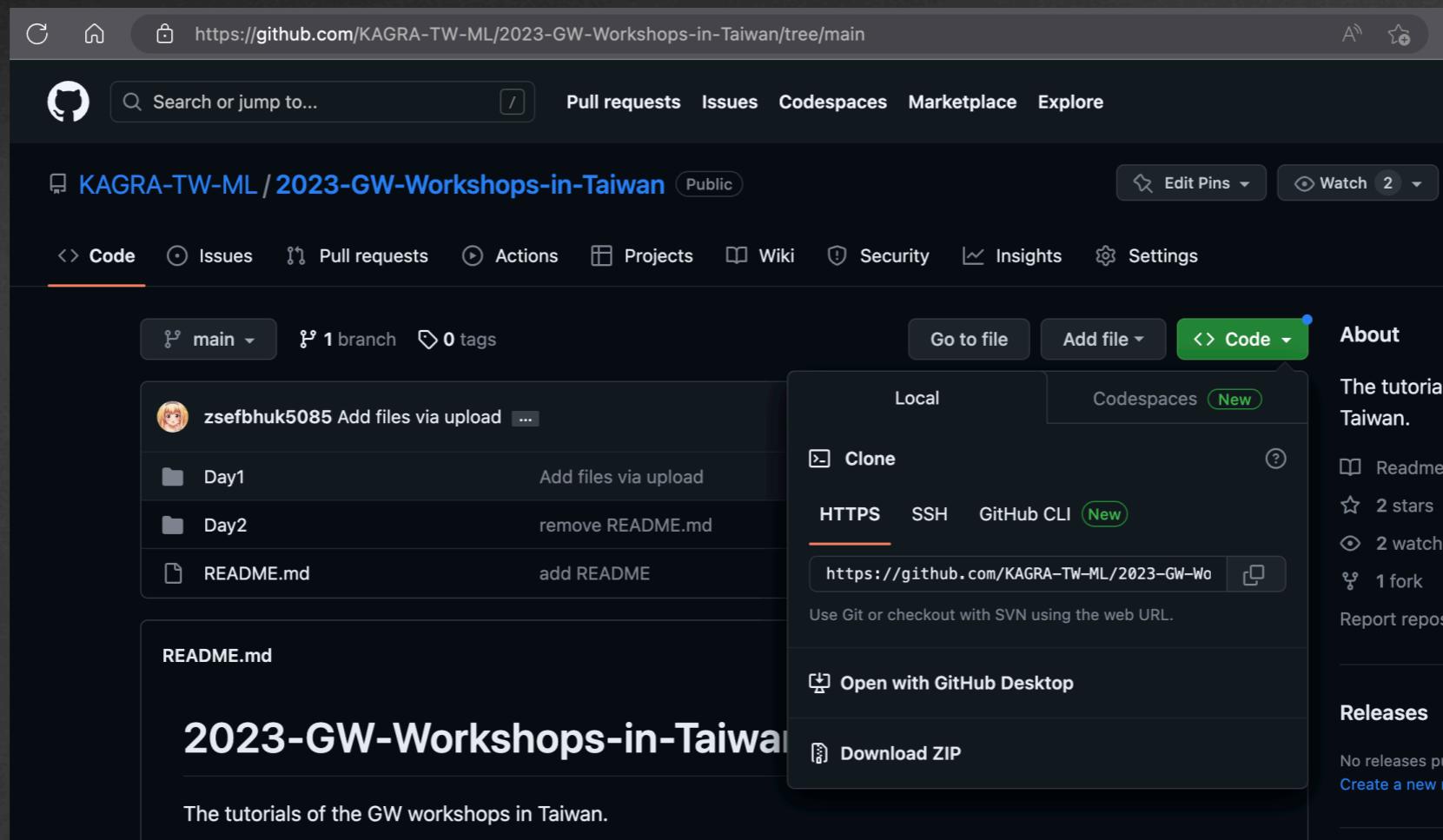


Installing Software Packages

Setting up python environment

Check Our GitHub Page!

