Purpose

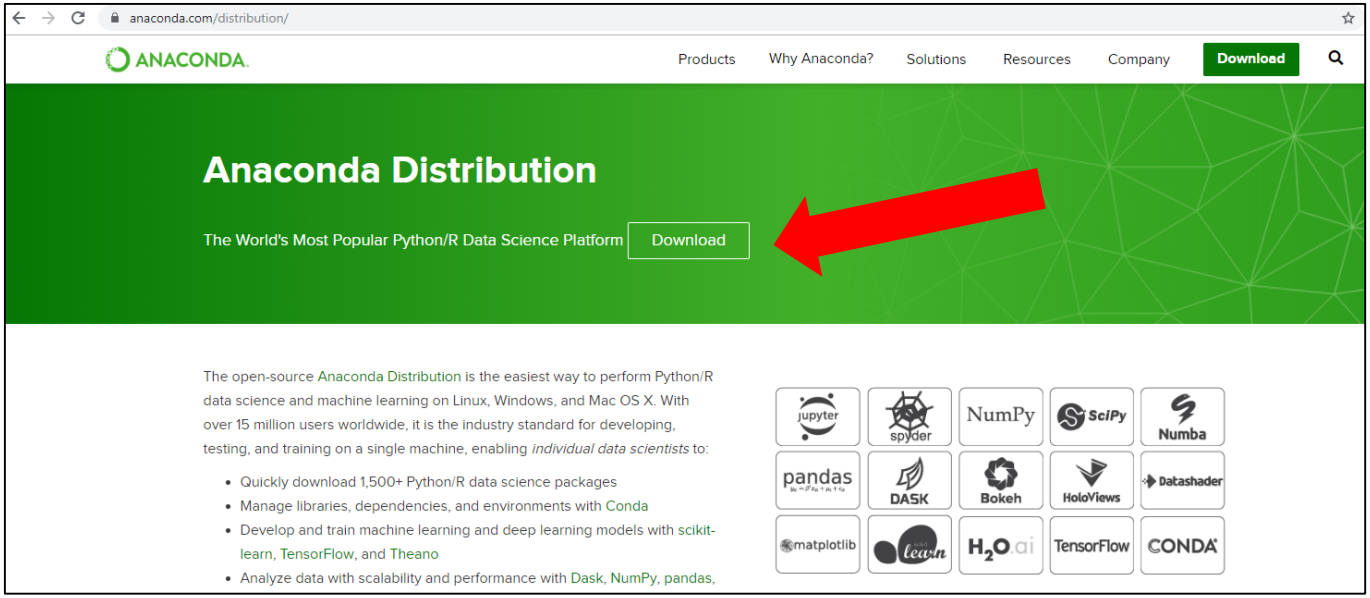
- This is an Anaconda installation step-by-step for Windows install on 64-bit p.c.

- The download and install is the same for macOS and Linux.

- This slide deck shows you how to open a terminal window in Windows so don’t worry if you are a newbie to Windows terminal commands!

Where can you get Anaconda?

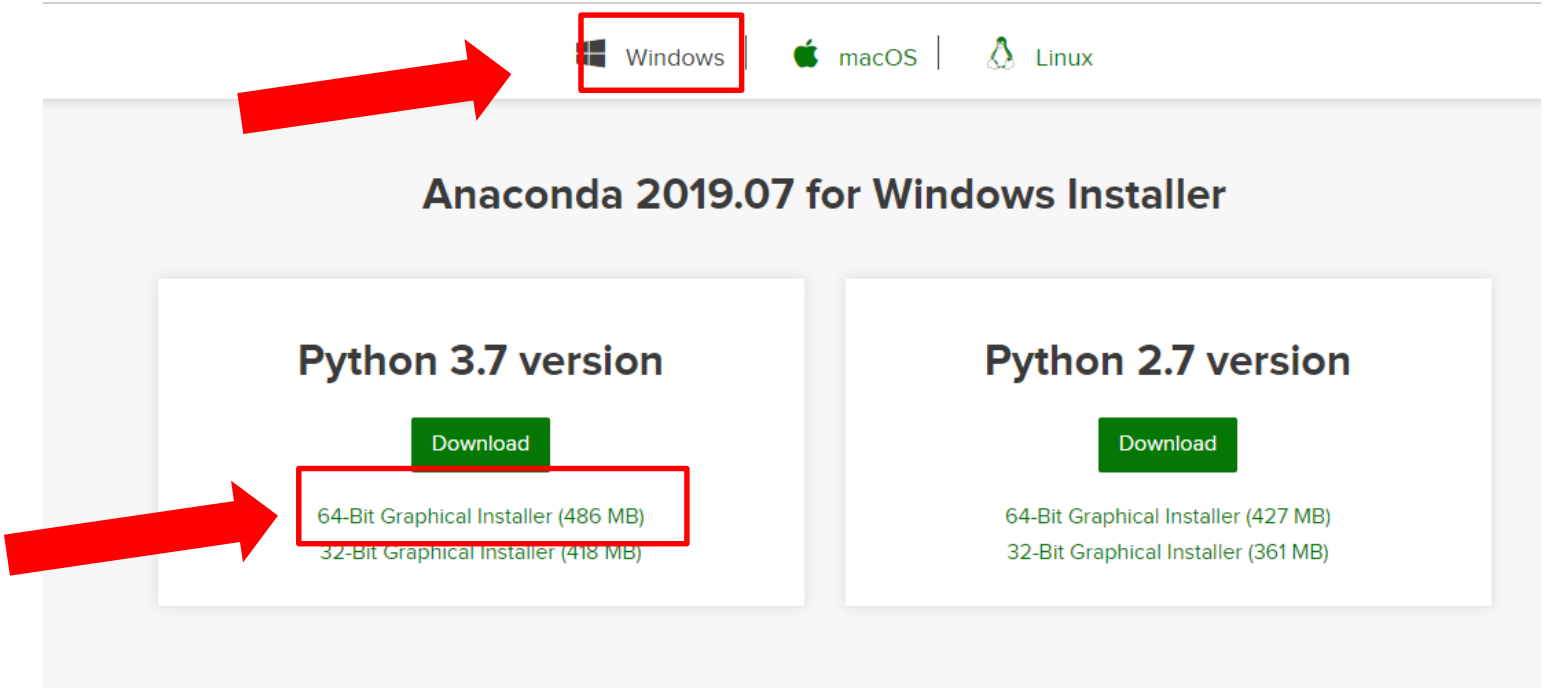
- Go to https://www.anaconda.com/distribution/
- Select Download



Start your Anaconda Download

- Select your operating system (Windows, macOS, Linux)

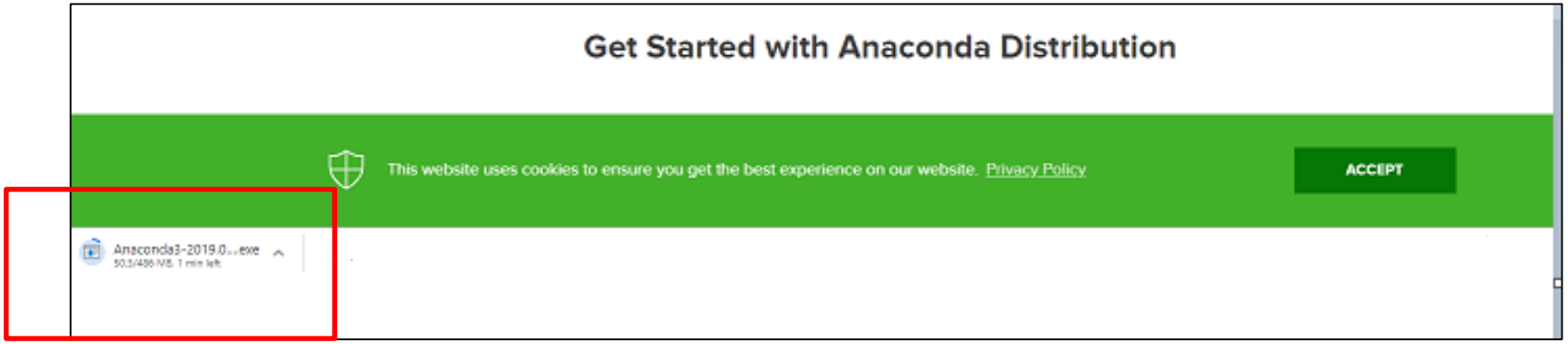
- Select Python 3.7 version with 64-bit installer if you have a 64-bit machine.
- Most likely you will. NOTE: This is for Windows install.

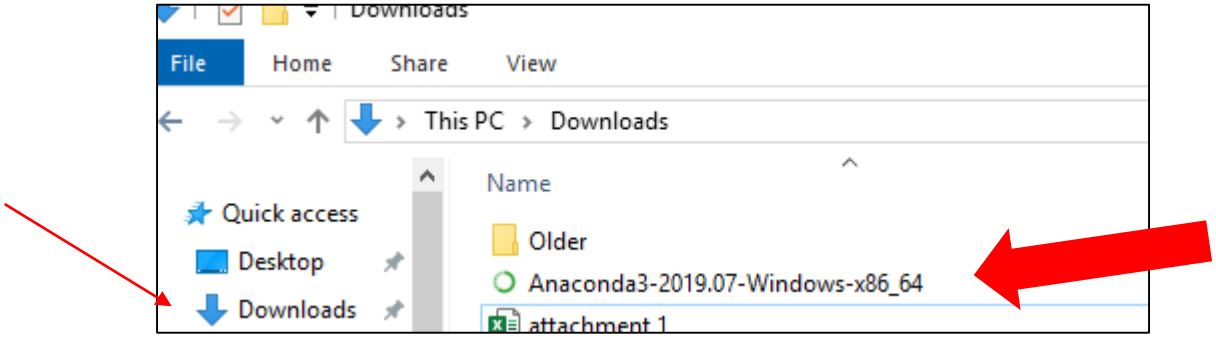


Get Started with Anaconda Distribution

Anaconda File Download - continued

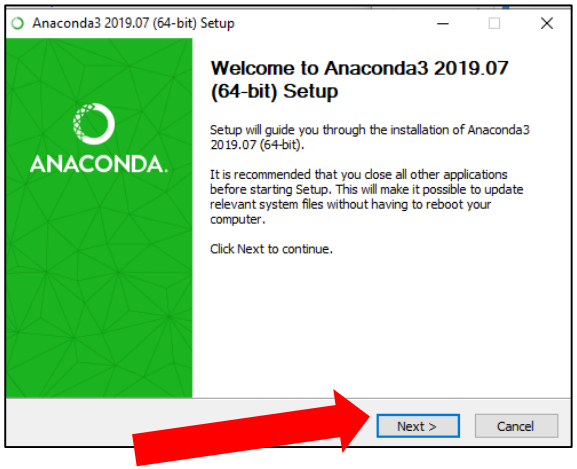
Once you select download you will see the following appear in your browser, bottom left. This is your Anaconda executable file and it will download to your **Downloads** folder.

