

Installing Anaconda R and R Studio



CE 5331 Machine Learning for Civil Engineers

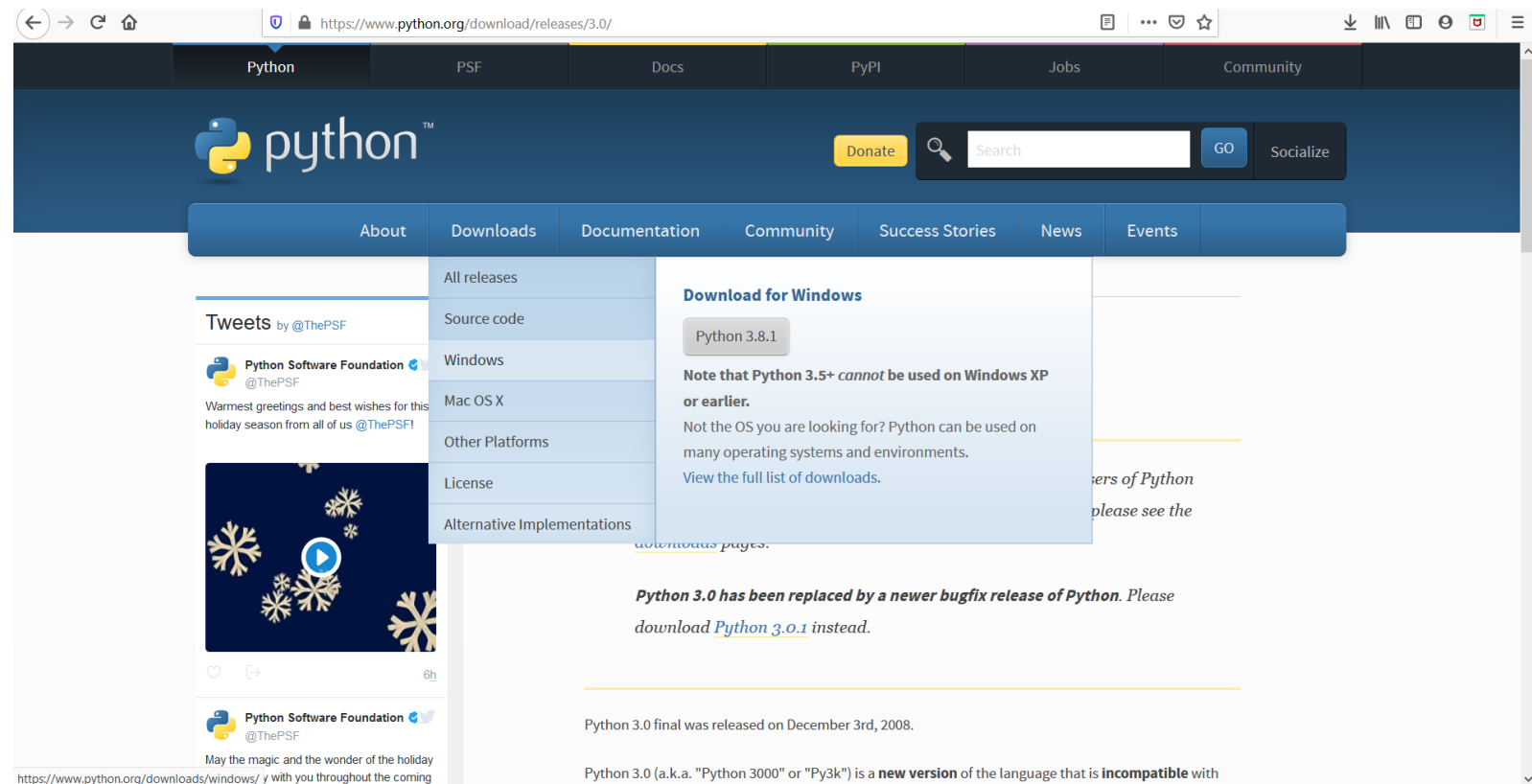
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Goals

