

Setting up Virtual Environments for Data Analysis

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Linux Day a Pisa 2023

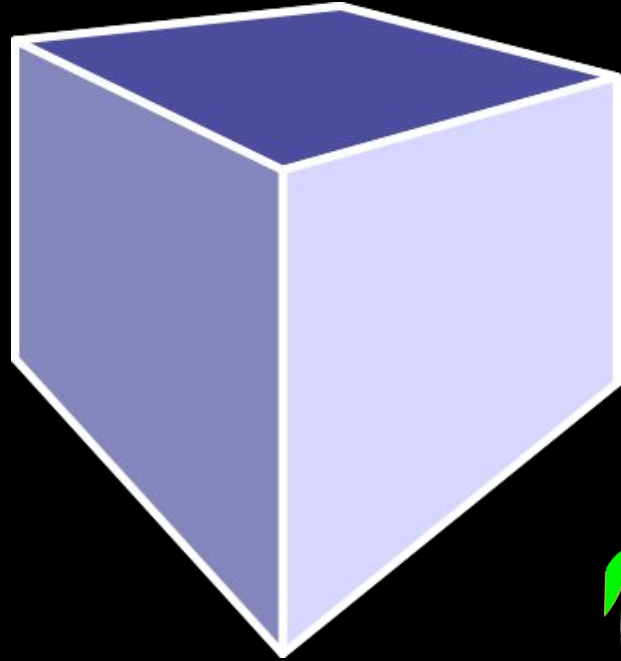
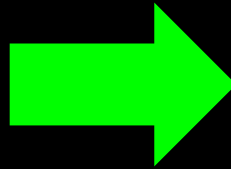
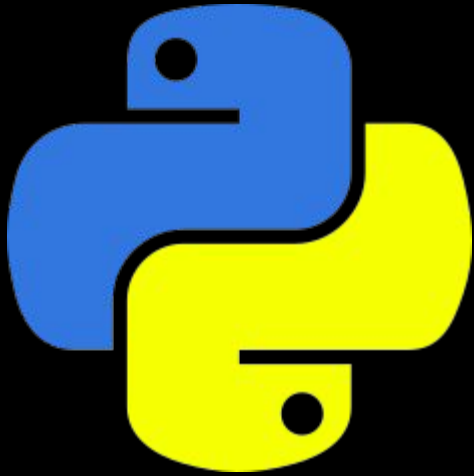


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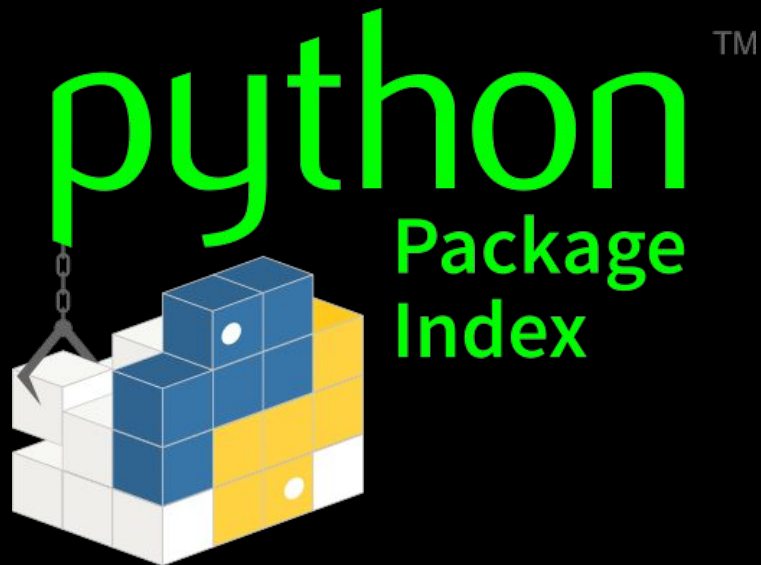
- **Virtualenv**
- **Anaconda distribution**