- Check <https://github.com/KAGRA-TW-ML/2023-GW-Workshops-in-Taiwan> for all the material in this workshop!
 - Use the `git clone` command or download the ZIP file
- Also, check <https://github.com/gw-odw/odw-2023> for more tutorials



Ways to Running Python

Google Colab

- Free to use
- No need for disk space
- GPU support
- Notebook interface
- Has dogs, cats, and crabs
- Limited runtime (24h for free) and disk space (~80GB free space)
- Need \$ to run in the background
- Need to reinstall the package when reopening the notebook

Your Computer

- Unlimited execution time
- Only need to install the packages once
- The flexibility of managing virtual environments
- Background execution when using terminal
- Needs some disk space
- May not have GPU support
- Additional efforts to set up the environment
- No dogs, cats, and crabs

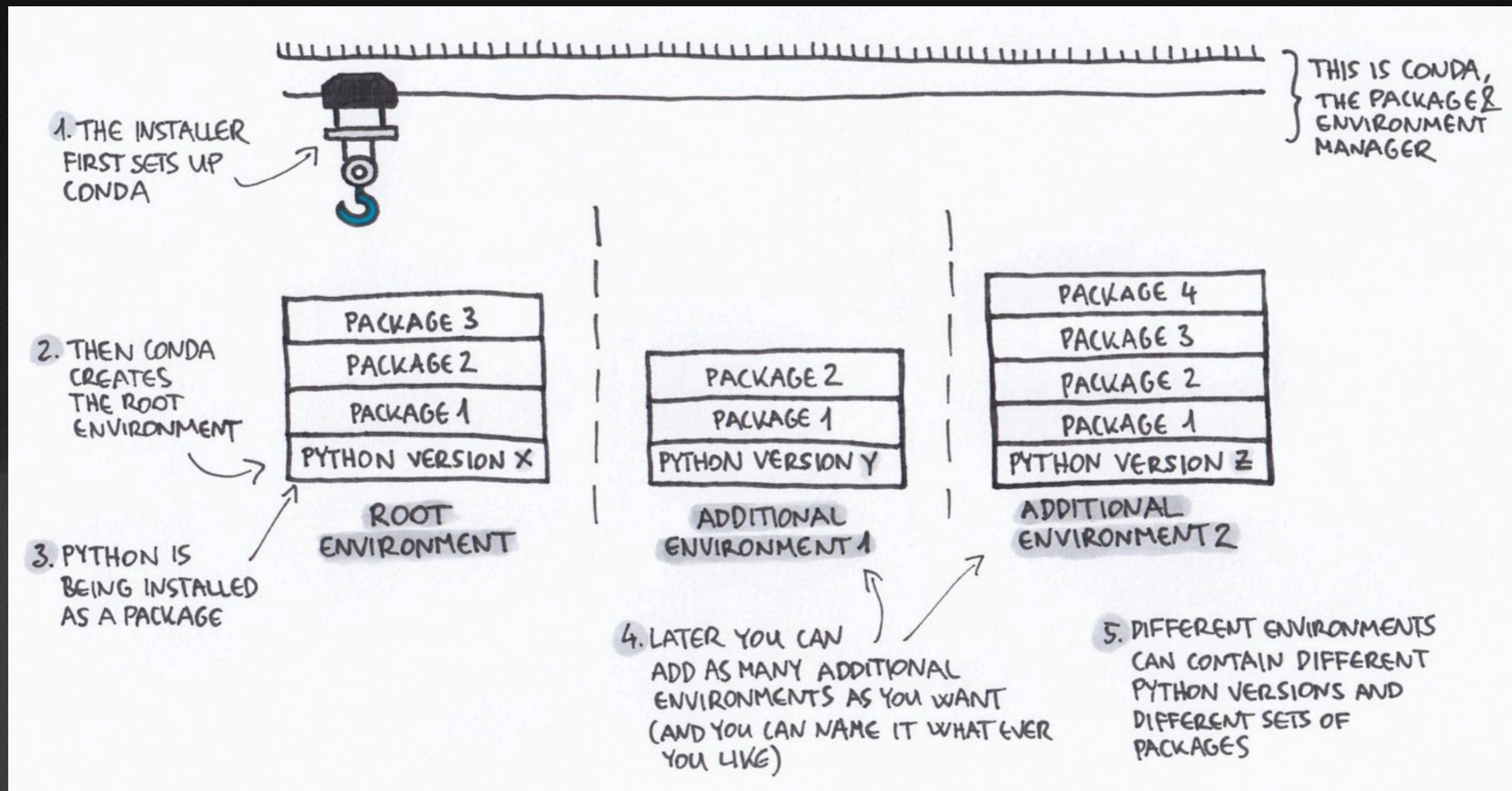
Preparations to Run GW Analysis on Your PC