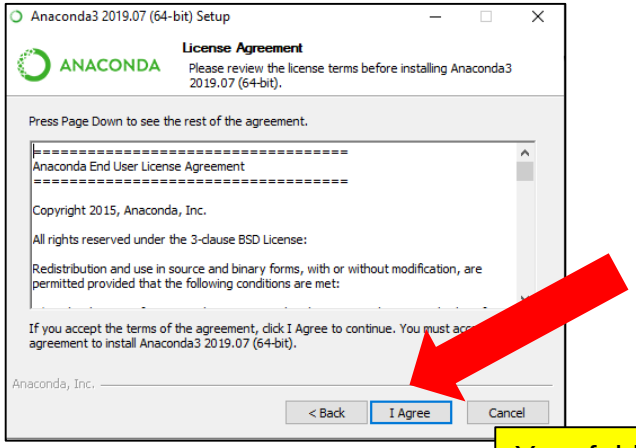


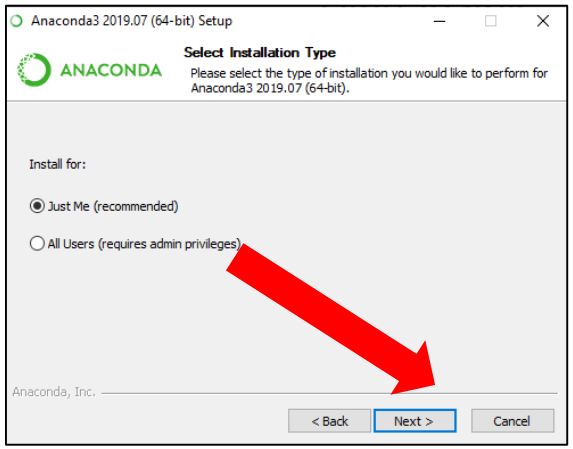


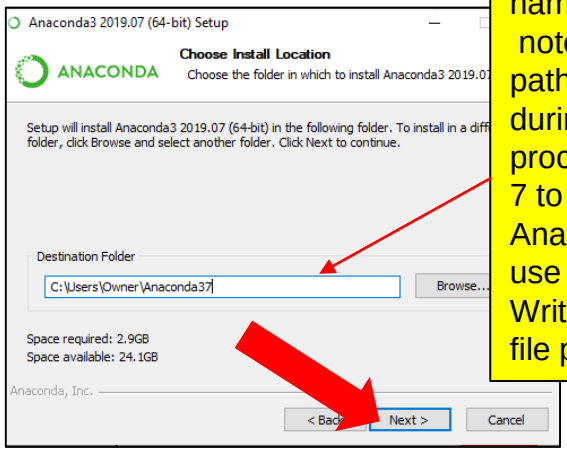
Start Install

- Select the file you downloaded – and click twice. You will see the following screen and then select Next and I agree on the following screen. See below and follow selections.





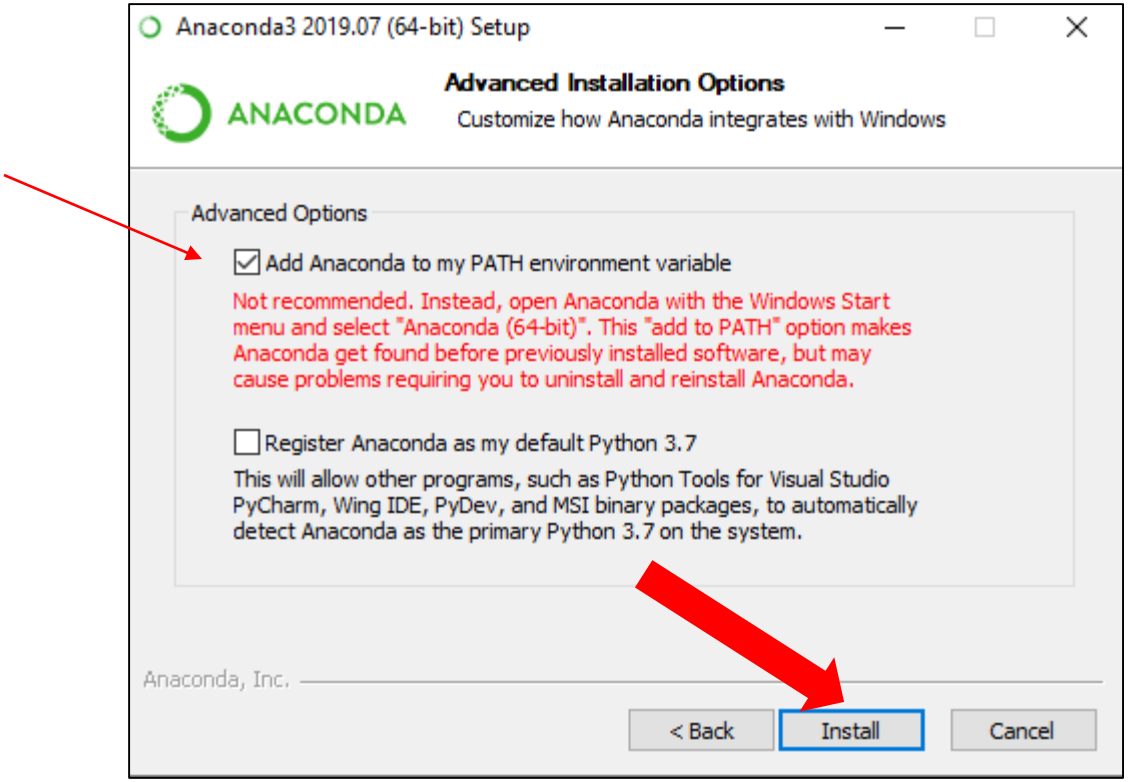




Your folder name will be noted here. This path is created during the install process. I added a 7 to the filename: Anaconda37. Generally use the default file path. Write down this file path and save it!

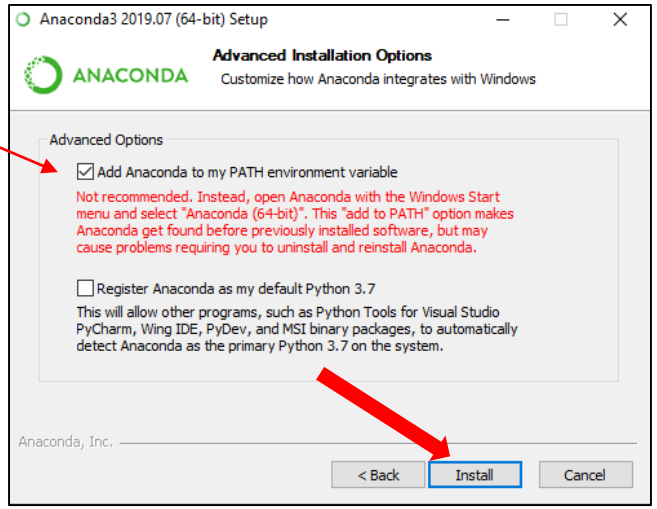
Install - continued

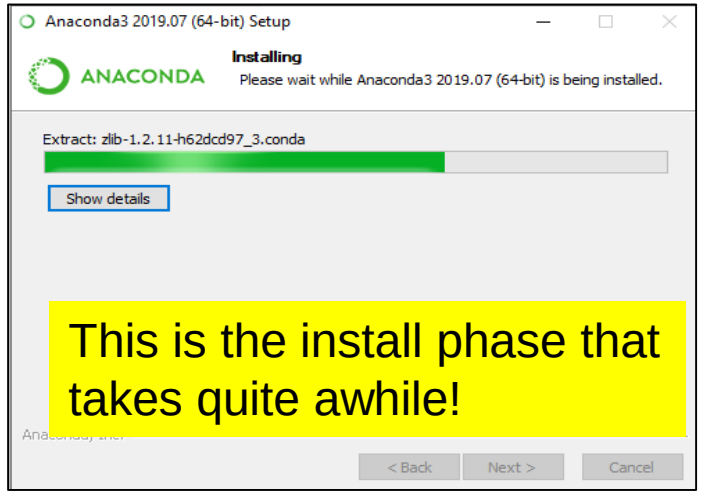
- Select: Add Anaconda to my PATH environment variable. .