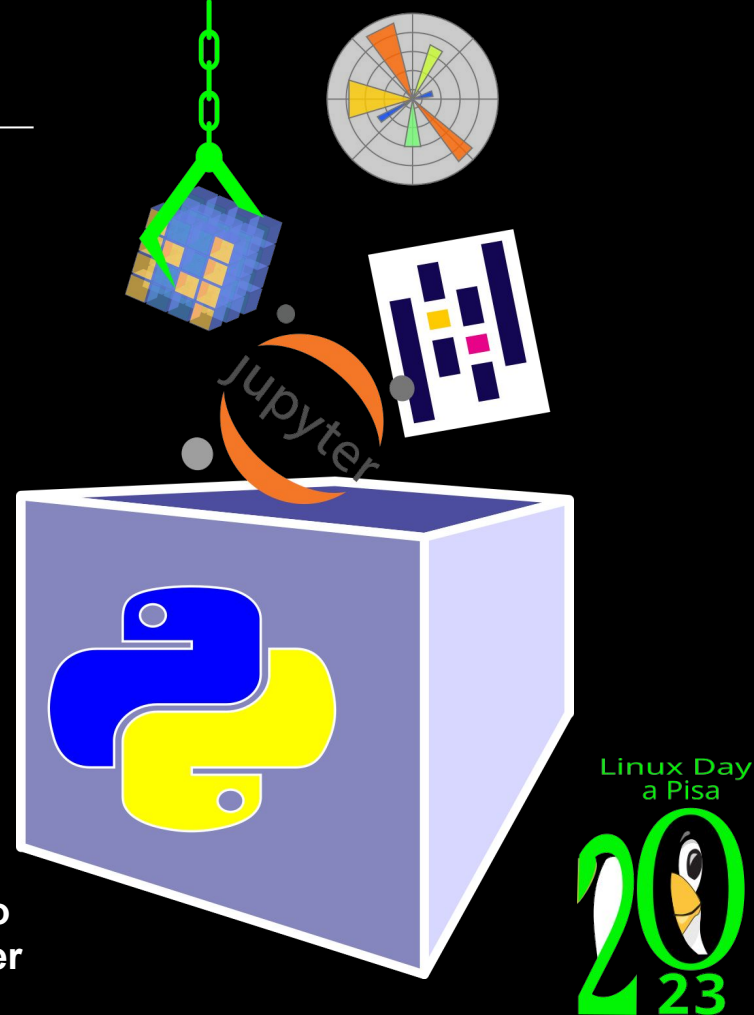
Isolated Python environment



pip package installer



pip is the package installer for Python. You can use pip to install packages from the Python Package Index and other indexes (<https://pypi.org/project/pip/>)



Virtualenv



virtualenv is a tool to create isolated Python environments

Virtualenv installation via pipx

virtualenv is a CLI tool that needs a Python interpreter to run. If you already have a Python 3.7+ interpreter **the best is to use pipx to install virtualenv into an isolated environment**. This has the added benefit that later you'll be able to upgrade virtualenv without affecting other parts of the system.

```
$ pipx install virtualenv
```

```
$ virtualenv --help
```

<https://virtualenv.pypa.io/en/latest/installation.html>



virtualenv is a tool to create isolated Python environments

Installation pipx on Linux

Install via software package manager for distro Linux (Fedora, Debian ...)

dnf: `$ sudo dnf install pipx`

apt: `$ sudo apt install pipx`

Install via pip (requires pip 19.0 or later)

`$ python3 -m pip install --user pipx`

<https://pypa.github.io/pipx/>



virtualenv is a tool to create isolated Python environments

Virtualenv Installation via pip

Alternatively you can install it within the global Python interpreter itself (perhaps as a user package via the `--user` flag). Be cautious if you are using a python install that is managed by your operating system or another package manager. pip might not coordinate with those tools, and may leave your system in an inconsistent state. Note, if you go down this path you need to ensure pip is new enough per the subsections below:

```
$ python -m pip install --user virtualenv
```

```
$ python -m virtualenv --help
```

