How to Use

Prerequisites

To run the bokeh application we need to have *Python 3.7+* installed, along with the packages *bokeh*, *sklearn*, *numpy*, and *pandas*. While it is certainly possible to install all of these packages by hand, it simpler to use one of the many package managers available for Python. We highly recommend using some form of conda, since it is developed by the same organization as bokeh itself and thus guarantees the latest, stable version of bokeh. Throughout the rest of this document, it is assumed that the user is working using Anaconda, a conda suite. We will explain where to find Anaconda in the next section.

Installing Anaconda

The latest version for Anaconda can be found at their website. Here you can choose the installer for your particular platform and run the installer. Anaconda comes packaged with a version of Python, at the time of writing either 2.7 or 3.7, *do take care that you pick the **3.7** version*. After installing Anaconda, there should be an application called Anaconda Navigator located somewhere on your machine. If this is the case we can move on to the next step.

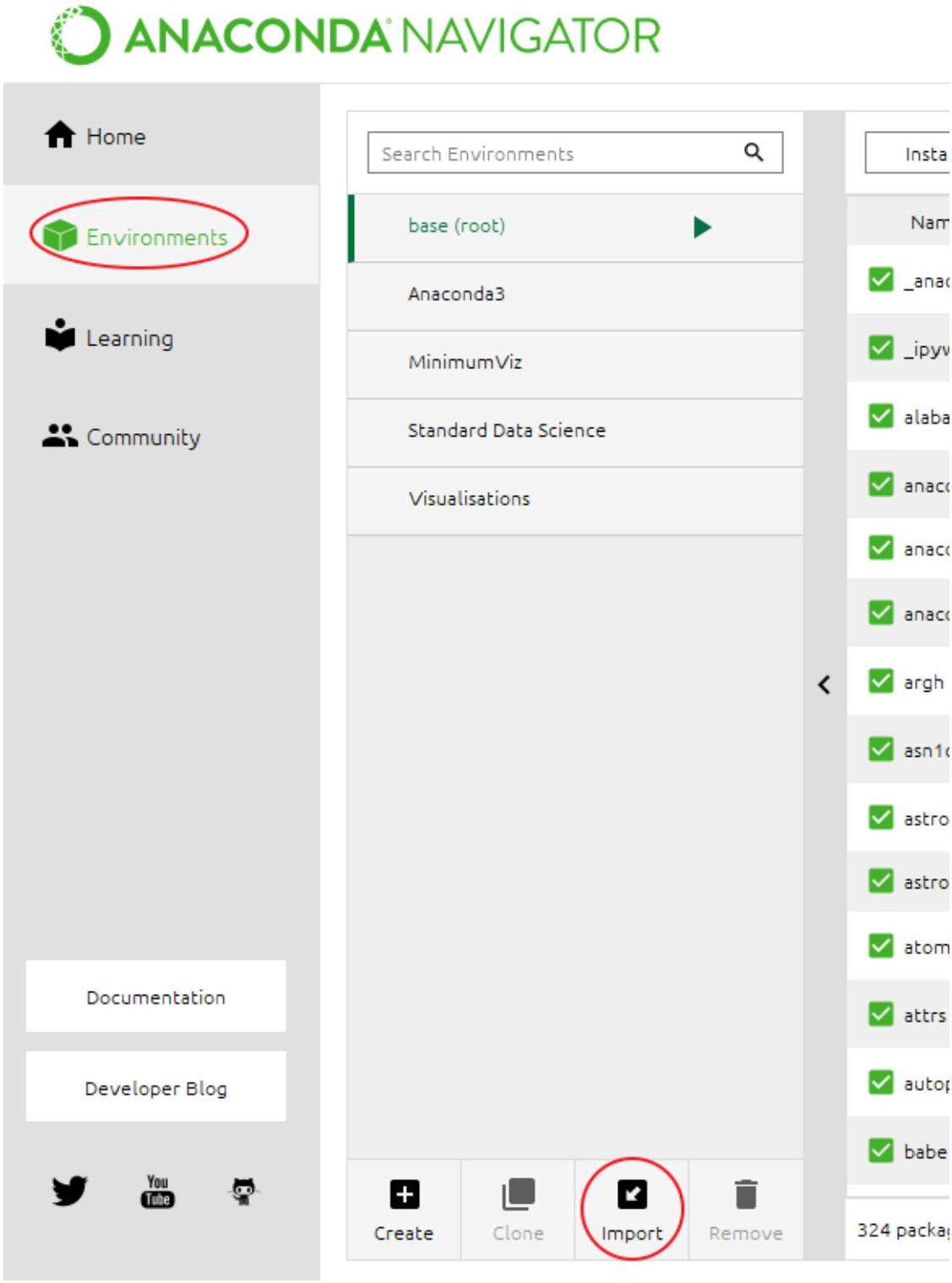
Setting up the packages.