- Setting up Conda environment (install Miniconda)
- Installing IGWN software packages

For Windows Users...

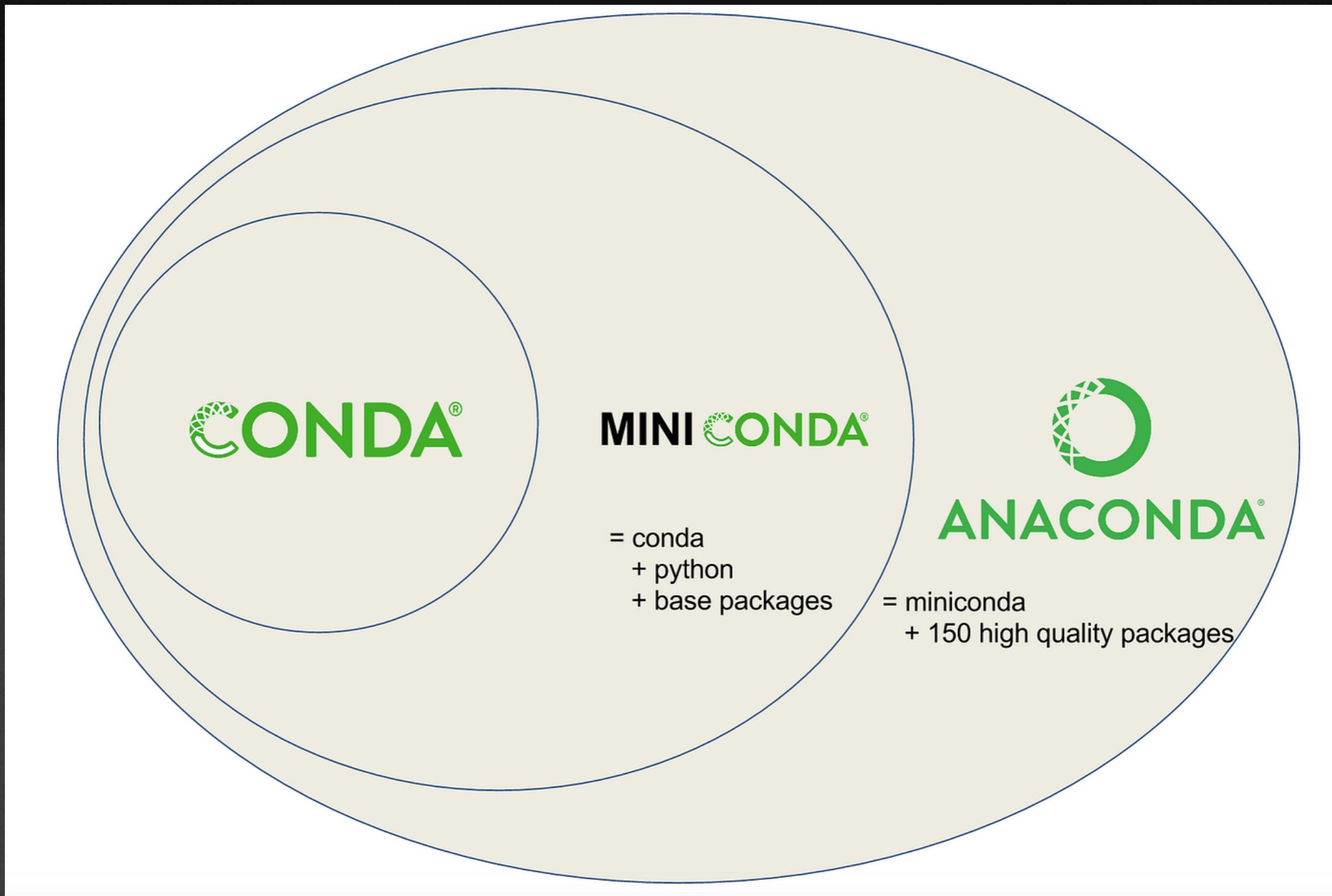
- Some fundamental IGWN packages require a Linux environment
- It is recommended to install **Windows Subsystem for Linux (WSL)** on your laptop
- See <https://learn.microsoft.com/en-us/windows/wsl/install> for more details