- Install Python 3.8 through Anaconda Data Science Platform
- Python IDEs within Anaconda
 - Spyder
 - Jupyter Notebook
- How to use Anaconda Navigator to update files

Native Python

- You can get native python from www.python.org
- Several IDEs are available
- Site has useful information on learning Python



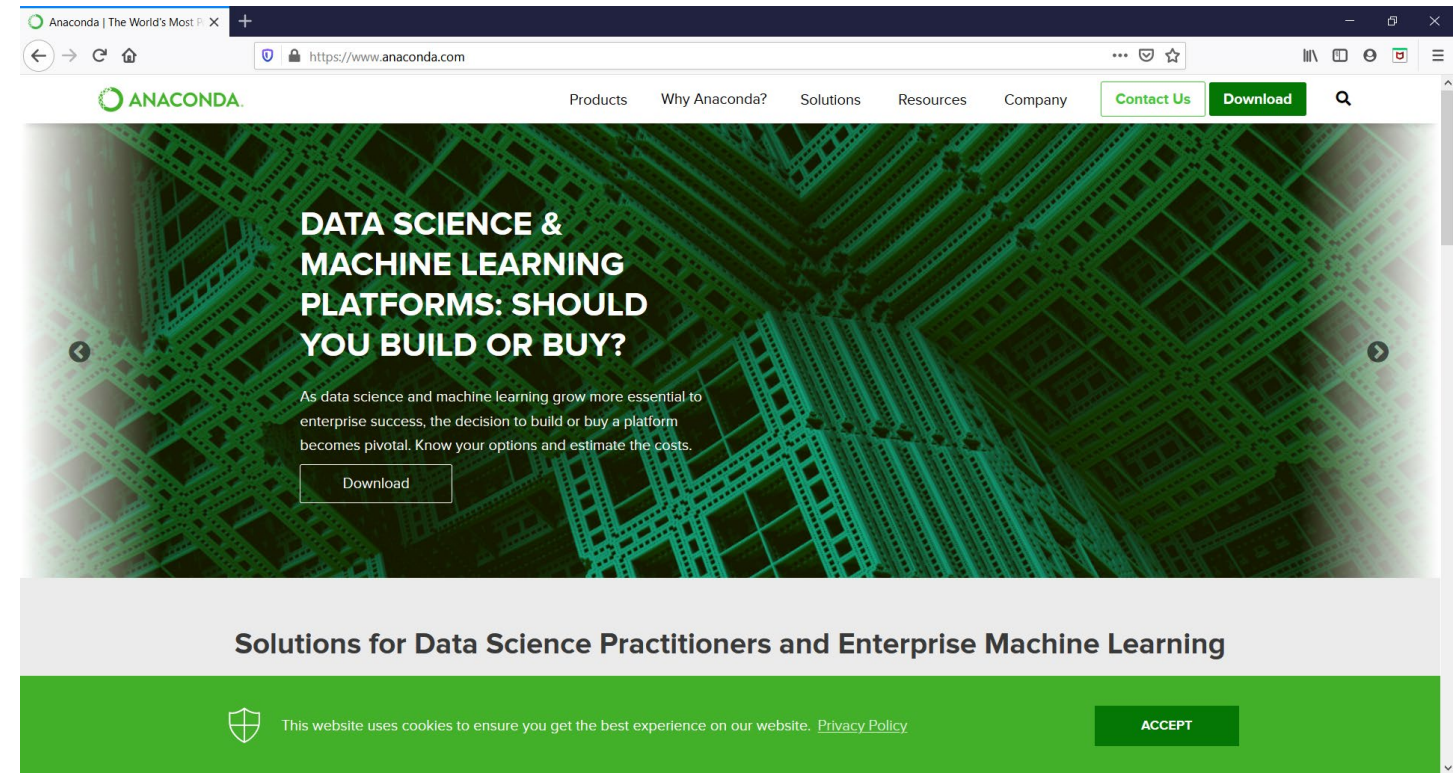
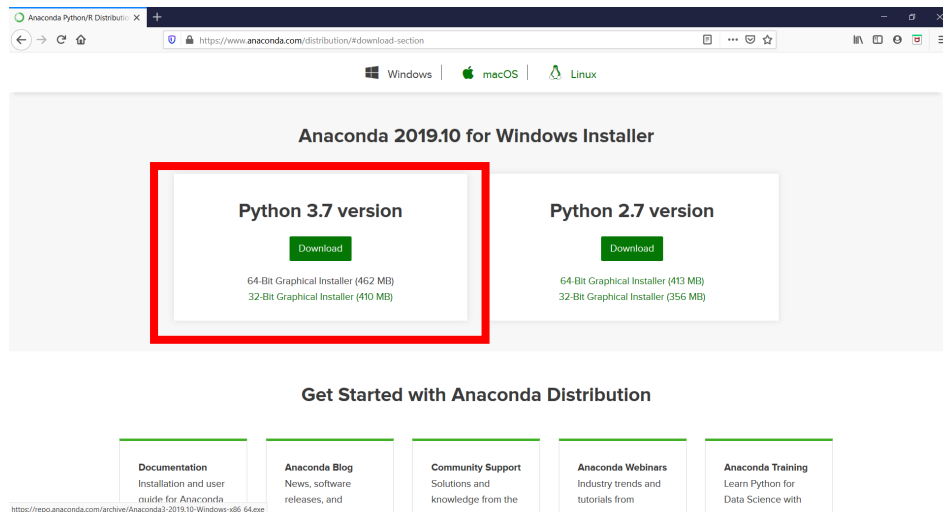
While native Python will work for this class. It is easier to work with an installation that is focused on data science and machine learning