Whenever starting a new project, it is recommended to create a new environment within conda for that specific purpose. There are two ways of doing this, either manually or automatically using the packaged `conda_env.yml` file. We will first go over the way to do it automatically.

Automatically

Alternatively to the method described above, we can use the packaged `conda_env.yml` file to create a suitable environment automatically. To do so, we can either use the Anaconda Navigator, or use a command shell.

1. **Anaconda Navigator**
    1. Open up Navigator and go to the Environments tab.
    2. Click the Import button in the lower left of the screen.



3. Now set the specification file to the `conda_env.yml` file located in the same folder as the bokeh application.
4. Now name the environment and click Import to start creating the environment.

1. **Command Shell**

    1. Open up a command shell with any conda environment activated and navigate to the directory containing `conda_env.yml`. For more information on how to open such a shell, see the **Manually** section.
    2. Now use the following command

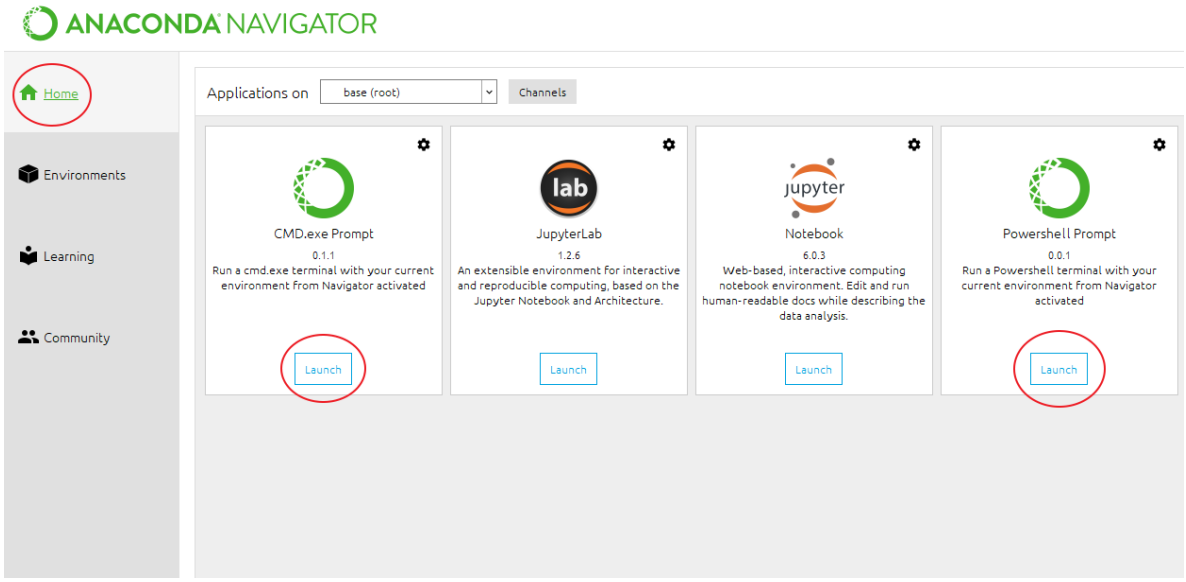
```
conda env create -f conda_env.yml
```

To create such a file yourself if you ever want to export an environment, use the following command (Windows PowerShell):

```
conda env export | out-file conda_env.yml -encoding ascii
```