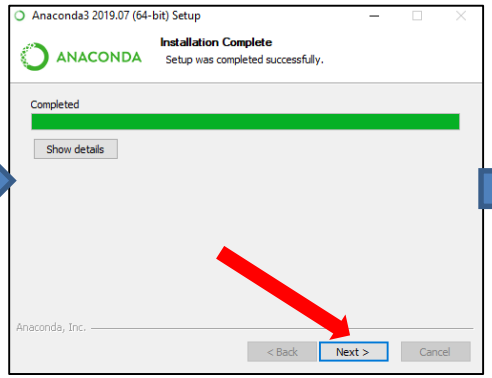


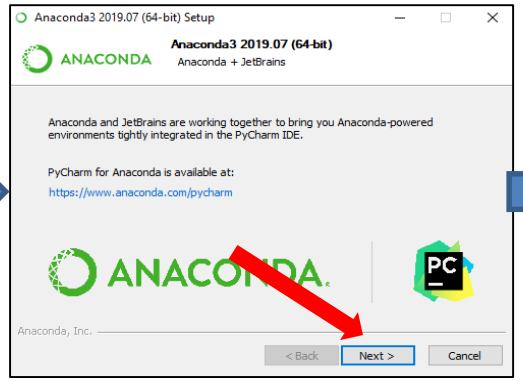
Install - continued

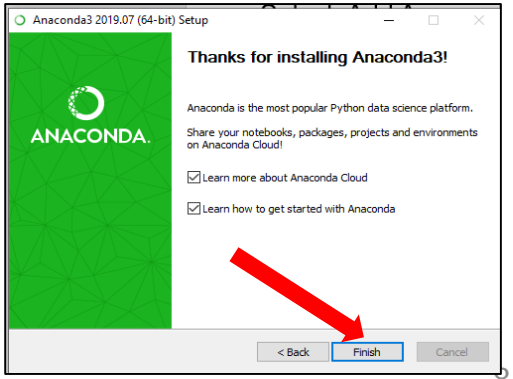
- Select: Add Anaconda to my PATH environment variable. Now wait for the install. This will take quite a long time…





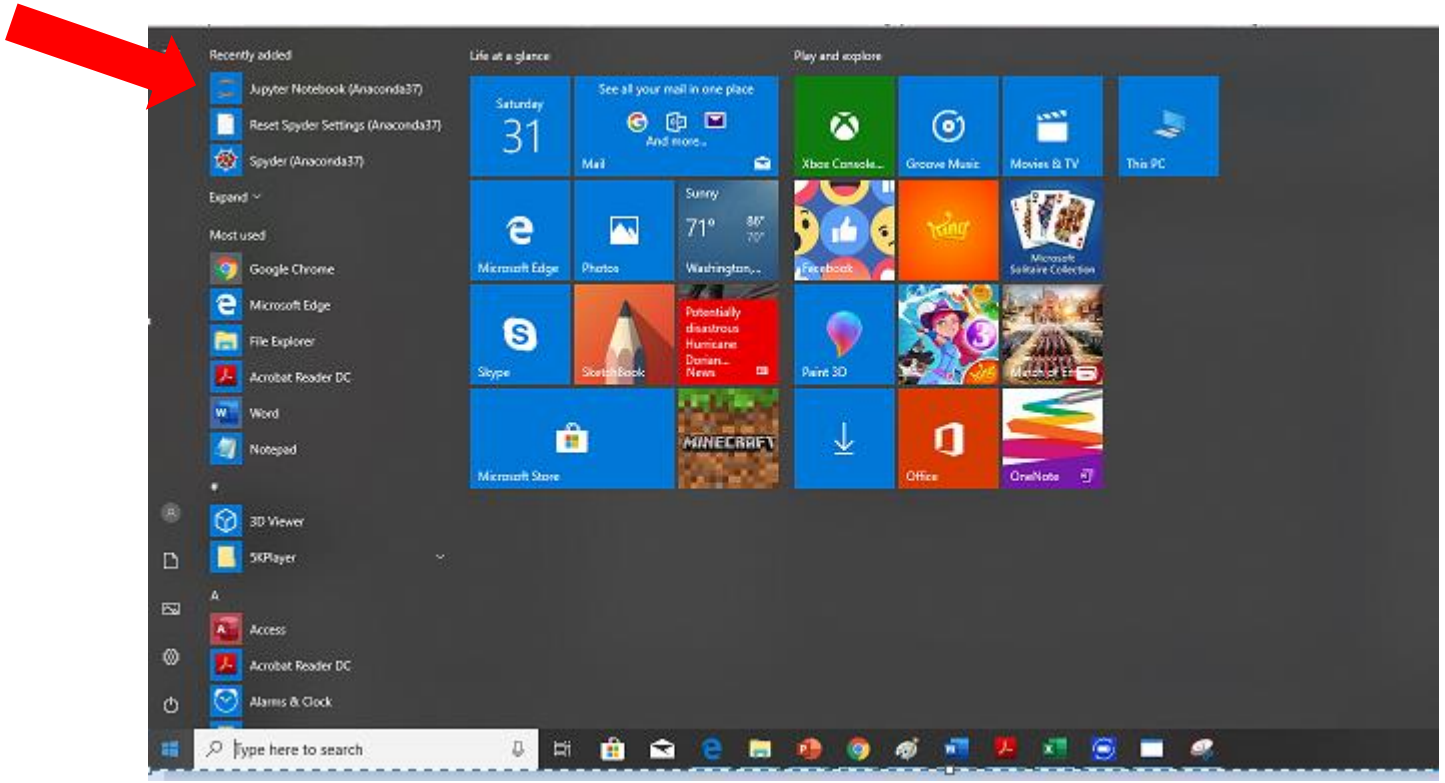






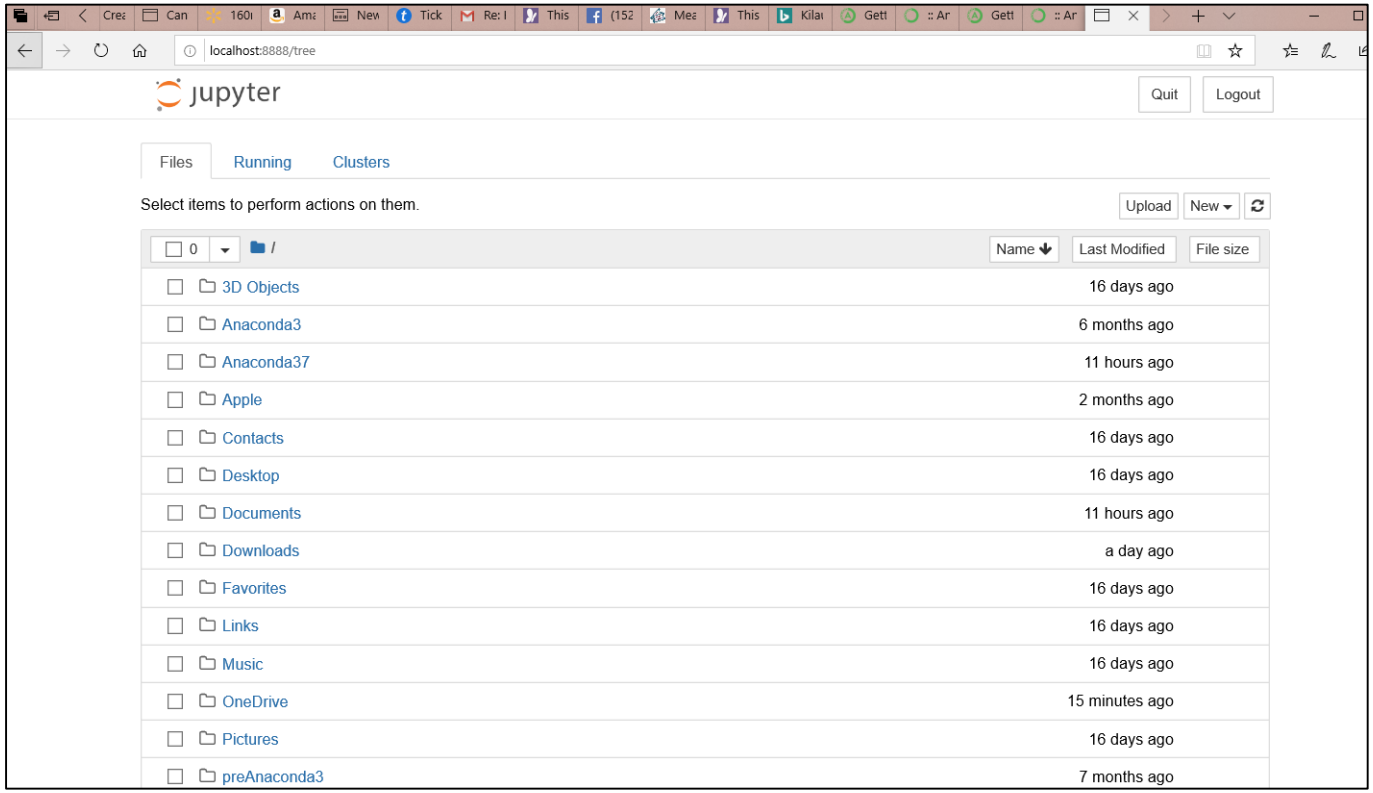
Check for your Anaconda App

- Check your Windows list of applications (bottom left) and you will see Jupyter Notebook 37 at the top of the column since you just installed it.
- Select Jupyter Notebook (Anaconda37).



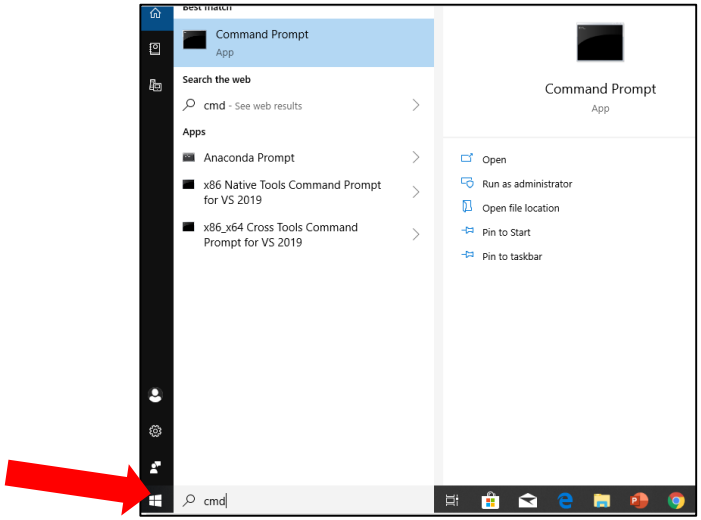
Anaconda running in your browser

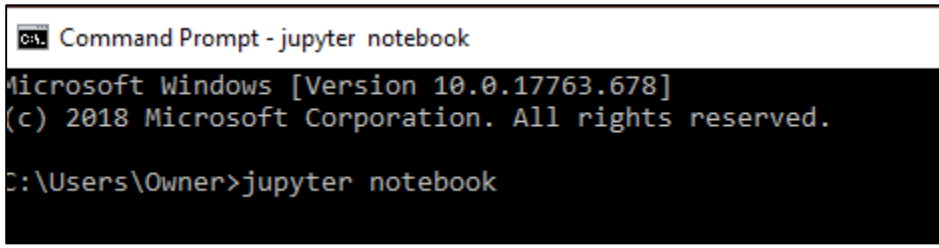
- After you select Jupyter notebook in your Start menu you will see the following display in your default browser (see screen shot).
- You can also start Anaconda in any browser. Enter: http://localhost:8888 Note: you will need a password. See slide xx.
- OR in a terminal window (See next slide).