Anaconda

- An environment for quickly developing Python/R data science projects
- Available on major computing platforms
 - Windows, Mac, Linux
- 15+ million users worldwide <https://www.anaconda.com/>
 - Open-Source
- Supports 1500+ Python and R packages
- Provides access to learning modules and materials
- Can be used to both prototype and develop at scale applications

Installing Anaconda

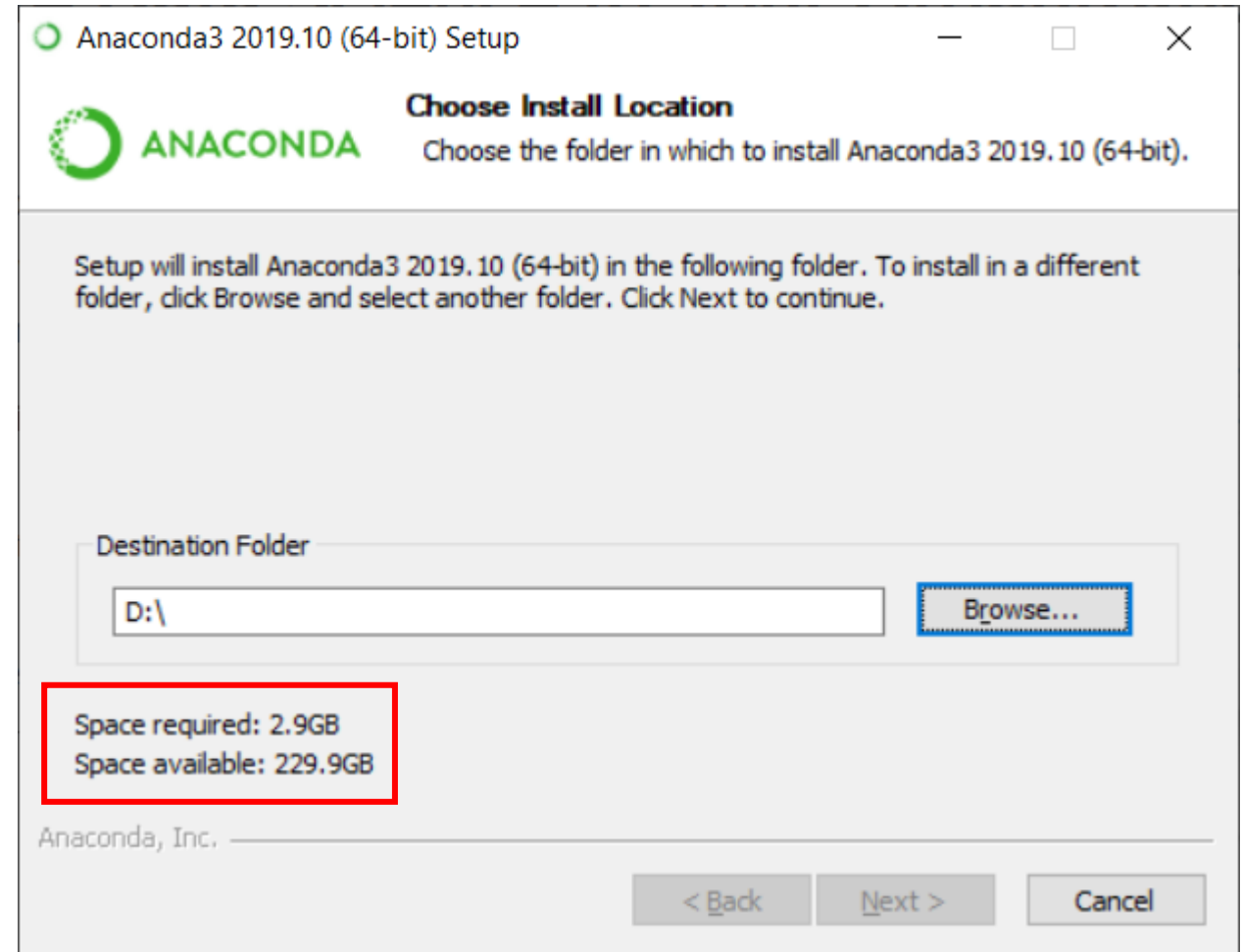
- www.anaconda.com
- Python 3.7
 - 64 bit windows



Anaconda is one of the Python installation that is optimized for Data Science and Machine Learning

