SETTING UP SPYDER AND ANACONDA - MDD

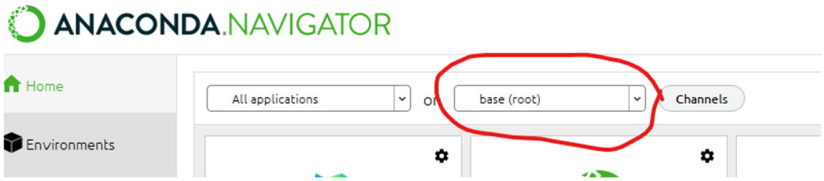
In this minor we will be using Spyder as our Integrated Development Environment (IDE). We will use the package that comes up with Anaconda.

You may choose to use any other IDE, for example Juypter notebook, VSCode or any other. For the ones that are new, we advice you to use Spyder.

Setting up a development environment for data science typically involves installing and configuring the necessary tools and libraries. In this case, we'll focus on setting up Spyder, which is an Integrated Development Environment (IDE), and Anaconda, a popular Python distribution that comes bundled with many data science libraries.

Download, Install and Setup Instructions:

1. Download and Install Anaconda:
   - Visit the Anaconda website (https://www.anaconda.com/products/individual) and download the appropriate version of Anaconda based on your operating system (Windows, macOS, or Linux).
   - Run the downloaded installer and follow the on-screen instructions to complete the installation process.
   - During the installation, you'll be prompted to choose whether to add Anaconda to your system's PATH variable. It's recommended to select this option to make it easier to use Anaconda from the command line.
2. Open Anaconda Navigator:
   - Once the installation is complete, open Anaconda Navigator. On Windows, you can find it in the Start menu. On macOS, it should be in your Applications folder.
   - Anaconda Navigator is a graphical interface that allows you to manage and launch various tools and environments.
3. Create a new environment:
   - In Anaconda Navigator, click on the "Environments" tab on the left sidebar.
   - Click the "Create" button to create a new environment.
   - Give your environment a name (e.g., "data-science") and choose the Python version (preferably the latest stable version).
   - Optionally, you can also select specific packages or libraries to be installed in this environment, but it's not necessary at this stage.
   - Click the "Create" button to create the environment. This may take a few moments.
4. Launch Spyder:
   - Once the environment is created, go back to the "Home" tab in Anaconda Navigator.
   - Select the Environment you just created. Use the pulldown menu:



   - In the list of installed applications, you should see Spyder. Click the "Launch" button next to it.
   - Spyder will launch within the environment you created.

5. Start coding in Spyder:

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- Now that Spyder is open, you can start writing and running your data science code.
- Spyder provides a multi-window interface with an editor for writing code, an IPython console for interactive execution, and various other helpful features for data science development.
- You can create new Python scripts, open existing ones, or create Jupyter notebooks from the "File" menu in Spyder.

That's it! You have successfully set up a development environment for data science with Spyder and Anaconda. You can now start exploring and analyzing data using Python and the powerful libraries provided by Anaconda.

Next we will install some packages to be able to run the codes.

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Installing packages:

To install Python packages in an Anaconda environment, you can use either Anaconda Navigator or the command line. Here's how to do it using the command line:

1. Open Anaconda navigator.
2. Select the desired environment in the left window pane.
3. Click on the green 'triangle' and choose 'open terminal'. This will open Anaconda Prompt in the system's terminal.
4. Once you are inside the desired environment, you can install packages using conda or pip. Here are the two options:
   - Using conda: Conda is the package manager that comes with Anaconda. It manages both Python and non-Python packages. To install a package with conda, use the following command:
     - Conda install <package name>

     Let us practice to install openpyxl used to open excel files in python. Install this package.

   - Using pip: Pip is a widely used package manager for Python. It is also compatible with Anaconda environments. To install a package with pip, use the following command:
     - Pip install <package name>
5. You can choose either conda or pip based on your requirements. Generally, it is recommended to use conda for packages available through the Anaconda distribution and pip for packages not available through conda.
6. After executing the installation command, Anaconda will download and install the package along with its dependencies.

That's it! The package should now be installed in your Anaconda environment and ready to use.

Install the following as your first package, if you have not done so yet:

Conda install openpyxl or pip install openpyxl

Don't forget to click on 'update index' in the Anaconda interface.

Using a Working directory

Setting up a working directory in Spyder is important because it allows you to keep your files organized and makes it easier to access them. The working directory is the folder where your Python code is executed. When you run a script in Spyder, it will use the working directory as the default location for file input and output.

By default, Spyder sets the working directory to the directory where the script is located. However, you can change the working directory to any other folder on your computer. Do this as follows:

Go to Tools>Preferences>Working Directory, and scroll down to 'working directory'. Choose the directory (folder) you want to use.