Manually

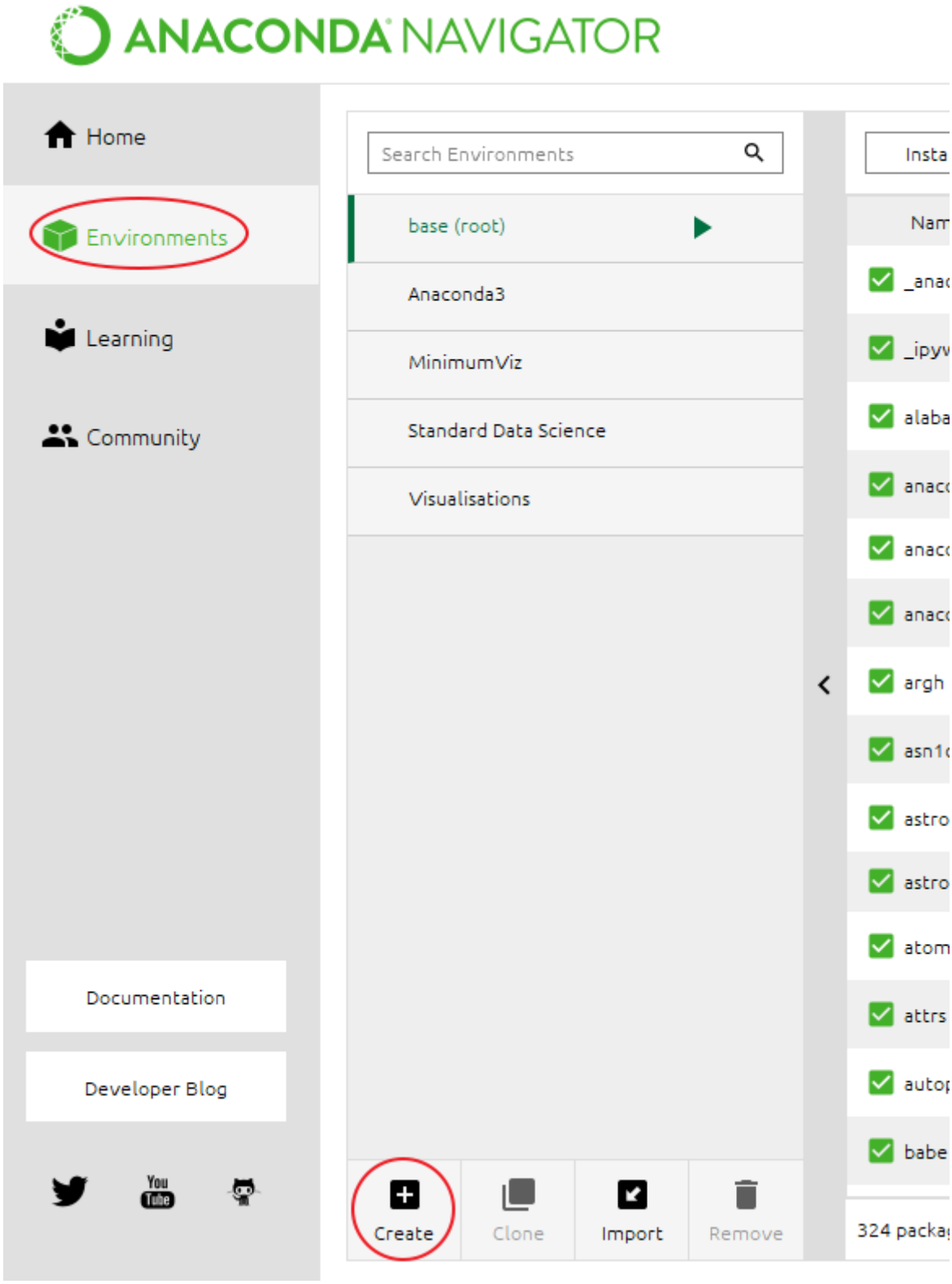
When doing things manually it can be done using a graphical UI via Anaconda Navigator or via a command shell. On Windows we still need to use Anaconda Navigator to open a command shell however. This can be done by opening Navigator, going to the Home tab and opening a *CMD.exe* or *Powershell Prompt*.



Creating a new environment

1. **Anaconda Navigator**

   Start by opening up Anaconda Navigator and going to the *Environments tab*, then click *Create*. Give it some evocative name and make sure Python 3.7 is selected. Now just wait until Anaconda finishes setting up the new environment, it should then appear in the Environment list at the left of the screen.