Running Anaconda from your terminal window

- Open a terminal window. Then type: jupyter notebook in the window.



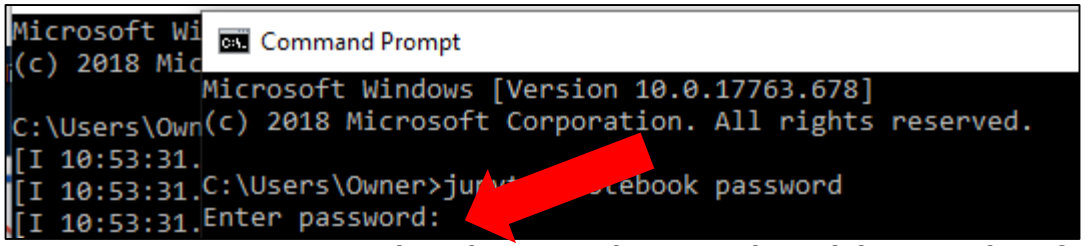


- This is the output you will see in your terminal window. Your default browser will open a Notebook (it will look like slide 10).

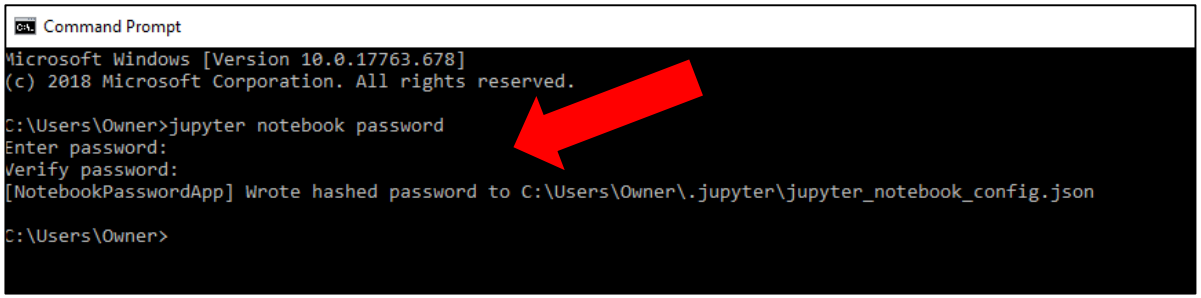
```
C:\Users\Owner>jupyter notebook
[I 10:53:31.195 NotebookApp] JupyterLab extension loaded from C:\Users\Owner\Anaconda37\lib\site-packages\jupyterlab
[I 10:53:31.195 NotebookApp] JupyterLab application directory is C:\Users\Owner\Anaconda37\share\jupyter\lab
[I 10:53:31.205 NotebookApp] Serving notebooks from local directory: C:\Users\Owner
[I 10:53:31.210 NotebookApp] The Jupyter Notebook is running at:
[I 10:53:31.210 NotebookApp] http://localhost:8888/?token=ef4c931eb453d9434ad1f449c82966658d5f9b3f82cc3413
[I 10:53:31.210 NotebookApp]  or http://127.0.0.1:8888/?token=ef4c931eb453d9434ad1f449c82966658d5f9b3f82cc3413
[I 10:53:31.210 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 10:53:31.520 NotebookApp]

    To access the notebook, open this file in a browser:
        file:///C:/Users/Owner/AppData/Roaming/jupyter/runtime/nbserver-11108-open.html
    Or copy and paste one of these URLs:
        http://localhost:8888/?token=ef4c931eb453d9434ad1f449c82966658d5f9b3f82cc3413
     or http://127.0.0.1:8888/?token=ef4c931eb453d9434ad1f449c82966658d5f9b3f82cc3413
[E 10:53:36.543 NotebookApp] Could not open static file ''
[W 10:53:36.752 NotebookApp] 404 GET /static/components/react/react-dom.production.min.js (::1) 109.61ms referer=http://localhost:8888/tree?token=ef4c9
31eb453d9434ad1f449c82966658d5f9b3f82cc3413
```

Setting up a Password for Anaconda

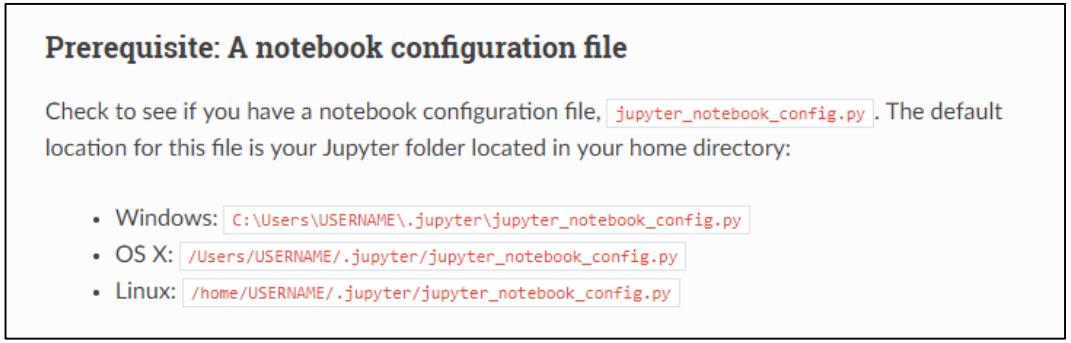
- Open another terminal window using cmd (Windows).
- Type: jupyter notebook password



- Enter your password twice and you should see the following:



Note: Passwords are stores in these configuration files for Windows, OS X and Linux:



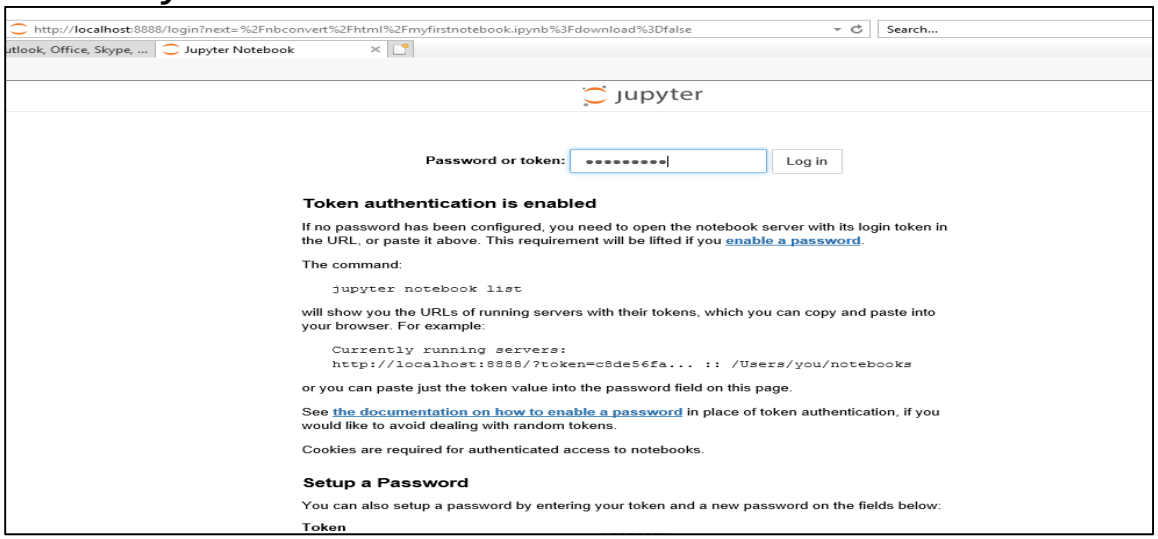
Prerequisite: A notebook configuration file

Check to see if you have a notebook configuration file, `jupyter_notebook_config.py`. The default location for this file is your Jupyter folder located in your home directory:

- Windows: `C:\Users\USERNAME\.jupyter\jupyter_notebook_config.py`
- OS X: `/Users/USERNAME/.jupyter/jupyter_notebook_config.py`
- Linux: `/home/USERNAME/.jupyter/jupyter_notebook_config.py`

