Installing conda

Conda is a package manager for python. The official install site:

https://docs.anaconda.com/anaconda/install/

Anaconda comes with a lot of tools for all kinds of python development projects, which makes it harder to see exactly what we need. Using the alternative **miniconda** installer gives us a bare-bones installation that is simpler to use once we get it set up.

Download it from the archive

https://repo.anaconda.com/miniconda/

Latest Version 2022-12-22   *Python 3.8 is "safer" than 3.9 and 3.10*

Miniconda3-py38_22.11.1-1-Windows-x86_64.exe

After downloading, it is recommended to

1. Right-Click the installer icon and select **Run as Administrator**
2. Select **Install for All Users**
3. **Do not** use the default install folder C:\Program Files, create a new folder **c:\conda**

When installation is finished, find the ***Anaconda Prompt*** in the Start menu (if it is not under A, look for a ***Miniconda3*** folder), Right-Click the icon and select **Run as Administrator.** This opens a command prompt (or powershell) window, which we will need just for a few commands to get things set up.

To test your installation, run the command   `conda list`

A list of installed packages appears if it has been installed correctly.

1. Installing the packages

The bare-bones installation has python, but not a lot more. We need to install our development environment - ***JupyterLab*** - and a handful of other packages for Machine Learning. For each one, conda will spin a little bit while it checks for related packages (dependencies), and then show you a list of what needs to be installed.

It is recommended to **install these packages one-by-one in this order**; just use the `UpArrow` key to get the command back when the first one finishes, and change the package name.

```
o  conda install -c conda-forge jupyterlab
o  conda install -c conda-forge scikit-learn
o  conda install -c conda-forge pandas
o  conda install -c conda-forge "tensorflow>=2.2"
o  conda install -c conda-forge pydot
o  conda install -c conda-forge mlxtend
o  conda install -c conda-forge seaborn
o  conda install -c conda-forge matplotlib
o  conda install -c conda-forge scikit-plot
o  conda install -c conda-forge yellowbrick
```

Final step: downgrade one package *(only if you are not using the 2022-12 build)*

- `conda install -c conda-forge "numpy=1.19"`

When the packages are installed, close the command prompt window by typing `exit`

The downgrade package step is necessary for running the deep learning examples - - there are some issues with tensorflow dependencies in the builds before Dec.22.

2. Automating Startup

To avoid all of this command line in the future, download CondaStart.zip and extract the StartMenu folder from the zip file to the folder where Conda is installed (the path now is `c:\conda}`

Right-click the `JupyterLab` shortcut file and select

      Properties > Advanced > select the checkbox **Run as Administrator**

If you did not install to `c:\conda`

      Right-click the `JupyterLab` shortcut file and select

            Properties > Check that the path to `startJupyterLab.bat` is correct

            Properties > Change Icon > Browse > select the corresponding ico file

Now you can Right-click and click the `JupyterLab` shortcut file and select Send to > Desktop (create shortcut), then Right-click in Start menu and select 'Pin to Start'

3. JupyterLab Default Folder

The default folder for code files in `startJupyterLab.bat` is `C:\Users\Public\Documents\jupyter`

So this is where you should extract the sample notebooks after you download them from Moodle. If you like, you can edit `startJupyterLab.bat` for your preferred path, this will set the new default directory for your Jupyter notebooks. Then right-click this folder and select "Pin to Quick Access" to make it easy to get to.

4. Normal Use

Selecting `JupyterLab` in the Start Menu will open a command prompt window to start the server. A few moments later your browser will open a JupyterLab tab.

For Clean Shutdown (Important!) choose File > Shutdown from the JupyterLab menu [this will close the command prompt window], then just close the JupyterLab tab in the browser.

Common Install Problems

Anaconda is built on and for Linux, sometimes the config file has a different location for the python interpreter (careless packaging ...).

If this is the case, JupyterLab will keep putting up a message asking you to **Select a Kernel**

To fix this, start the Anaconda Command Prompt from the StartMenu and run the command

```
jupyter kernelspec list
```

It will return something like

```
c:\conda\share\jupyter\kernels\python3
```

Go to that folder and edit the file

```
kernel.json
```

Change the first **argv** line from

```
"C:/conda/bin/python",
```

To (no /bin!!)

```
"C:/conda/python",
```

Sometimes it won't work until the file path syntax is changed to windows style

```
"C:\\conda\\python",
```


For general troubleshooting advice see

https://jupyter-notebook.readthedocs.io/en/stable/troubleshooting.html