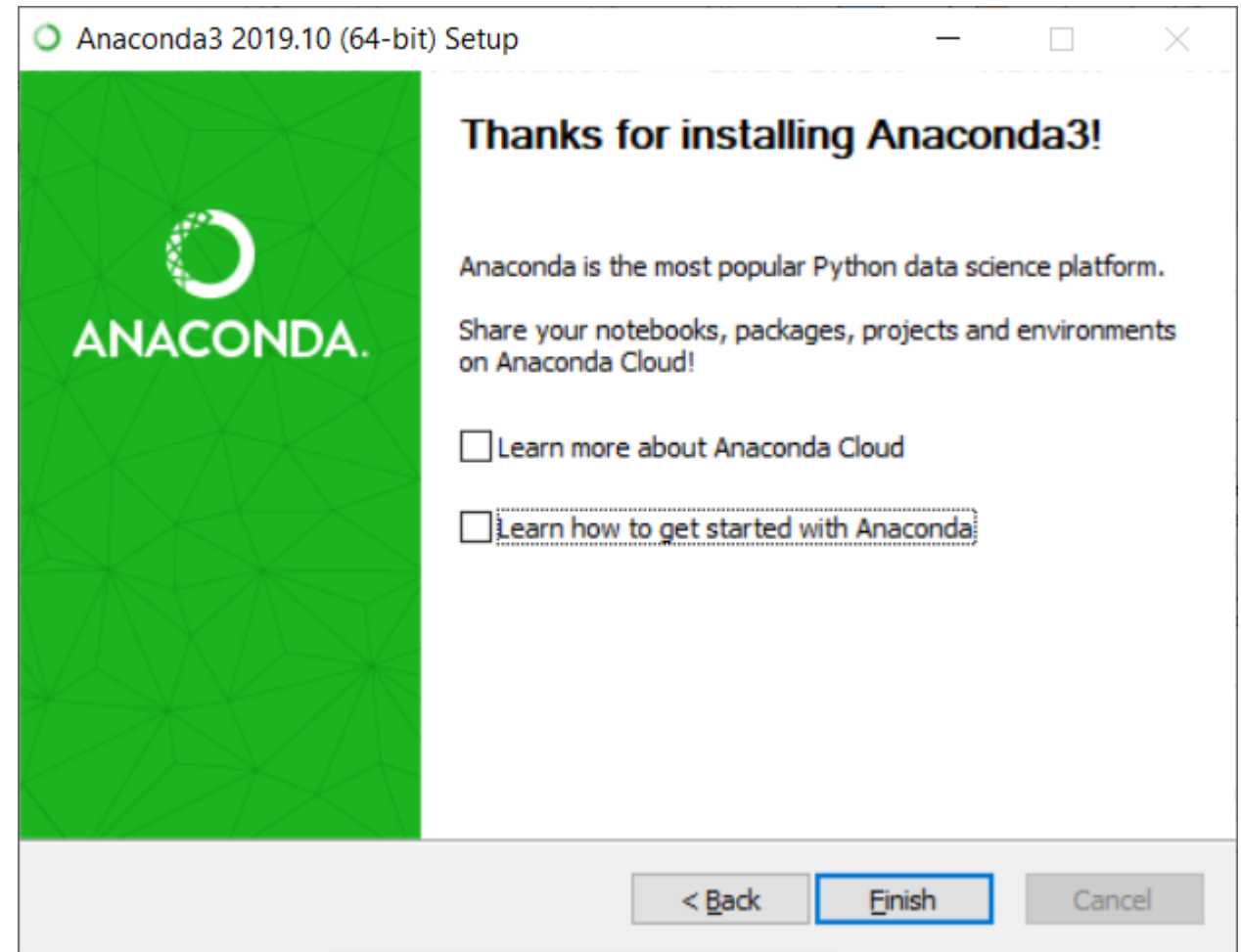
Anaconda is Big

- Anaconda requires approximately 3.0 GB for installation
- Put Anaconda in its own separate folder
- Choose a drive that has sufficient memory



