CEMFI Diploma in Banking Supervision: Data Science

Software Installation Notes

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We will be using Python for this course. For simplicity, we will be using the Anaconda distribution, which is a popular distribution of Python (and R) that aims to simplify the management of packages. We will also be using the Visual Studio Code (VS Code) as our code editor.

Anaconda Installation

The first step is to install the Anaconda distribution:

1. Download the Anaconda distribution from anaconda.com. Note: If you are using a M1 Mac (or newer), you have to choose the 64-Bit (M1) Graphical Installer. With an older Intel Mac, you can choose the 64-Bit Graphical Installer. With Windows, you can choose the 64-Bit Graphical Installer (i.e., the only Windows option).
2. Open the installer that you have downloaded in the previous step and follow the on-screen instructions.
3. If it asks you to update Anaconda Navigator at the end, you can click `Yes` (to agree to the update), `Yes` (to quit Anaconda Navigator) and then `Update Now` (to actually start the update).

To **confirm that the installation was successful**, you can open a *terminal window* on macOS/Linux or an *Anaconda Prompt* if you are on Windows and run the following command:

```
conda --version
```

This should display the version of Conda that you have installed. If you see an error message, the installation was likely not successful and you should ask for advice from your peers or send me an email.

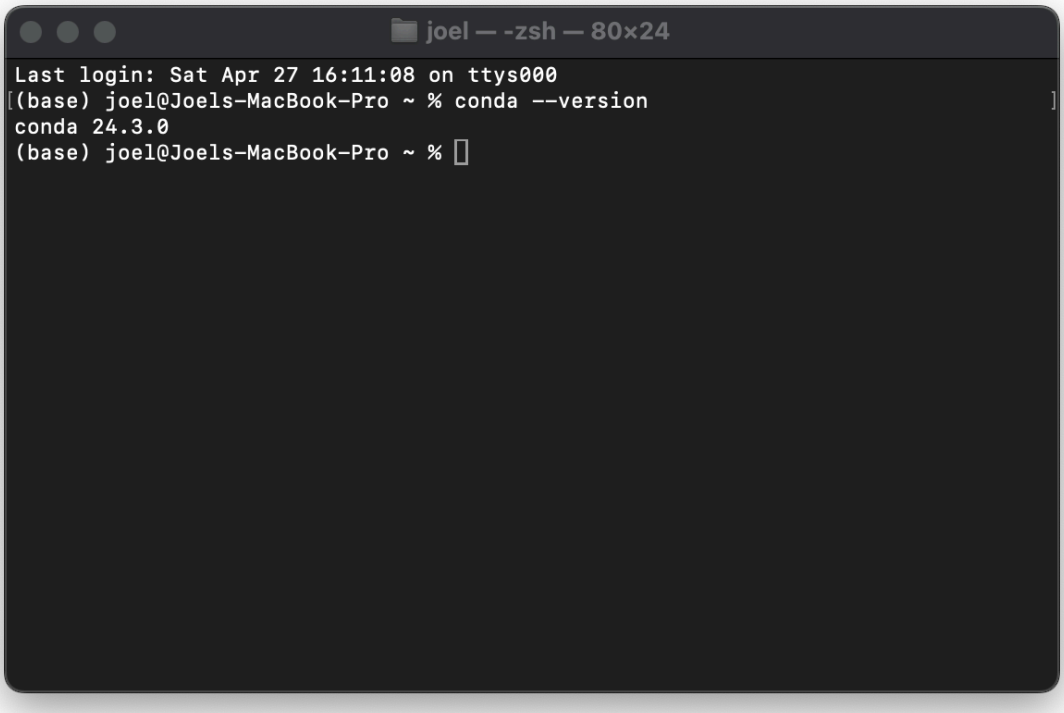

Figure 1: Terminal Output after Anaconda Installation

Creating a Conda Environment

Next, we want to create a new environment for this course that contains the correct Python version and all the Python packages we need. We can do this by creating a new Conda environment from the `environment.yml` provided on Moodle.