Password Page

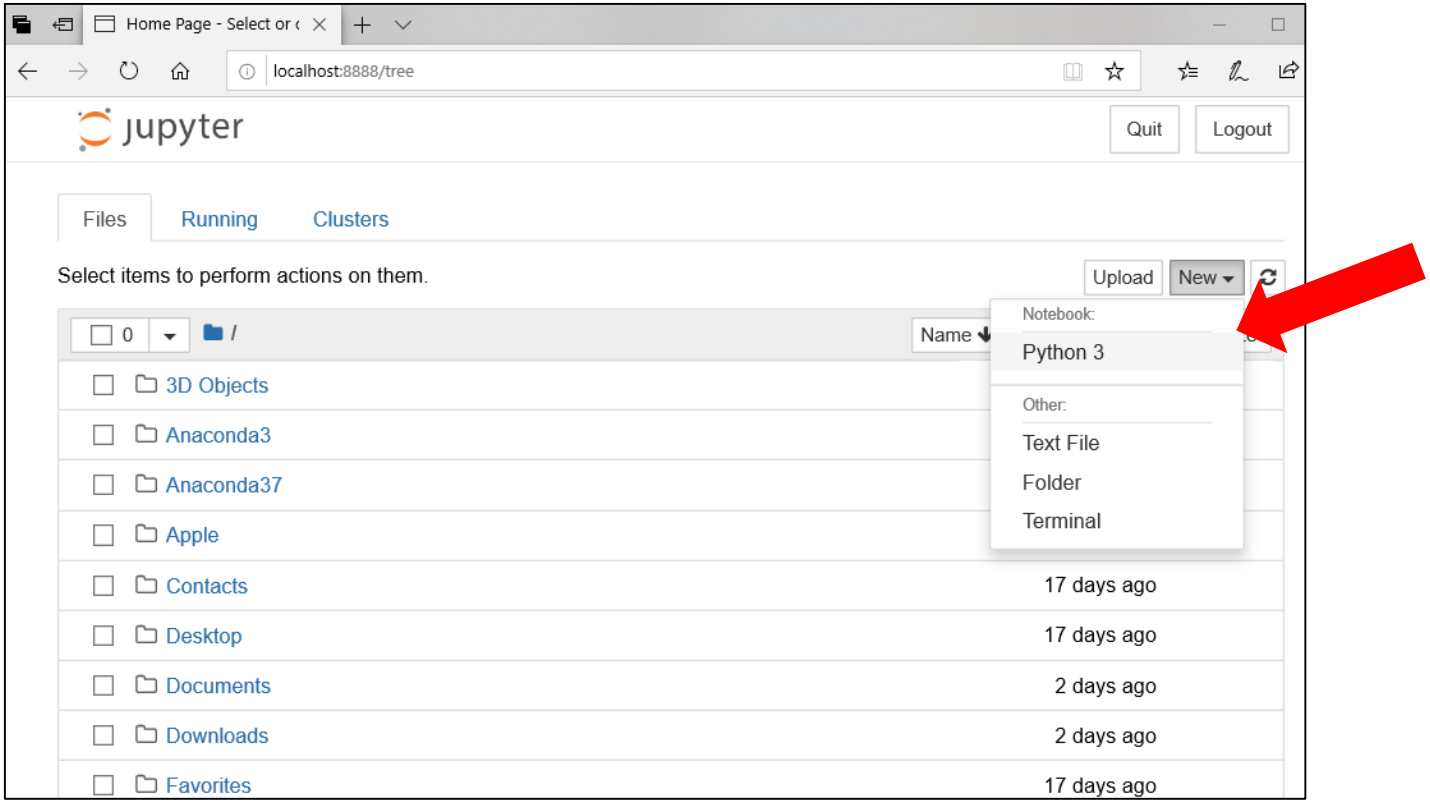
- You can also enter the token or the entire URL from the output of your jupyter notebook located in your terminal window.




```
C:\Users\Owner>jupyter notebook
[I 10:53:31.195 NotebookApp] JupyterLab extension loaded from C:\Users\Owner\Anaconda37\lib\site-packages\jupyterlab
[I 10:53:31.195 NotebookApp] JupyterLab application directory is C:\Users\Owner\Anaconda37\share\jupyter\lab
[I 10:53:31.205 NotebookApp] Serving notebooks from local directory: C:\Users\Owner
[I 10:53:31.210 NotebookApp] The Jupyter Notebook is running at:
[I 10:53:31.210 NotebookApp] http://localhost:8888/?token=ef4c931eb453d9434ad1f449c82966658d5f9b3f82cc3413
[I 10:53:31.210 NotebookApp]  or http://127.0.0.1:8888/?token=ef4c931eb453d9434ad1f449c82966658d5f9b3f82cc3413
[I 10:53:31.210 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 10:53:31.520 NotebookApp]

    To access the notebook, open this file in a browser:
        file:///C:/Users/Owner/AppData/Roaming/jupyter/runtime/nbserver-11108-open.html
    Or copy and paste one of these URLs:
        http://localhost:8888/?token=ef4c931eb453d9434ad1f449c82966658d5f9b3f82cc3413
     or http://127.0.0.1:8888/?token=ef4c931eb453d9434ad1f449c82966658d5f9b3f82cc3413
```

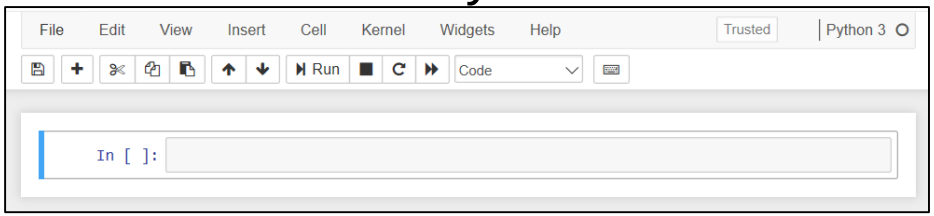
How to open a Notebook

- In the Anaconda display select the New button and Python 3

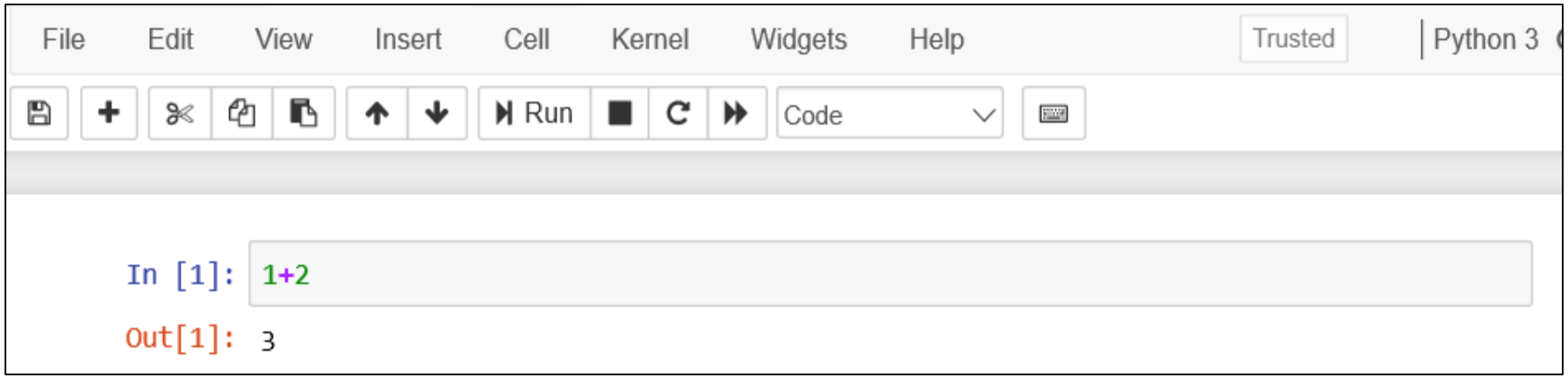


Jupyter Notebook: Try a simple example

- You have input cells in Jupyter notebooks to run your input and show your results. You can also make any field a comments called a Markdown cell.

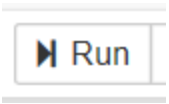


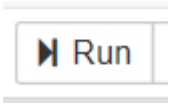
- In the **In** cell you type simple commands one line at a time or an entire function (we'll get to that later).
- Type 1+2 and then select either the run symbol Run or Control-Enter
- You will now have an output cell that will display: 3. You have to '*run*' each cell to recognize your input or to print an output.