Conda: Environment Management



angus.readthedocs.io

Miniconda V.S. Anaconda



Installing Miniconda

- Go to <https://docs.conda.io/en/latest/miniconda.html> to download the installer (bash files are preferred)

https://docs.conda.io/en/latest/miniconda.html A

Latest Miniconda Installer Links

Latest - Conda 23.3.1 Python 3.10.10 released April 24, 2023

Platform	Name	SHA256 hash
Windows	Miniconda3 Windows 64-bit	307194e1f12bbeb52b083634e89cc67db4f7980b
	Miniconda3 Windows 32-bit	4fb64e6c9c28b88beab16994bfba4829110ea314
macOS	Miniconda3 macOS Intel x86 64-bit bash	5abc78b664b7da9d14ade330534cc98283bb838c
	Miniconda3 macOS Intel x86 64-bit pkg	cca31a0f1e5394f2b739726dc22551c2a19afdf6
	Miniconda3 macOS Apple M1 64-bit bash	9d1d12573339c49050b0d5a840af0ff6c32d33c3
	Miniconda3 macOS Apple M1 64-bit pkg	6997472c5ff90a772eb77e6397f4e3e227736c83
Linux	Miniconda3 Linux 64-bit	aef279d6baea7f67940f16aad17ebe5f6aac9748
	Miniconda3 Linux-aarch64 64-bit	6950c7b1f4f65ce9b87ee1a2d684837771ae7b2e
	Miniconda3 Linux-ppc64le 64-bit	b3de538cd542bc4f5a2f2d2a79386288d6e04f0e
	Miniconda3 Linux-s390x 64-bit	ed4f51afc967e921ff5721151f567a4c43c4288a

Also for Windows users!



Some Useful Conda Commands

- Create environment

```
conda create --name abc
```

- Activate the environment

```
conda activate abc
```

- Back to the root environment

```
conda deactivate
```

- List all environments on this computer

```
conda env list
```

IGWN Software Packages

- Contains all the necessary packages for GW data analysis
 - See <https://computing.docs.ligo.org/conda/environments/igwn-py39/> for details

General Packages

- Numpy
- Scipy
- Pandas
- ipython
- ... etc.

GW Packages

- PyCBC
- GstLAL
- GWPy
- Bilby
- Bayestar
- ... etc.

Installing IGWN Packages

- Add the conda-forge channel

```
Conda config --add channels conda-forge
```

- Download the YAML file from <https://computing.docs.ligo.org/conda/environments/igwn-py39/>
- Create conda environment

```
conda create --file igwn-py310.yaml
```

- Activate the environment

```
conda activate igwn-py310
```

For the workshop tutorials...

- Clone the ODW files for the Git repo

```
git clone https://github.com/gw-odw/odw-2023.git
```

```
cd odw-2023
```

- Setup Jupyter environment

```
Python -m ipykernel install --user --name igwn-  
py310 --display-name "Python (igwn-py310)"
```

And you are ready to go!