2. **Command Shell**

   Once you have a command shell open, you can use the following command to create a new environment with the name *myenv*:

   ```
   conda create --name myenv
   ```

   If you want to specify the version of python used in the environment you use the following command:

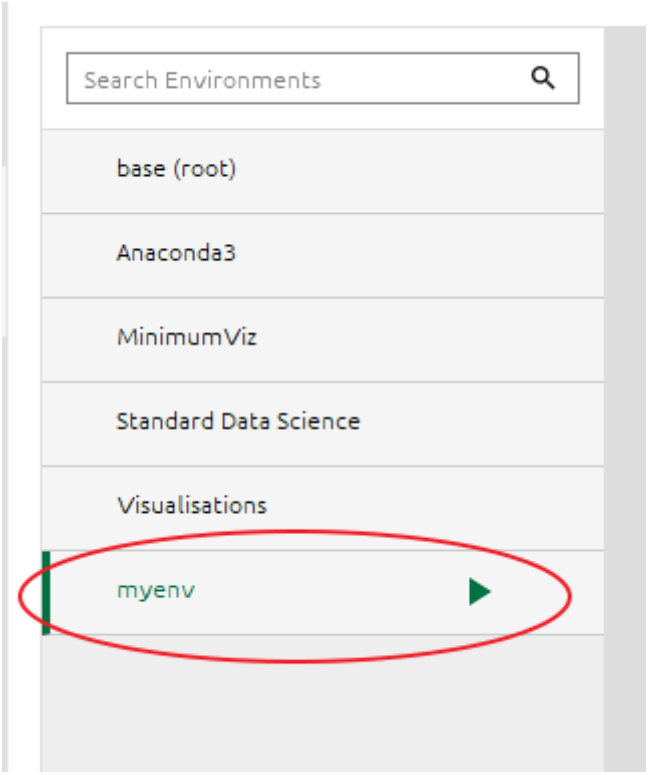
   ```
   conda create -n myenv python=3.7
   ```

For even more details on the usage of this command, type

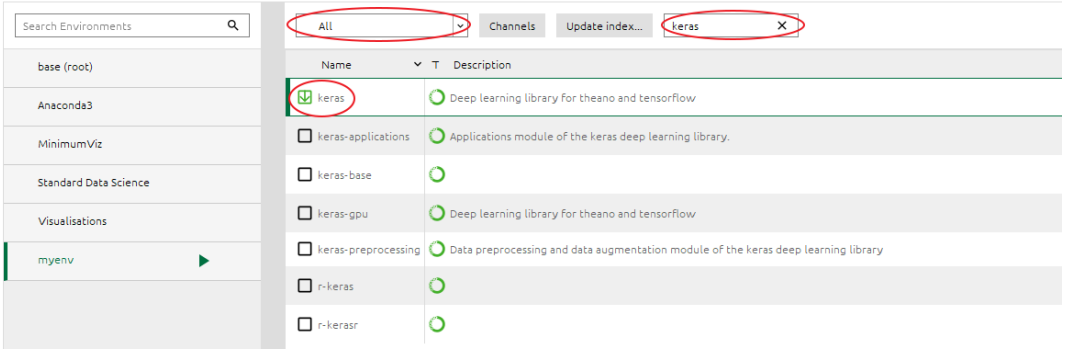
```
conda create --help
```

Installing packages

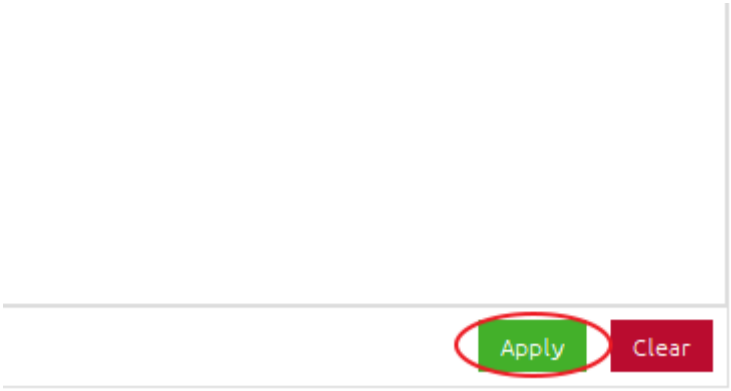
1. **Anaconda Navigator**
    1. In the Environments tab, select the Environment you want to install a package into.