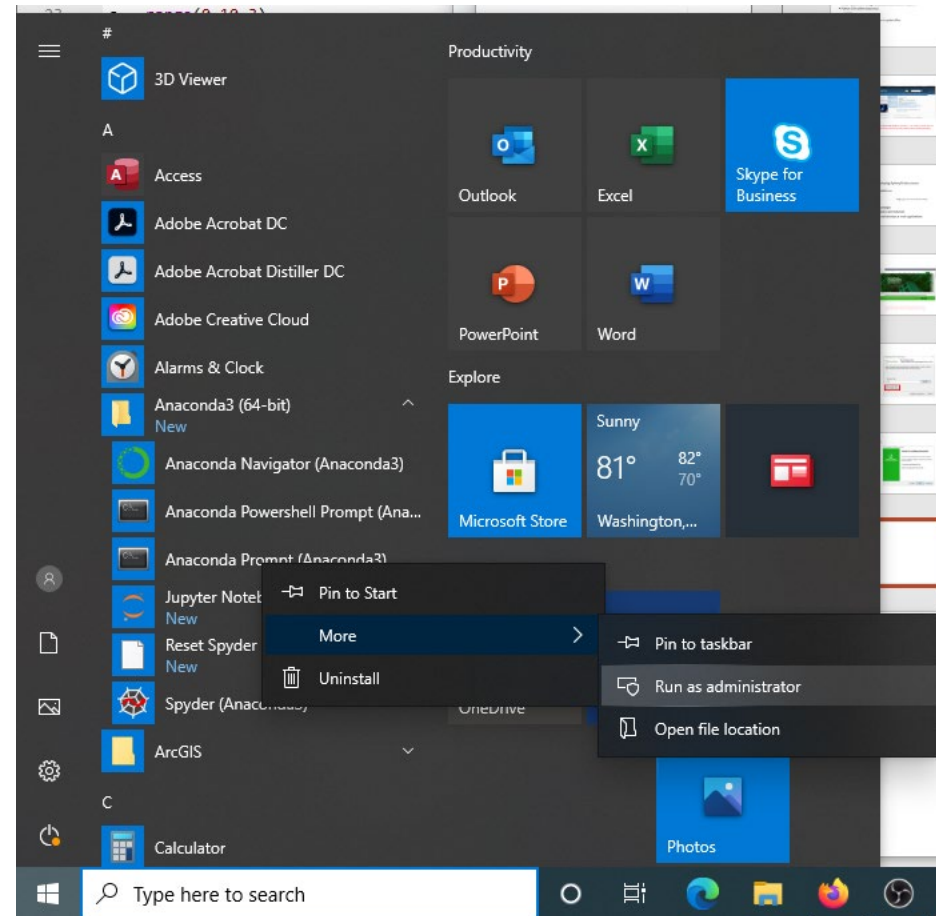
Anaconda Installation

- You can accept defaults for most part
 - Decide if the installation is just for you or for everyone (need administrative access in case of latter)
- Installation takes time
 - Be patient
 - Try doing it at school or on a high-speed setting



Updating Anaconda

- You can use conda update function to update anaconda
- This process takes some time so be patient
- You should update Anaconda before updating any new packages
- Run with Administrator Privileges