1. Open a *terminal window* on macOS/Linux or an *Anaconda Prompt* if you are on Windows.
2. Navigate to the folder where you have downloaded the `environment.yml` file. On macOS/Linux, you can do this by running the following command in the terminal:

   ```
   cd ~/Downloads
   ```

   which will navigate to the `Downloads` folder in your home directory.

   On Windows, you can do this by running the following command in the Anaconda Prompt:

   ```
   cd %userprofile%/Downloads
   ```

   which will navigate to the `Downloads` folder in your user profile.
3. Create a new Conda environment from the `environment.yml` file by running the following command in the terminal or Anaconda Prompt:

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

   This will create a new Conda environment called `datascience_course_cemfi` with the correct Python version and all the Python packages we need for this course. Note that the installation

might take a few minutes.

4. Activate the new Conda environment by running the following command in the terminal or Anaconda Prompt:

   ```
   conda activate datascience_course_cemfi
   ```

To **confirm that the environment was created successfully**, you can run the following command in the terminal or Anaconda Prompt:

```
python --version
```

This should display Python version 3.8.8. If you see another Python version you might have forgotten to activate the environment or the environment was not created successfully.

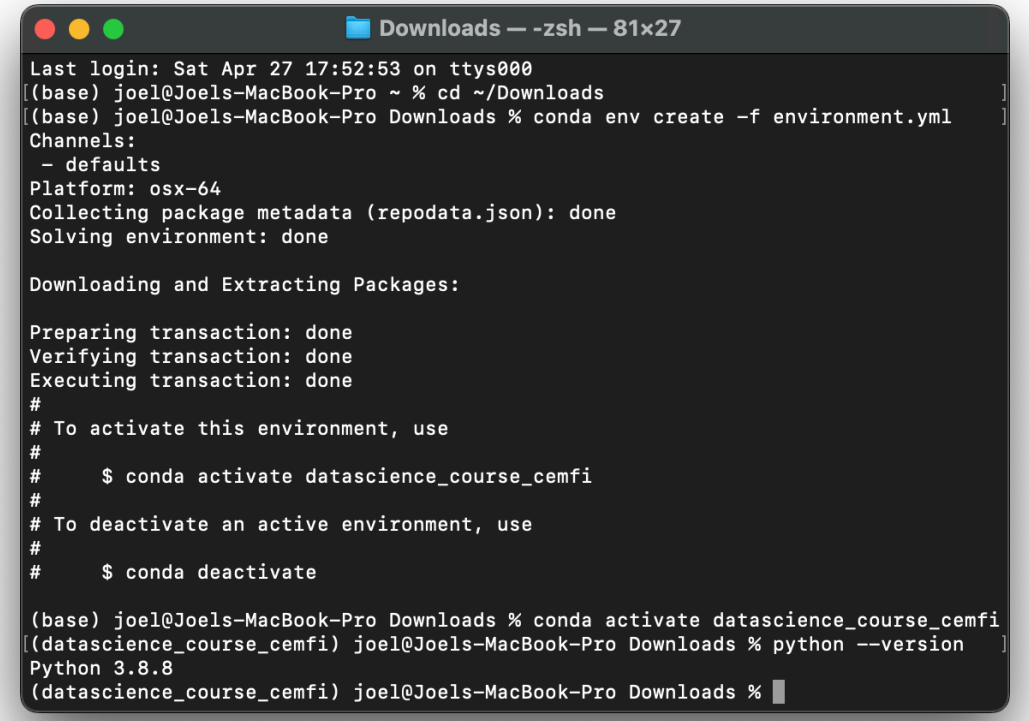

Figure 2: Terminal Output From Environment Creation

Resetting or Updating a Conda Environment

If you accidentally make changes to the environment and want to reset it to the original state, you can do this by navigating to the folder where you have downloaded `environment.yml` and then running the following command in the *terminal* or *Anaconda Prompt*:
`conda env update --file environment.yml --prune`
This can also be used to update the environment if we add new packages to the `environment.yml`

file.