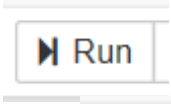


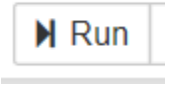
A Python example

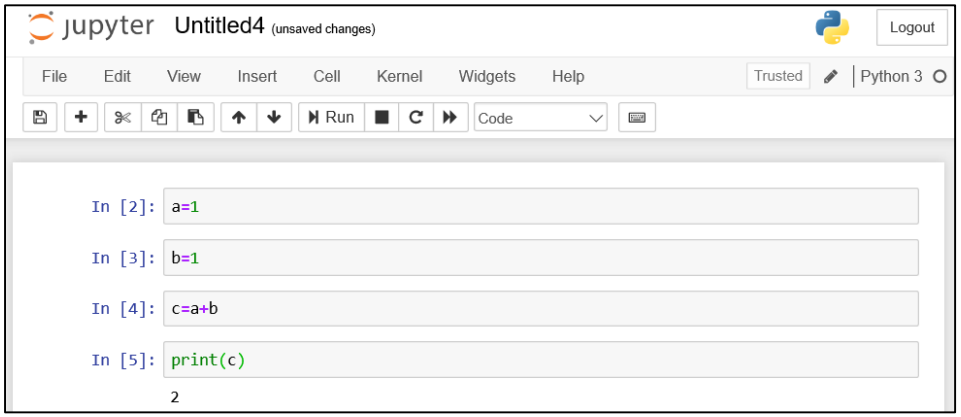
- Try this simple Python example

1. In the first cell type: a=1 then select 

2. In the next cell type b=1 then select 

3. In the third cell type c=a+b then select 

4. In the fourth cell type print(c) then select 



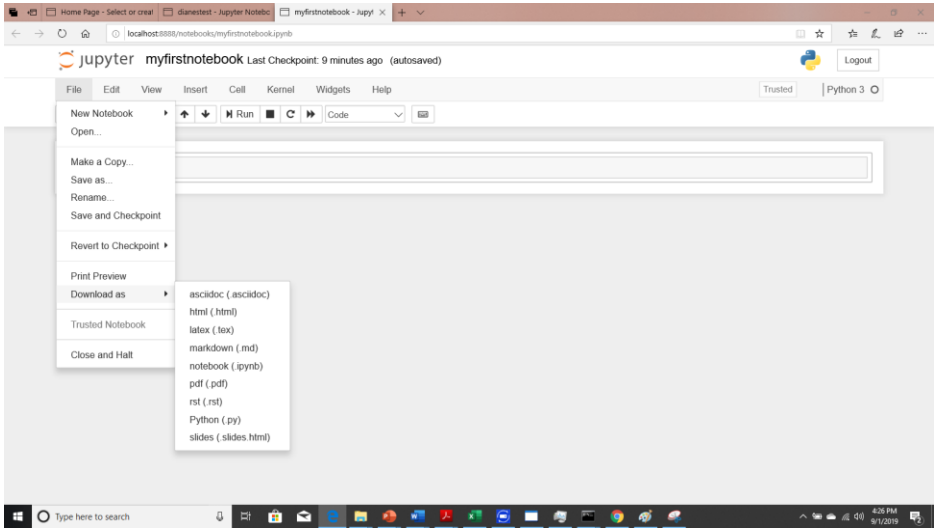
Saving your Notebook File

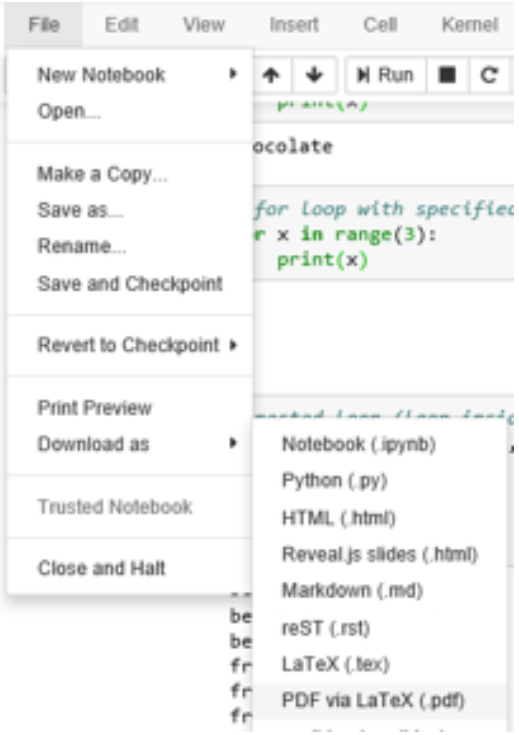
- Your notebook is currently not saved and does not have an intuitive title.
- Under Files select Rename and name your notebook: myfirstnotebook
- Select Files -> Save and Checkpoint
- Let's close your notebook by selecting Files -> Close and Halt
- You will have a file called MyFirstNotebook.ipynb. This is one of the files you need to submit for homework. The other is a pdf.
- In your Anaconda command prompt hit Control-C this will kill your browser.
- Open terminal window and type juypter notebook.
- Now you will see your notebook that you created and can select it or open a new notebook by selecting "New" in the righthand corner.

Save your Notebook to PDF

- Select download as:

You should see these options to save your file:



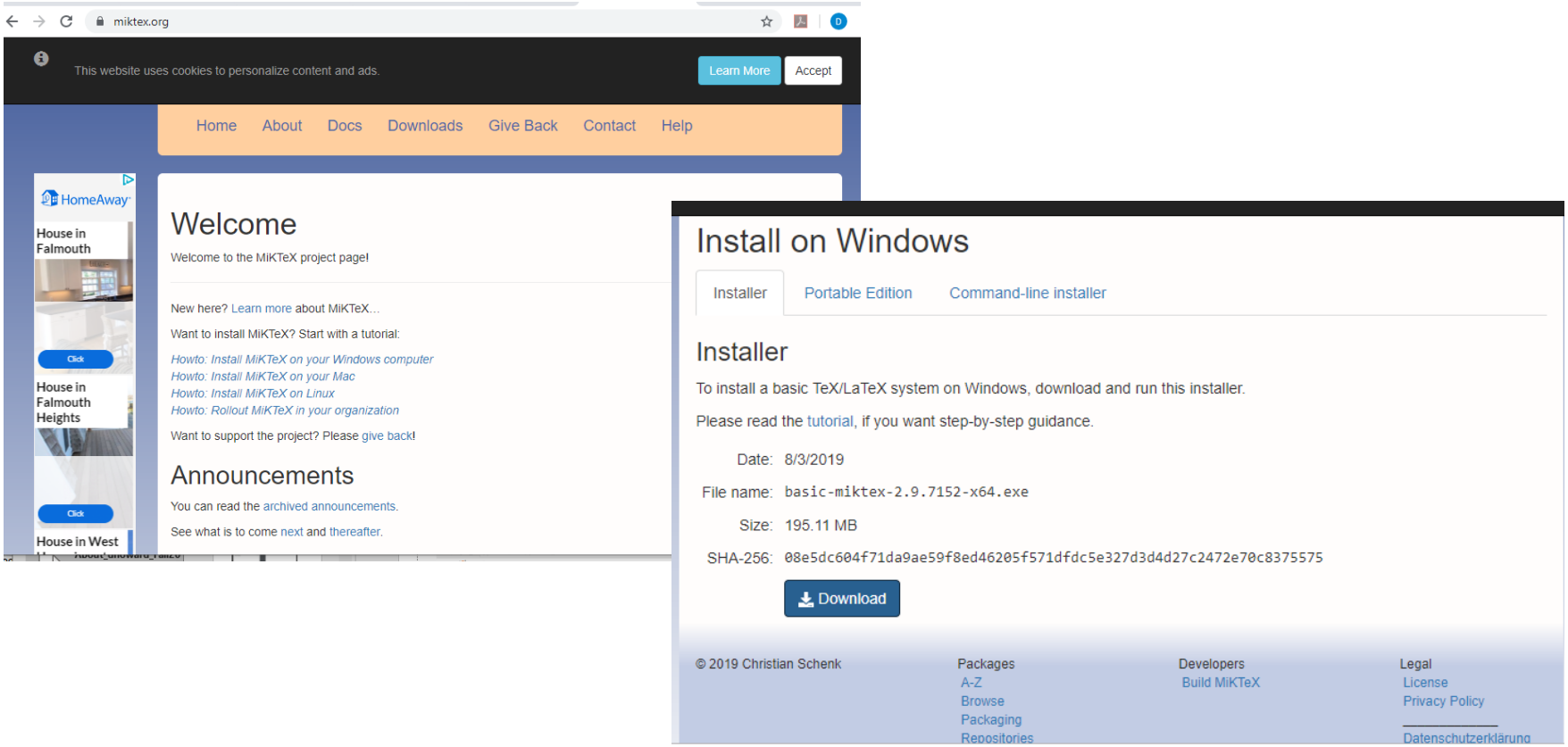


You could use Google, Internet Explorer browsers to **save as a PDF in the Print option**. Microsoft Edge does not have this feature.

OR

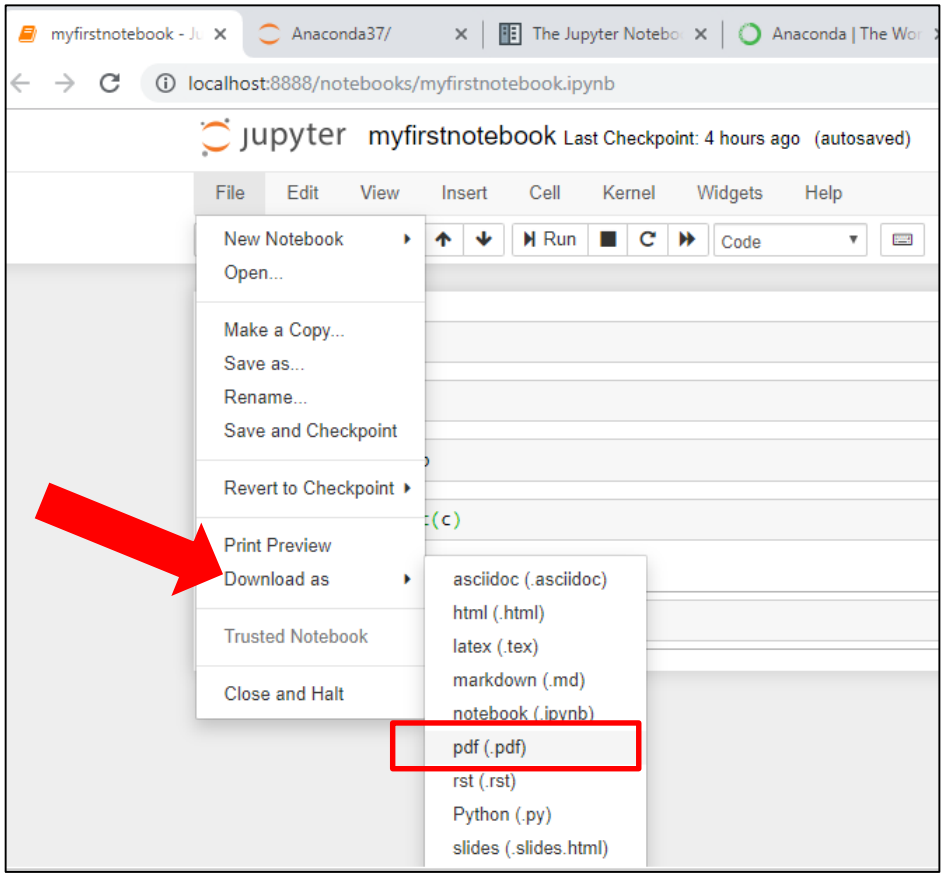
- You can download MiKTex: https://miktex.org/