Updating Anaconda

Cannot Update
without telling
what to update

- Use conda update --all

```
Administrator: Anaconda Prompt (Anaconda3) - conda update --all

(base) C:\Windows\system32>conda update

CondaValueError: no package names supplied
# If you want to update to a newer version of Anaconda, type:
#
# $ conda update --prefix C:\ProgramData\Anaconda3 anaconda

(base) C:\Windows\system32>conda update --all
Collecting package metadata (current_repodata.json): done
Solving environment: done
```

```
Administrator: Anaconda Prompt (Anaconda3) - conda update --all

(base) C:\Windows\system32>conda update --all
Collecting package metadata (current_repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: C:\ProgramData\Anaconda3

The following packages will be downloaded:

  package | build | size
  -----|-----|-----
  conda-build-3.20.1 | py38_0 | 542 KB
  python-3.8.5 | h5fd99cc_1 | 15.7 MB
  -----|-----|-----
  Total: | | 16.2 MB

The following packages will be UPDATED:

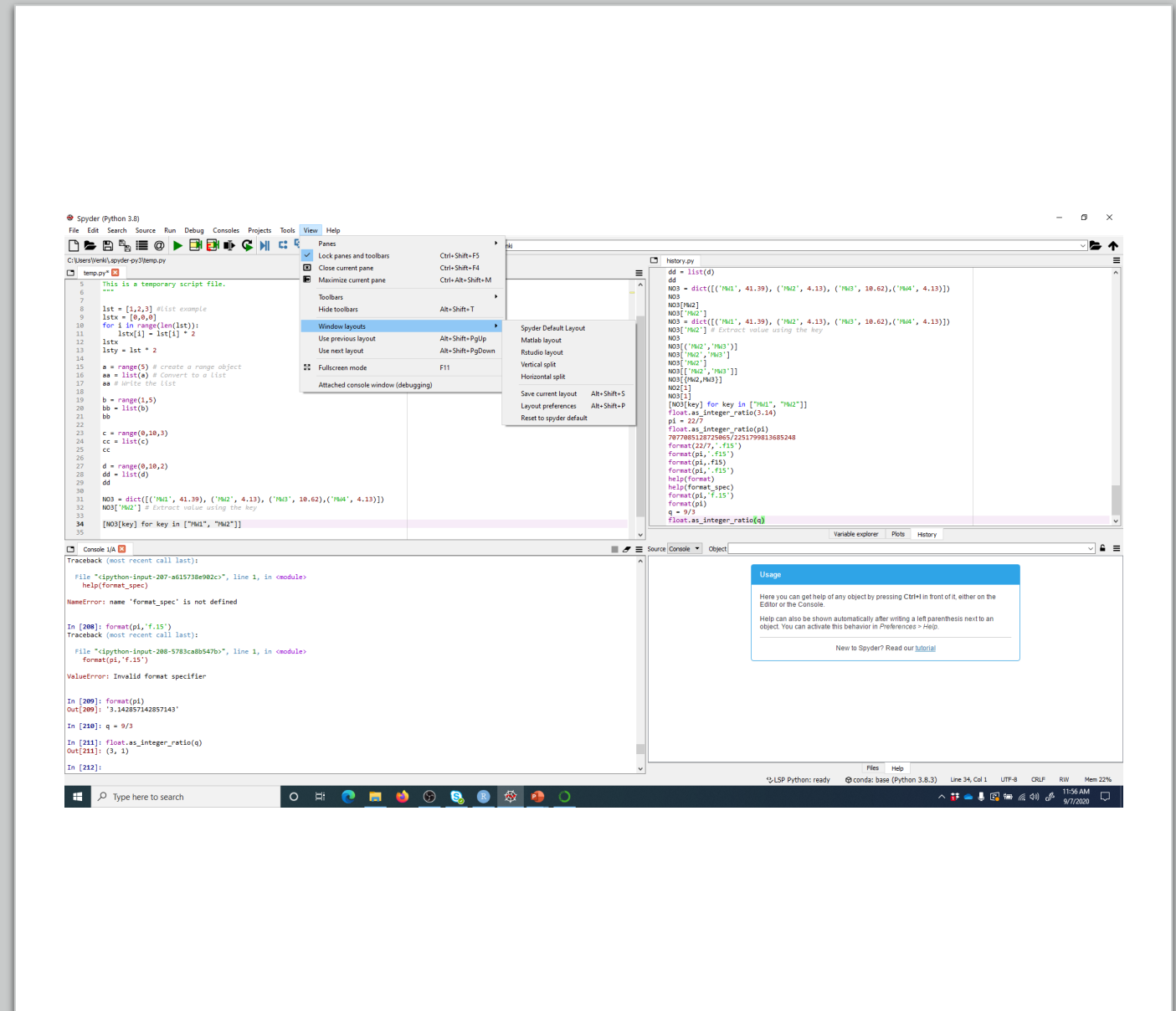
  conda-build 3.18.11-py38_1 --> 3.20.1-py38_0
  python 3.8.3-he1778fa_2 --> 3.8.5-h5fd99cc_1

Proceed ([y]/n)? y

Downloading and Extracting Packages
conda-build-3.20.1 | 542 KB | ##### 100%
python-3.8.5 | 15.7 MB | ##### 98%
```

Spyder IDE

- There are several Interactive Development Environments (IDEs) to run Python
- We shall use Spyder in this class
- Spyder has been developed with scientific computing in mind