<https://virtualenv.pypa.io/en/latest/installation.html>



virtualenv is a tool to create isolated Python environments

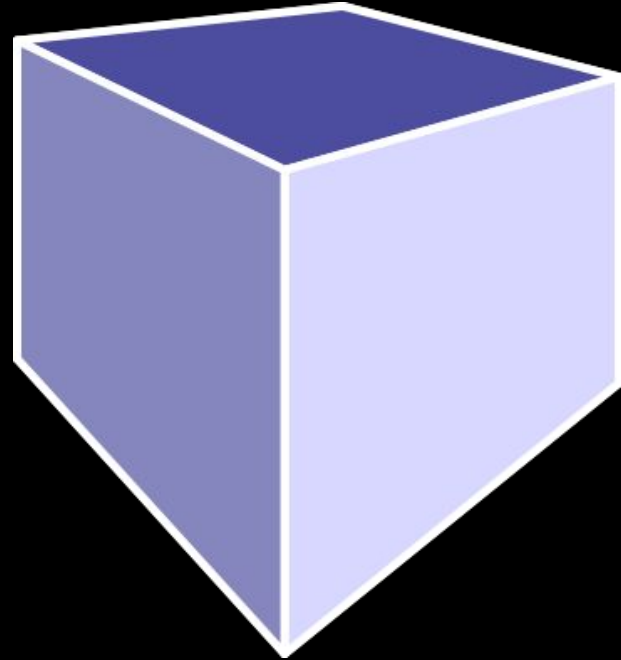
Create Virtual environment



virtualenv is a tool to create isolated Python environments

Create folder

```
$ mkdir myenv  
$ cd myenv/
```

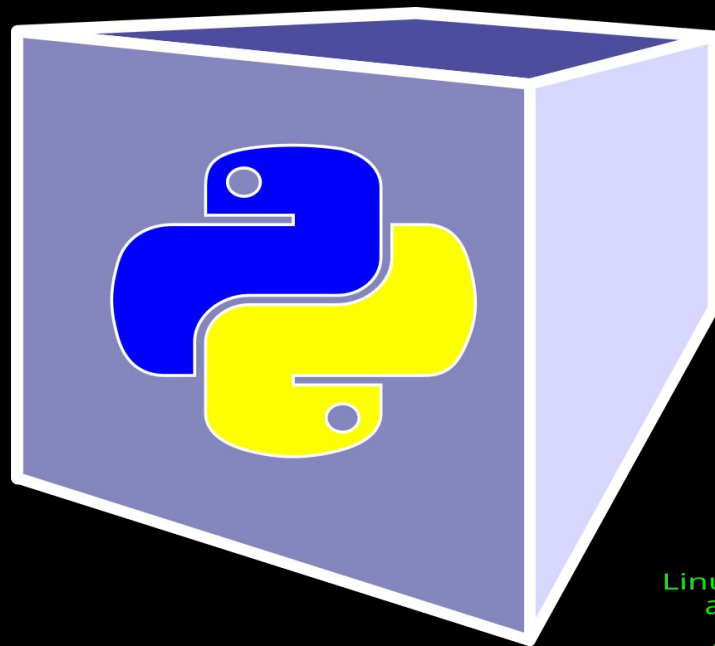


https://virtualenv.pypa.io/en/latest/user_guide.html

virtualenv is a tool to create isolated Python environments

Create isolated Python environment **env**

```
$ virtualenv env
```



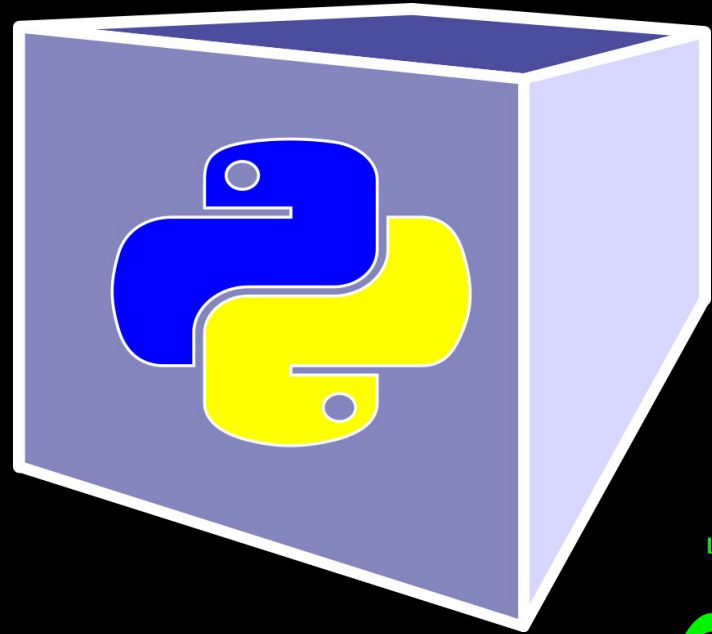
https://virtualenv.pypa.io/en/latest/user_guide.html