MiKTeX for saving Notebooks as PDF



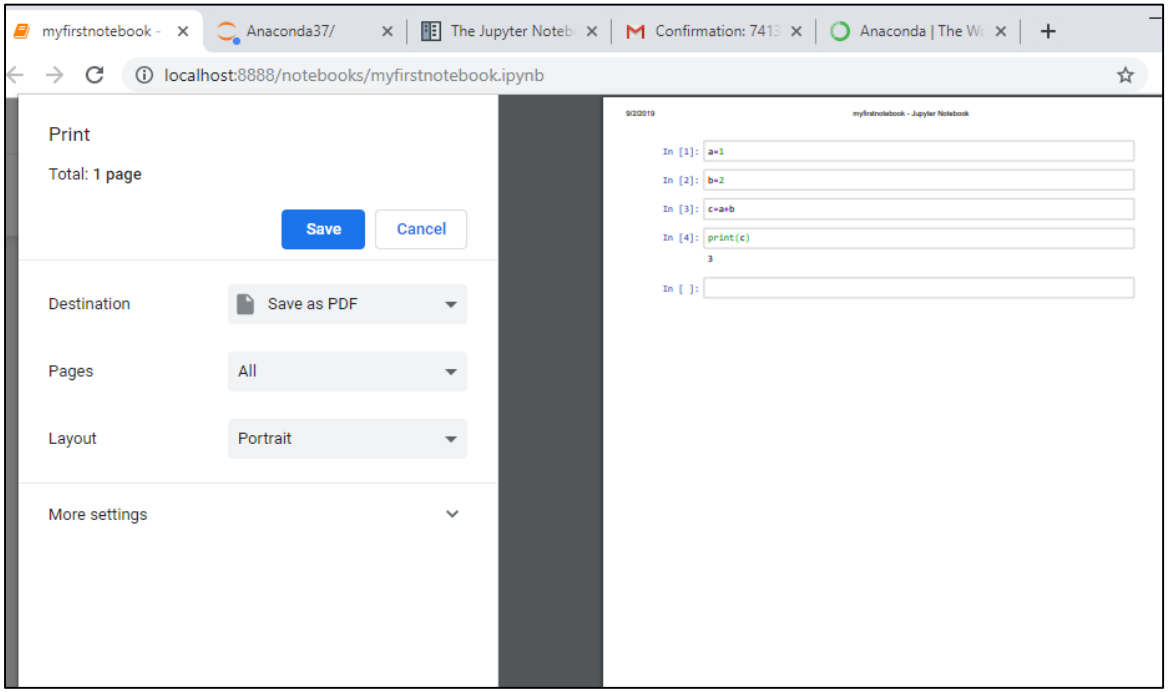
Save as PDF in Anaconda

- After you install MiKTex you will see the following option in your Notebook under File. Select Download as and then Select



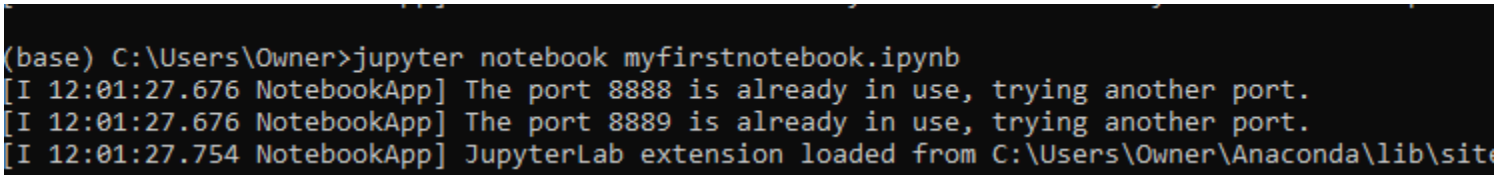
Google Chrome example

- Go to Print in your Chrome browser then select Save with Destination set to Save as PDF.



Open a specific notebook

- In your anaconda window type:
  - jupyter notebook myfirstnotebook.ipynb
- This will open the notebook right up that we just created
- Reminder: You can only run one notebook server at a time



Useful commands to check Anaconda Install

- Open an Anaconda prompt (mine is called diane) and type some commands to check conda, python and jupyter notebook versions:
  - conda --version (anaconda version)

```
C:\Users\Owner>activate diane

(diane) C:\Users\Owner>conda --version
conda 4.7.10
```

  - python (python version)

```
(diane) C:\Users\Owner>python --version
Python 3.7.4
```

  - jupyter --version (jupyter version)

```
(diane) C:\Users\Owner>jupyter --version
jupyter core     : 4.5.0
jupyter-notebook : 6.0.0
qtconsole        : 4.5.1
ipython          : 7.6.1
ipykernel        : 5.1.1
jupyter client   : 5.3.1
jupyter lab      : 1.0.2
nbconvert        : 5.5.0
ipywidgets       : 7.5.0
nbformat         : 4.4.0
traitlets        : 4.3.2
```

What is conda and conda environment?

- ***What is conda?***

Conda is a powerful package manager and environment manager that you use with command line commands at the Anaconda Prompt for Windows, or in a terminal window for macOS or Linux.

- ***What is a conda environment?***

Conda allows you to create separate **environments** containing files, packages and their dependencies that will not interact with other **environments**. When you begin using **conda**, you already have a default **environment** named **base** . You don't want to put programs into your **base environment**, though. (Note: it is a virtual environment!)

https://docs.conda.io/projects/conda/en/latest/user-guide/getting-started.html

Create a conda environment

- Create a new environment for your conda install: (Remember your name of your environment!)
  - conda create --name foobar python=3.7

```
(base) C:\Windows\Anaconda>conda create --name foobar python=3.7
Solving environment: done
```

- Activate your new environment:
  - Windows: activate foobar **or** conda activate foobar
  - OSX/Linux: source activate foobar

```
(base) C:\Windows\Anaconda>activate foobar

(foobar) C:\Windows\Anaconda>
```

- To list all environments:
  - conda info –envs

```
(foobar) C:\Windows\Anaconda>conda info --envs
# conda environments:
#
foobar                *  C:\Users\Owner\AppData\Local\conda\conda\envs\foobar
base                     C:\Windows\Anaconda
```

- Start jupyter in your environment:
  - Activate foobar

(foobar) c:\Windows\Anaconda>jupyter notebook

Another example of checking conda environments

These are my conda environments from previous installs. If you installed Anaconda for the first time you will not have any conda environments!

To view all your conda environments:

>conda info - -envs

```
C:\Users\Owner>conda info --envs
# conda environments:
#
base                  *  C:\Users\Owner\Anaconda37
                         C:\Users\Owner\Documents\diane\Anaconda3
                         C:\Users\Owner\Documents\diane\Anaconda3\envs\tensorflow
                         C:\Users\Owner\Documents\diane\Anaconda3\envs\tf
```

Here's how to check your conda path in Windows:

>path

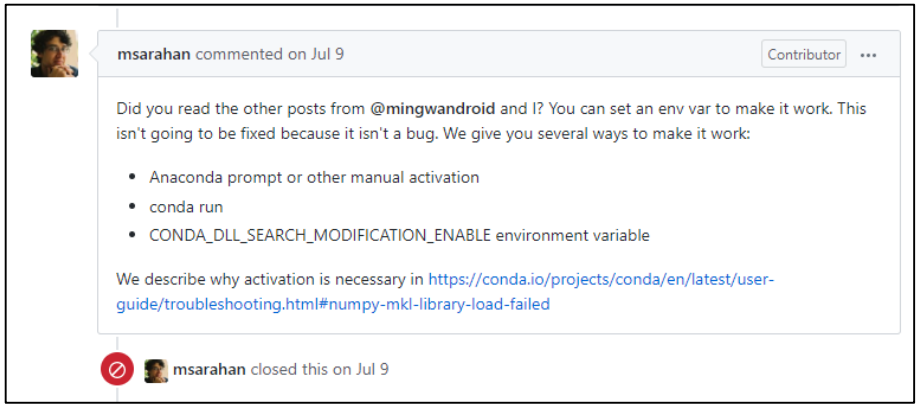
```
C:\Users\Owner>path
PATH=C:\Program Files (x86)\Common Files\Oracle\Java\javapath;C:\WINDOWS\system32;C:\WINDOWS;C:\WINDOWS\System32\Wbem;C:\WINDOWS\System32\WindowsPowerS
hell\v1.0\;C:\WINDOWS\System32\OpenSSH\;C:\Users\Owner\Anaconda37;C:\Users\Owner\Anaconda37\Library\mingw-w64\bin;C:\Users\Owner\Anaconda37\Library\usr
\bin;C:\Users\Owner\Anaconda37\Library\bin;C:\Users\Owner\Anaconda37\Scripts;C:\Users\Owner\Documents\diane\Anaconda3;C:\Users\Owner\Documents\diane\An
aconda3\Library\mingw-w64\bin;C:\Users\Owner\Documents\diane\Anaconda3\Library\usr\bin;C:\Users\Owner\Documents\diane\Anaconda3\Library\bin;C:\Users\Ow
ner\Documents\diane\Anaconda3\Scripts;C:\Users\Owner\Documents\diane\MikTeX\miktex\bin\x64\;C:\Users\Owner\AppData\Local\Programs\Python\Python36-32\Sc
ripts\;C:\Users\Owner\AppData\Local\Programs\Python\Python36-32\;C:\Users\Owner\AppData\Local\Microsoft\WindowsApps;C:\Program Files (x86)\Java;c:\Prog
ram Files (x86)\Microsoft Visual Studio\2019\Community\VC\Tools\MSVC\14.20.27508\bin\Hostx86\x64;c:\Program Files (x86)\Microsoft Visual Studio\2019\Co
mmunity\VC\Tools\MSVC\14.20.27508\bin\Hostx64\x64;C:\Users\Owner\AppData\Local\Programs\MiKTeX 2.9\miktex\bin\x64\
```

Did you get this message in the Python interpreter?

```
C:\Users\Owner>python
Python 3.7.3 (default, Apr 24 2019, 15:29:51) [MSC v.1915 64 bit (AMD64)] :: Anaconda, Inc. on win32

Warning:
This Python interpreter is in a conda environment, but the environment has
not been activated.  Libraries may fail to load.  To activate this environment
please see https://conda.io/activation

Type "help", "copyright", "credits" or "license" for more information.
>>>
```

- It is not a bug. You can just run >jupyter notebook and you will be fine.
- It will go away when you set up your conda environment to ‘fix this’.

https://github.com/conda/conda/issues/8487



msarahan commented on Jul 9 — Contributor

Did you read the other posts from **@mingwandroid** and I? You can set an env var to make it work. This isn't going to be fixed because it isn't a bug. We give you several ways to make it work:

- Anaconda prompt or other manual activation
- conda run
- CONDA_DLL_SEARCH_MODIFICATION_ENABLE environment variable

