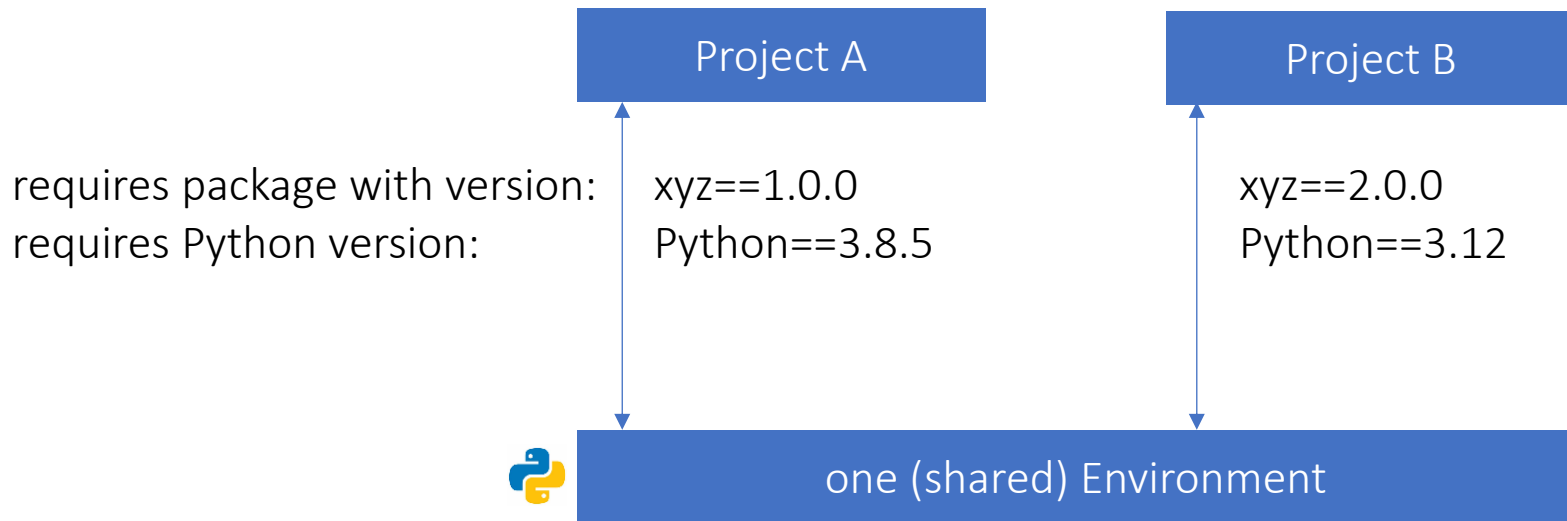
ms-python



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System Setup

Environment: Problem

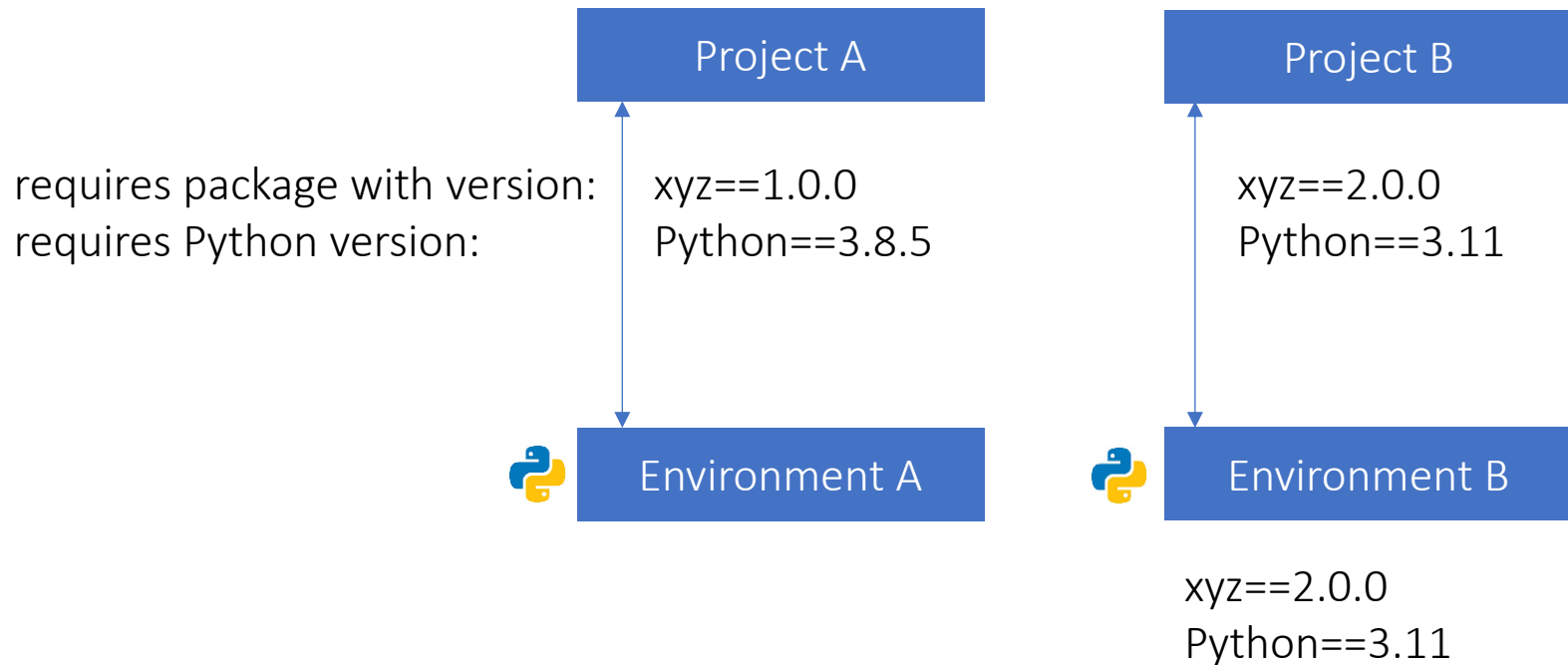


package xyz can be available only in one version
Python only available in one version



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

- Setting up a new environment with venv:

```
python -m venv venv
```

- Activate environment
 - Navigate to subfolder Scripts and run activate.bat (windows cmd) or activate.ps1 (Powershell)

```
\venv\Scripts>activate.bat
```

- Check that environment is active (environment shown in brackets):

```
(venv) C:\Temp\
```

- Install packages with pip install into this new environment, e.g. `pip install openpyxl`

System Setup

Python Environment – venv

- Check installed packages: `pip freeze`

- Sample output:

```
et-xmlfile==1.1.0
openpyxl==3.0.10
```

- Write packages to file: `pip freeze > requirements.txt`

- Sample:

```
requirements.txt
1  et-xmlfile==1.1.0
2  openpyxl==3.0.10
```



System Setup

Python Environment – venv

- Follow the steps on how to “create” an environment

```
python -m venv venv
```

```
\venv\Scripts>activate.bat
```

- Install packages from requirements.

```
pip install -r requirement.txt
```



System Setup

Python Environment – uv (Alternative)

- use **uv** as environment
- set up from scratch

pip install uv

or

```
powershell -ExecutionPolicy ByPass -c "irm  
https://astral.sh/uv/install.ps1 | iex"
```

uv init

uv python install 3.12

uv venv

.venv\Scripts\activate

uv add langchain



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

Billing history

View past and current invoices

Preferences

Manage billing information

Usage limits

Set monthly spend limits

Pricing

View pricing and FAQs

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