Python: Package Management

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Why/What?

Why Package Managers?

Package managers make it easier to use other people's software

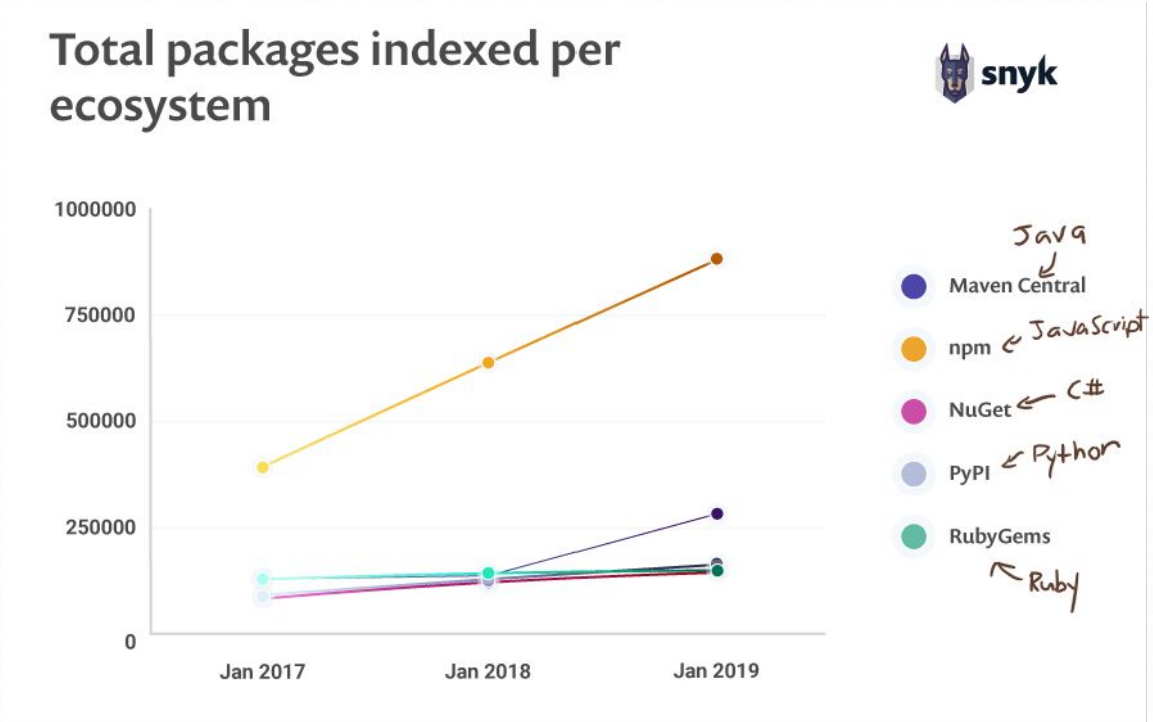
a. Instead of going to a website, downloading an installer, running the installer / installation wizard, you can do everything in one step

1. Terminology
   a. *package*
      i. A reusable piece of software (think of a `.zip` file that stores a bunch of Python files)
   b. *package repository* / *package registry* / *package index*
      i. A location or website that stores packages
   c. *package manager*
      i. A program that downloads packages from a *package repository*

Analogy:

- Costco is like a *package repository*. The *package manager* is like the shopper looking for and buying variuos products. And *packages* are like the various products

Big Graph


Total packages indexed per ecosystem
snyk
1000000
750000
500000
250000
0
Jan 2017
Jan 2018
Jan 2019
Java
Maven Central
npm
JavaScript
NuGet
C#
PyPI
Python
RubyGems
Ruby

03

Poetry

Poetry

- Official website
- GitHub
- First released in late 2018
- Very popular and stable