virtualenv is a tool to create isolated Python environments

Activate and deactivate virtuale environment

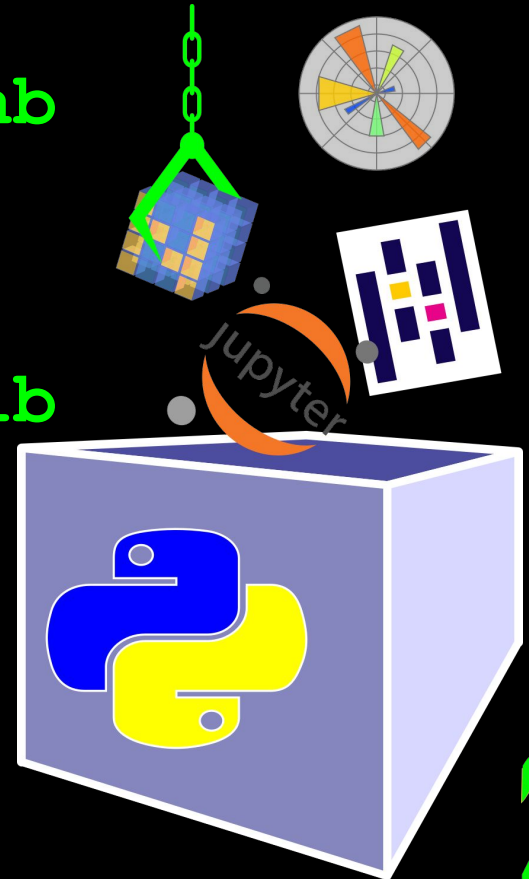
```
$ cd env/bin  
$ source activate  
(env)  
...  
(env) deactivate  
$
```



https://virtualenv.pypa.io/en/latest/user_guide.html

virtualenv is a tool to create isolated Python environments

```
(env)$ pip install jupyterlab  
(env)$ pip install pandas  
(env)$ pip install numpy  
(env)$ pip install matplotlib  
(env)$ pip install seaborn  
(env)$ pip install scipy
```