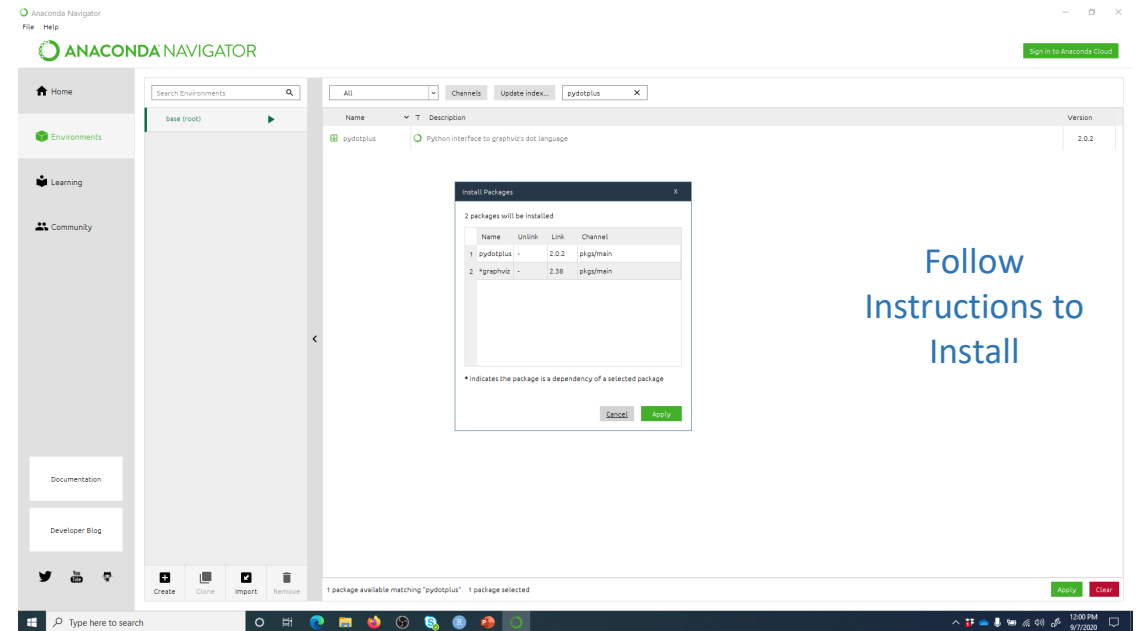
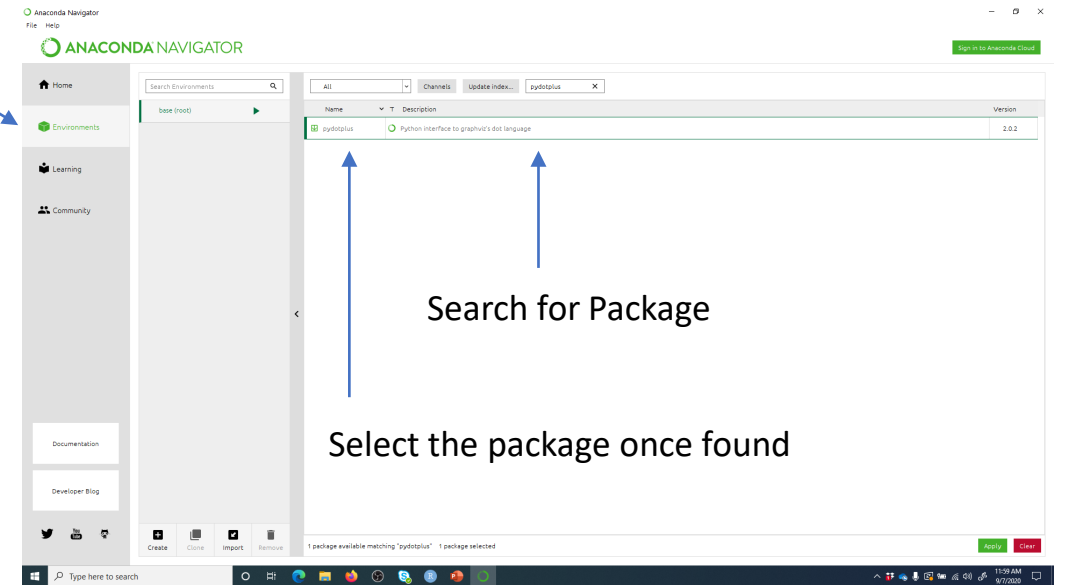


You can setup Spyder to R Studio layout

Installing Packages

- Go to the Environment in the Anaconda Navigator
 - Search and Install Packages
 - Will install from conda repository
- Packages can also be installed from command line
 - Use `conda install <package name>`
 - Typically works but might need additional arguments
 - First do `conda update anaconda` before installation

Click on
Environment



Follow
Instructions to
Install

You should Know



HOW TO INSTALL PYTHON 3.+
USING ANACONDA ENVIRONMENT



ANACONDA NAVIGATOR



SPYDER