Package manager for Python

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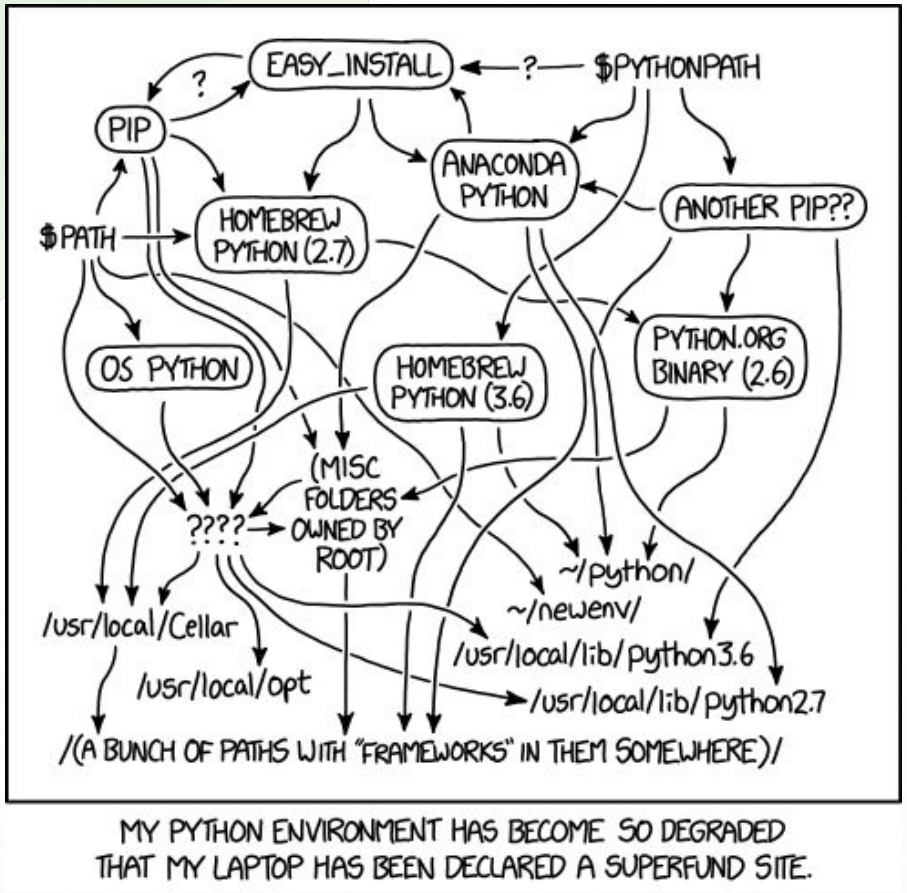
Installing Python