    2. Make sure the dropdown menu at the top of the screen says either "Not installed" or "All"
    3. Then use the search bar at the top of the screen to search for the package(s) you want to install
    4. Then select the package(s) you want to install by clicking the selection box next to their name.



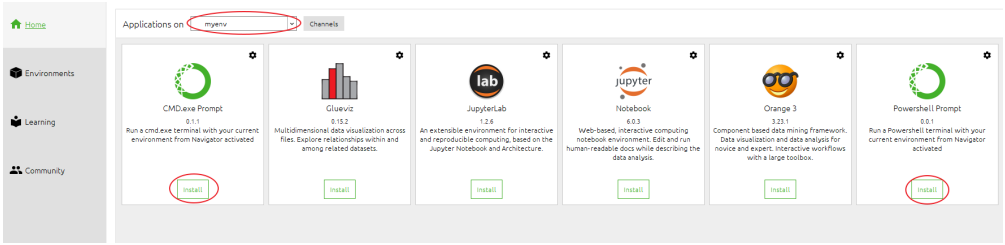
    5. Once you have selected all the packages you want to install, click Apply in the lower right corner.



2. **Command Shell**

    1. Make sure the environment you want to install into is activated. This can be done in two ways (*one is Windows only*).

        1. *(Windows Only)* This method is recommended for Windows users, as library loading may go awry due to the nature of the platform. First go to the Home tab in Navigator and select the environment you want to work in from the dropdown menu. Then launch a new *CMD.exe* or *Powershell Prompt*. Due to the fact that this is a new environment, they may need to be installed first.

        2. From the command shell itself you can use the following command to activate the environment "myenv"

        ```
        conda activate myenv
        ```

        Once the correct environment is activated, your shell should have the environment prepended to the Path, as in the image below.

3. We can now install any packages by using the following command, where *keras* is used as an example package.

    ```
    conda install keras
    ```

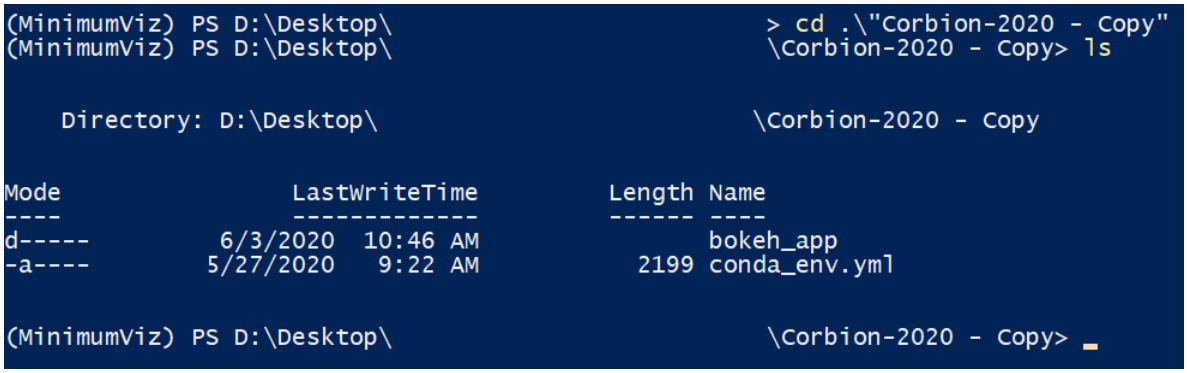
    For more information on the `conda install` command, take a look at its documentation.

You can now install the necessary packages ***numpy***, ***sklearn***, ***pandas***, and ***bokeh***.

Running the Application

To run the bokeh application we need to open a command shell with the correct environment activated. For more information on how to do so, see the previous sections. Once in the command shell, we need to navigate to the folder where the bokeh application is located. As per the image below, this folder should only contain a subfolder called `bokeh_app` and a file called

`conda_env.yml`. We can also see that the conda environment `MinimumViz` is activated, which contains all necessary packages.



Once in this position we can use the following command (*Unix*) to run the bokeh application, which should automatically open in your browser.

```
bokeh serve --show ./bokeh_app
```