virtualenv is a tool to create isolated Python environments

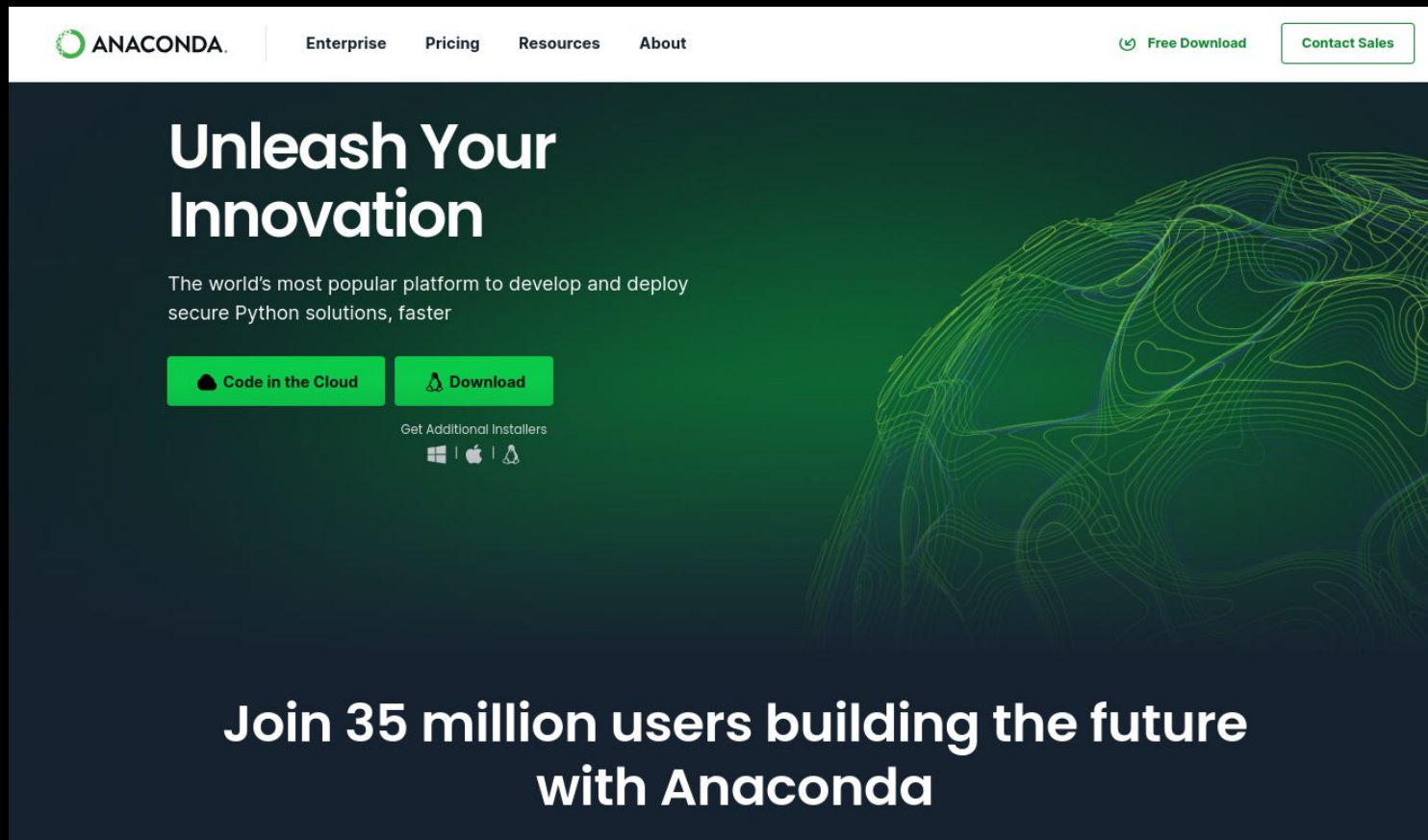
Videos

- [01-create_Virtualenv](#)
- [02-install_pkg](#)
- [03-compare_env](#)

Anaconda distribution



Anaconda distribution



The image is a screenshot of the Anaconda website homepage. The background is a dark blue gradient with a green wireframe globe on the right side. The top navigation bar is white and contains the Anaconda logo, links for Enterprise, Pricing, Resources, and About, a 'Free Download' button with a download icon, and a 'Contact Sales' button. The main content area features the headline 'Unleash Your Innovation' in large white text, followed by the subtext 'The world's most popular platform to develop and deploy secure Python solutions, faster'. Below this are two green buttons: 'Code in the Cloud' with a cloud icon and 'Download' with a download icon. Under the 'Download' button is the text 'Get Additional Installers' followed by icons for Windows, macOS, and Linux. At the bottom, a large white text block reads 'Join 35 million users building the future with Anaconda'. On the far right, there is a vertical banner for 'Linux Day a Pisa' featuring a large green '2023' with a penguin head integrated into the zero.

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Anaconda distribution

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Anaconda install



Anaconda Install

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```

```
$ ./Anaconda3-2023.09-0-Linux-x86_64.sh
```

Anaconda launch

```
$ cd
```

```
$ source .bashrc
```



Create Virtual environment



Anaconda create and manage isolated virtual environment

```
(base) conda list
```

```
(base) conda env list
```

```
(base) conda create -n env1
```

```
(base) conda activate env1
```

```
(env1) conda install
```

```
(env1) conda deactivate
```

```
(base) conda remove -n env --all
```

Anaconda create and manage isolated virtual environment

`(base) conda-navigator`



Videos

- [04-Anaconda_install](#)
- [05-Anaconda_env](#)
- [06-anaconda-navigator](#)

Setting up Virtual Environments for Data Analysis

Thanks for attention!

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