Python

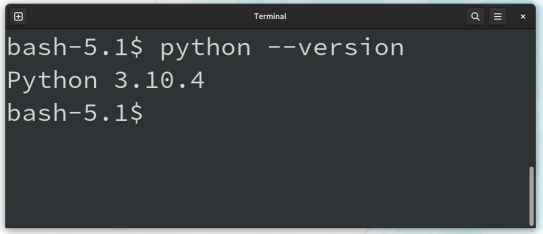
- Official website
- GitHub



Python Environment

Source: xkcd/1987

Linux

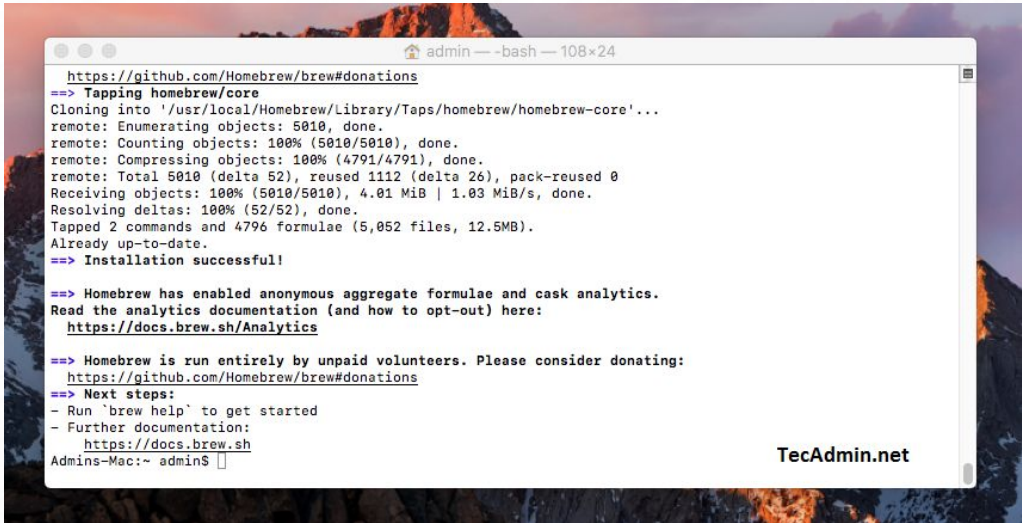


1. Usually, Python is already installed, so we don't have to do anything extra
   a. To check, search for and open "Terminal" program
   b. Type `python --version`
2. Dependencies required for the `datascience` package
   a. Debian/Ubuntu/Mint/PopOS: `sudo apt install libopenblas-dev liblapack-dev gfortran python3-dev`
   b. Fedora: `sudo dnf install openblas-devel lapack-devel gfortran python3-devel`
   c. Arch Linux/Manjaro/Endeavour: `sudo pacman -S openblas-lapack gfortran python3`

macOS

Installation: macOS

1. Install Brew (package manager for macOS)
    a. Instructions
2. Install Python with Brew
    a. Search for and open “Terminal” program
    b. `brew install python3`
3. Dependencies required for `datascience` package
    a. macOS: `brew install lapack openblas`



Windows

Installation: Windows (Python)

Three primary ways to install on Windows

1. Install from the Microsoft Store
   a. Note: Neither Poetry nor `datascience` will work properly
2. Installing using python.org's Official Installer
   a. Note: `datascience` will not work properly
   b. For installation steps see video (up until 3:07)
3. ~~Installing using MSYS2~~
   ~~a. Go to website and download and run the latest installer~~
   ~~b. Search and open "MSYS2 MSYS" program~~
   ~~c. In open terminal, run `pacman -S python`~~
   ~~d. Dependencies required for `datascience` package :~~
      ~~i. `pacman -S zlib zlib-devel mingw-w64-clang-x86_64-{lcms2,libwebp,libjpeg-turbo,zlib,libimagequant,libraqm}`~~

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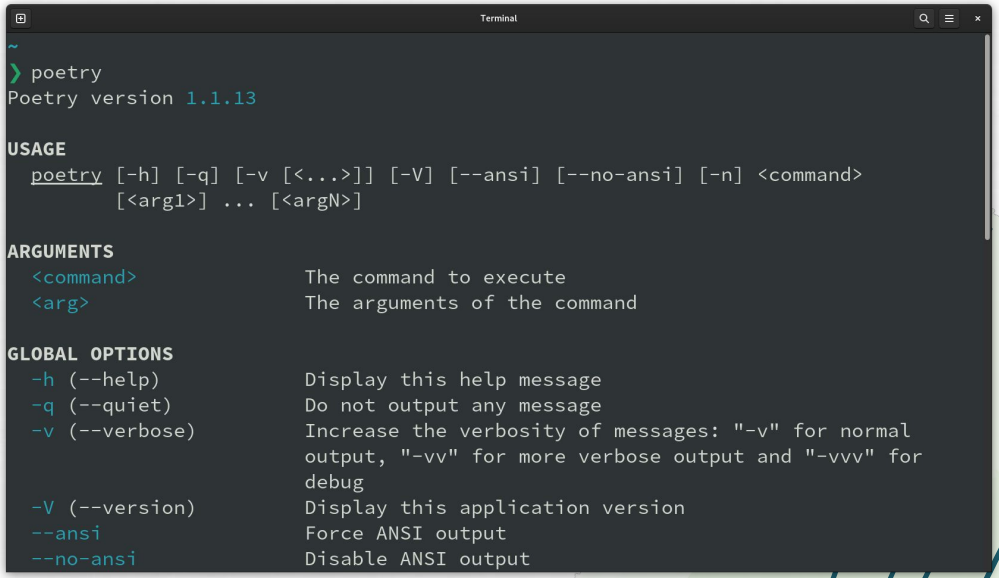
Installing Poetry

Installing (Poetry)

1. Must follow instructions from this permalink
2. To test if Poetry installed successfully:
    a. Open “Terminal”
    b. Type “poetry”
3. If Poetry “command cannot be found”, follow these instructions



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Using datascience

datascience

A Python package for numerical computing. It includes other packages like numpy.

1. `poetry init`
2. `poetry add requests datascience`
    a. `datascience` Example on replit.com

- Quick Links
    - `requests` Website
    - `datascience` Documentation

Thanksies ^w^

Attributions

- Template by Slidesgo
- Icons by Flaticon