**🐍 1. pip (Python Installer Package)**

* **Most commonly used** package manager for Python.
* Installs packages from [PyPI (Python Package Index)](https://pypi.org/).
* Comes bundled with Python 3.4+.

**Example commands:**

pip install requests # install a package

pip uninstall requests # uninstall a package

pip list # list installed packages

pip show requests # package details

**🧰 2. conda (from Anaconda)**

* Package and environment manager.
* Supports both **Python and non-Python** packages (like NumPy, OpenCV, etc.).
* Great for **data science and ML** projects.

**Example commands:**

conda install numpy # install a package

conda remove numpy # uninstall a package

conda list # list all packages

conda create --name myenv # create a new environment

**📦 3. poetry**

* Manages dependencies and virtual environments.
* Uses a pyproject.toml file for configuration.
* Preferred for **modern Python projects** and publishing packages.

**Example commands:**

poetry add requests

poetry remove requests

poetry install # install all dependencies

**📁 4. pipenv**

* Combines pip and virtualenv into one tool.
* Uses Pipfile and Pipfile.lock for dependency tracking.

**Example commands:**

bash

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pipenv install requests

pipenv uninstall requests

pipenv shell # activate virtual environment

**📄 Summary Table:**

| **Package Manager** | **Use Case** | **Virtual Env Support** | **Dependency Lock** |
| --- | --- | --- | --- |
| pip | General purpose | With venv or virtualenv | requirements.txt |
| conda | Data science, system libraries | Yes (built-in) | environment.yml |
| poetry | Modern Python dev | Yes (built-in) | pyproject.toml |
| pipenv | Dev + dependency management | Yes (built-in) | Pipfile.lock |