Installing VS Code

The last step is to install the Visual Studio Code (VS Code) editor:

1. Download the Visual Studio Code editor from code.visualstudio.com.
2. Open the installer that you have downloaded in the previous step and follow the on-screen instructions.

We also need to install some VS Code extensions that will help us with Python programming and Jupyter notebooks:

1. Open VS Code.
2. Click on the `Extensions` icon on the left sidebar (or press `Cmd+Shift+X` on macOS or `Ctrl+Shift+X` on Windows).

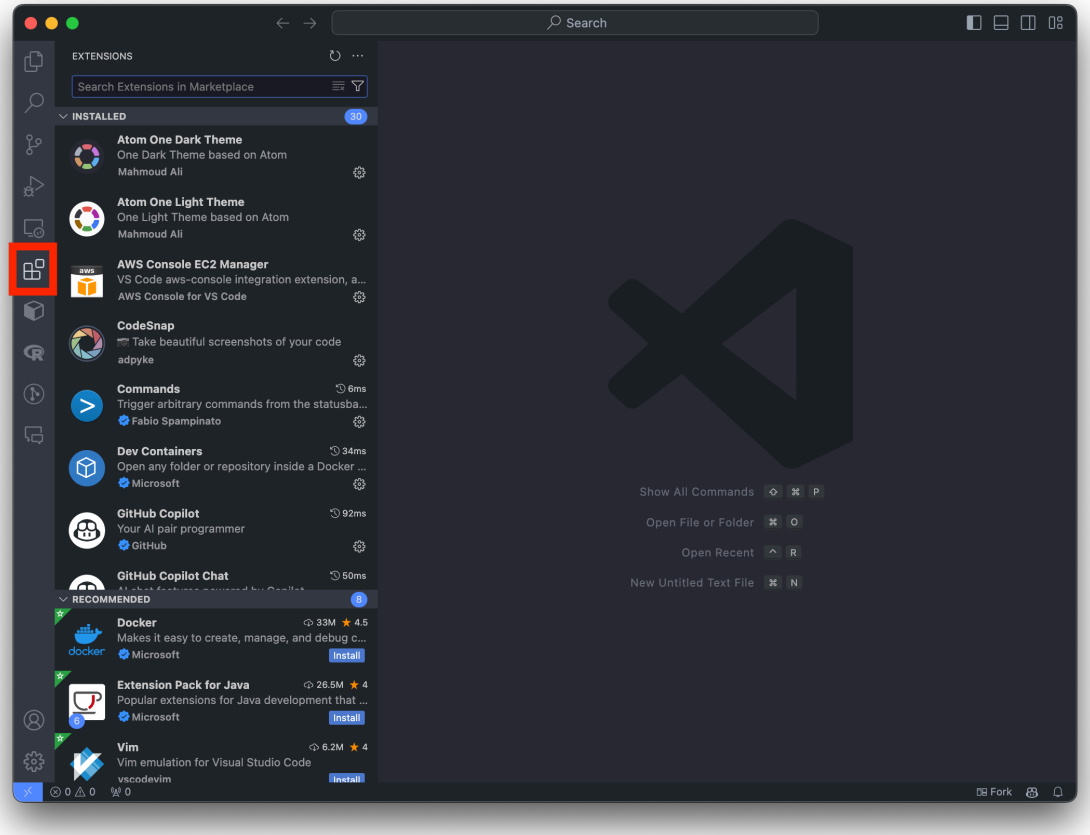

Figure 3: Installing Extensions in VSCode

3. Search for `Python` and click on the `Install` button for the extension that is provided by Microsoft.

4. Search for `Jupyter` and click on the `Install` button for the extension that is provided by Microsoft.

Testing the Installation

To test the installation, you can download a Juypter notebook from Moodle and open it in VS Code:

1. Open the Jupyter notebook in VS Code.
2. Click on `Select Kernel` in the top right corner of the notebook and choose the `datascience_course_cemfi` kernel.

