Practical Session 6: Conda and Packages

In this first practical session we will increase our understanding of conda and virtual environments and create a conda environment to contain packages used in the remainder of the course. Use the lecture slides and ask questions where needed.

Exercise 1. Create your first environment

1. Confirm you have conda downloaded with

   ```
   conda --version
   ```

   which should return the version of conda you have downloaded. If this does not happen please install conda here.

2. Create a conda environment named `astroenv` with Python 3.12.

3. Find out the path of where the environment is.

4. Activate the environment and check the Python version is correct with

   ```
   python3 --version
   ```

Exercise 2. Install Packages

1. Install `numpy`, `astropy`, `jupyter`, `pandas`, `matplotlib` and `seaborn` into the environment.

2. Install version 1.13.0 of `scipy`. Did any other packages get downgraded?

3. List all the packages installed in your environment and check the `scipy` version.

4. Update `scipy` to the latest version along with any other packages that were downgraded, then list all the packages again to make sure the packages have been updated.

Exercise 3. Managing environments

1. Make a copy of your environment called `astroenv-copy`

2. Activate it and check that the packages you installed before are there.

3. Deactivate the cloned environment and remove it. Confirm it is gone by listing environments.

4. Export your `astroenv` environment into `environemnt.yml`.

5. Open `environemnt.yml` with a text editor via the terminal (e.g. `vim`) and inspect the contents.

6. Deactivate `astroenv` and delete the environment.

7. Now recreate `astroenv` from the `.yml` file.

Exercise 4. Jupyter Support

1. Activate `astroenv`, install the `ipykernel` package and add the environment as a `Jupyter` kernel

2. Run `Jupyter` from the command line and verify the `astroenv` kernel is there.

3. With the kernel `astroenv` activated, check that the packages you installed can be *imported* into a `jupyter` notebook by running within a cell e.g.

   ```
   import numpy
   ```

   for all packages you installed.