We describe why activation is necessary in https://conda.io/projects/conda/en/latest/user-guide/troubleshooting.html#numpy-mkl-library-load-failed

msarahan closed this on Jul 9

Let's check Python to see if the warning message goes away

- Make sure you activate your environment
- Enter >python
- The message is no longer there.

```
C:\Users\Owner>conda activate diane

(diane) C:\Users\Owner>python
Python 3.7.4 (default, Aug  9 2019, 18:34:13) [MSC v.1915 64 bit (AMD64)] :: Anaconda, Inc. on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

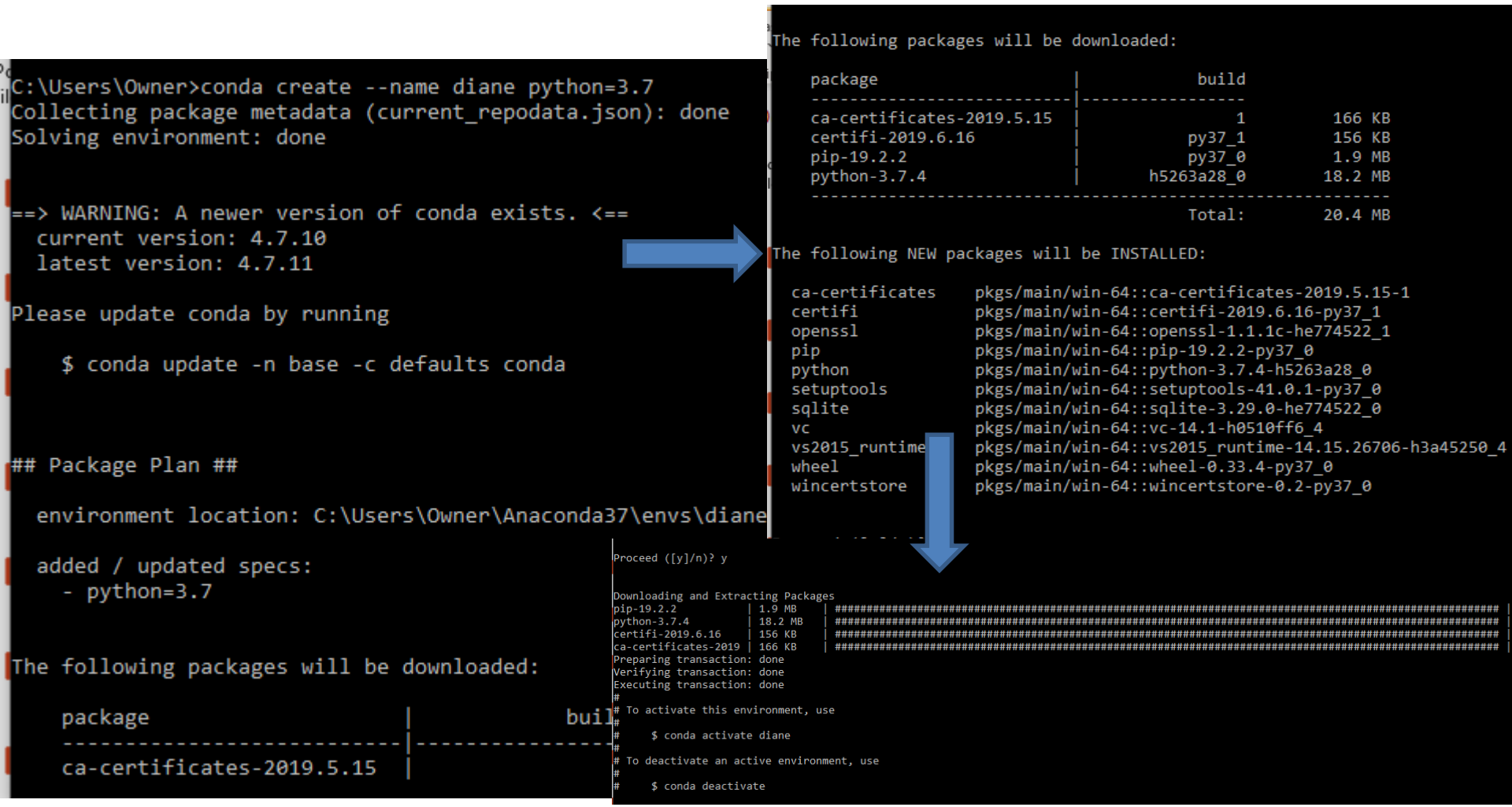
- Notice when I open another window and check Python it is there. This is because

We are running Python outside of the conda environment that I just created.

```
Microsoft Windows [Version 10.0.17763.678]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Owner>python
Python 3.7.3 (default, Apr 24 2019, 15:29:51) [MSC v.1915 64 bit (AMD64)] :: Anaconda, Inc. on win32

Warning:
This Python interpreter is in a conda environment, but the environment has
not been activated.  Libraries may fail to load.  To activate this environment
please see https://conda.io/activation

Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Conda update message

- If you get the following message… A newer version of conda exists…. Just allow this to continue and enter y



Moral of the Python warning message

1. It is not an error message (just a warning) so don't worry!

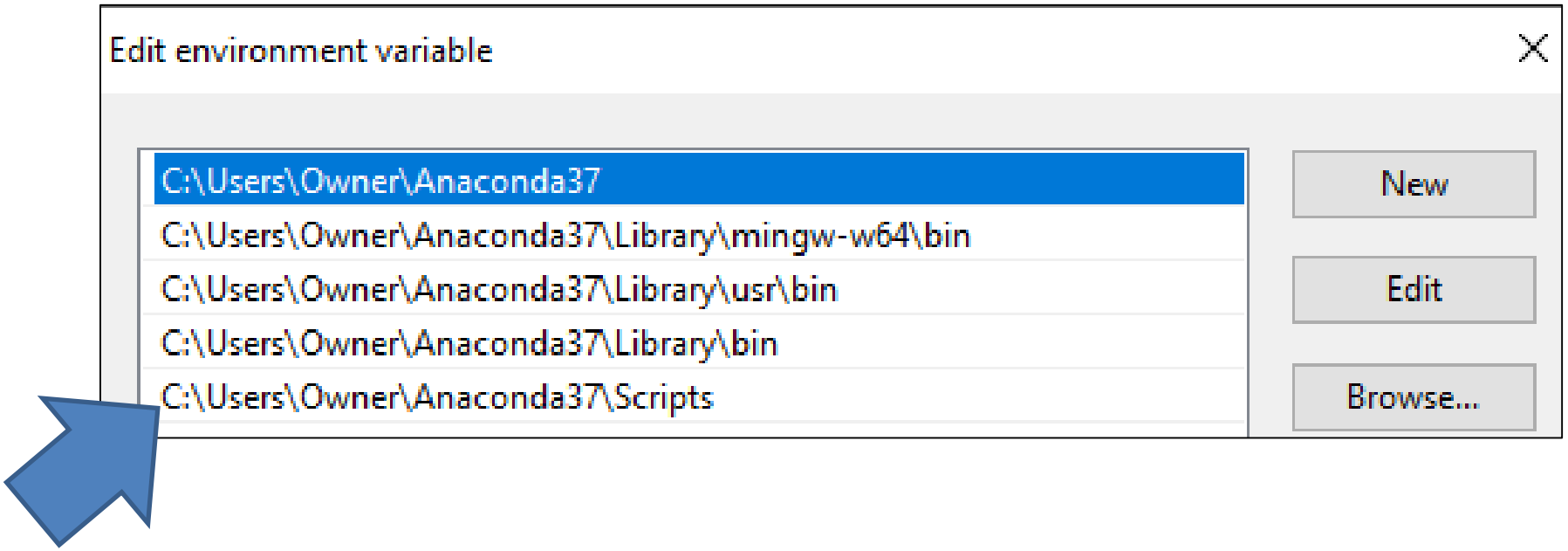
2. Activate your conda environment to run your

Jupyter notebook.

Note: If you forget it's ok! You can still run jupyter notebook without issues but the point of having a conda environment is to add modules specific to that version of conda that you installed for that particular conda environment!

My Python path names

- Make sure you have similar paths set up for your env variables in this order.



It is important to have the Scripts path!

Conda base environment

- Are you activating conda from the base?

```
C:\Users\Owner>conda info --envs
# conda environments:
#
base                  *  C:\Users\Owner\Anaconda37
diane                    C:\Users\Owner\Anaconda37\envs\diane
                         C:\Users\Owner\Documents\diane\Anaconda3
                         C:\Users\Owner\Documents\diane\Anaconda3\envs\tensorflow
                         C:\Users\Owner\Documents\diane\Anaconda3\envs\tf


C:\Users\Owner>conda activate base

(base) C:\Users\Owner>
```

- And then running your jupyter notebook?

```
C:\Users\Owner>conda activate base

(base) C:\Users\Owner>jupyter notebook
[I 21:19:10.193 NotebookApp] JupyterLab extension loaded from C:\Users\Owner\Anaconda37\lib\site-packages\jupyterlab
[I 21:19:10.193 NotebookApp] JupyterLab application directory is C:\Users\Owner\Anaconda37\share\jupyter\lab
[I 21:19:10.200 NotebookApp] Serving notebooks from local directory: C:\Users\Owner
[I 21:19:10.201 NotebookApp] The Jupyter Notebook is running at:
[I 21:19:10.201 NotebookApp] http://localhost:8888/
[I 21:19:10.202 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[E 21:19:13.242 NotebookApp] Could not open static file ''
[W 21:19:14.306 NotebookApp] 404 GET /static/components/react/react-dom.production.min.js (::1) 65.44ms referer=http://local
```

- Please DONT! set up your own conda environment in base! You should never use base for installing modules. https://stackoverflow.com/questions/51526503/why-does-base-appear-in-my-anaconda-command-prompt

Managing environments

Conda allows you to create separate environments containing files, packages and their dependencies that will not interact with other environments.

When you begin using conda, you already have a default environment named `base`. You don't want to put programs into your base environment, though. Create separate environments to keep your programs isolated from each other.

Useful References

- Jupyter documentation:
https://jupyter-notebook.readthedocs.io

- Another Jupyter Notebook tutorial:
https://www.dataquest.io/blog/jupyter-notebook-tutorial/

- Jupyter Notebook Shortcuts:
https://towardsdatascience.com/jypyter-notebook-shortcuts-bf0101a98330

- Conda:
https://docs.conda.io/projects/conda/en/latest/user-guide/getting-started.html

- Conda cheat sheet:
https://docs.conda.io/projects/conda/en/latest/user-guide/cheatsheet.html