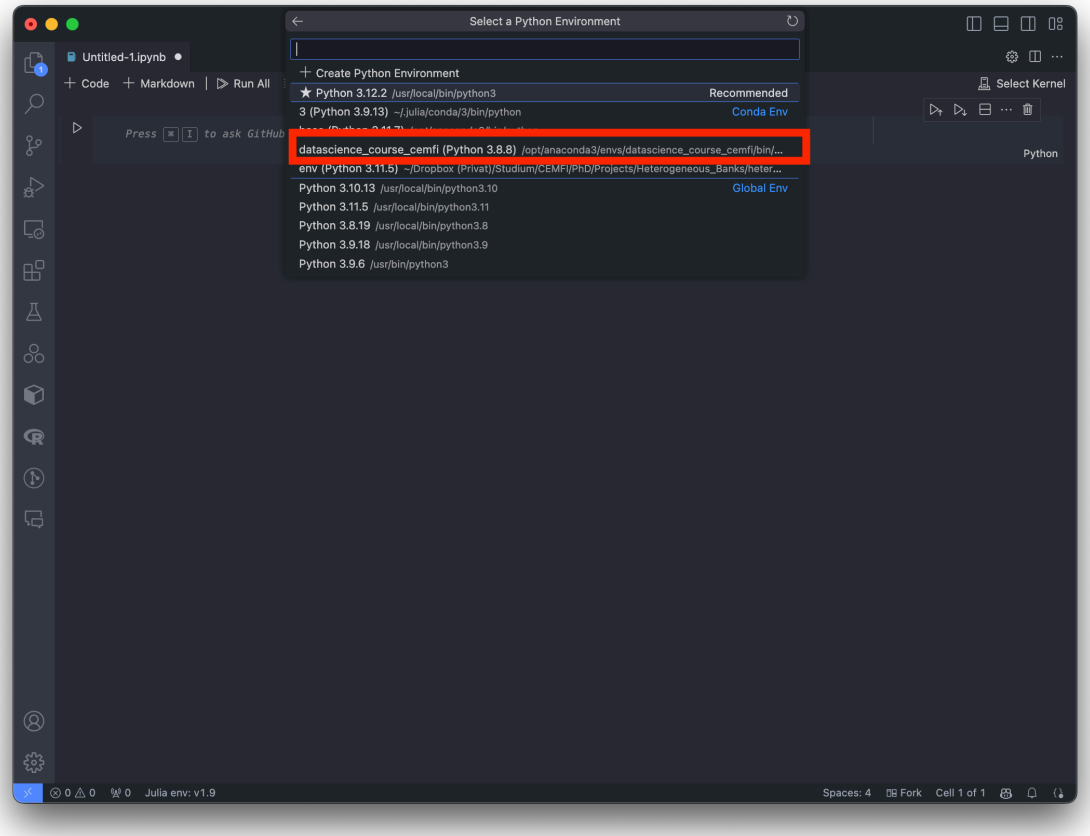

Figure 4: VSCode Jupyter Kernel Selection

3. Run the first cell of the notebook by clicking on the `Execute Cell` button next to the cell on the left.

If you see the output of the cell (or a green check mark below the cell), the installation was successful.

> **Running Jupyter Notebooks in the Browser**
>
> If you have issues running Jupyter notebooks in VSCode, you can also run them in the browser. To do this, you can open a *terminal window* on macOS/Linux or an *Anaconda Prompt* if you are

on Windows and run the following command:
`jupyter notebook`
This will open a new tab in your default browser with the Jupyter notebook interface. You can then navigate to the folder where you have downloaded the course materials and open the notebooks from there.