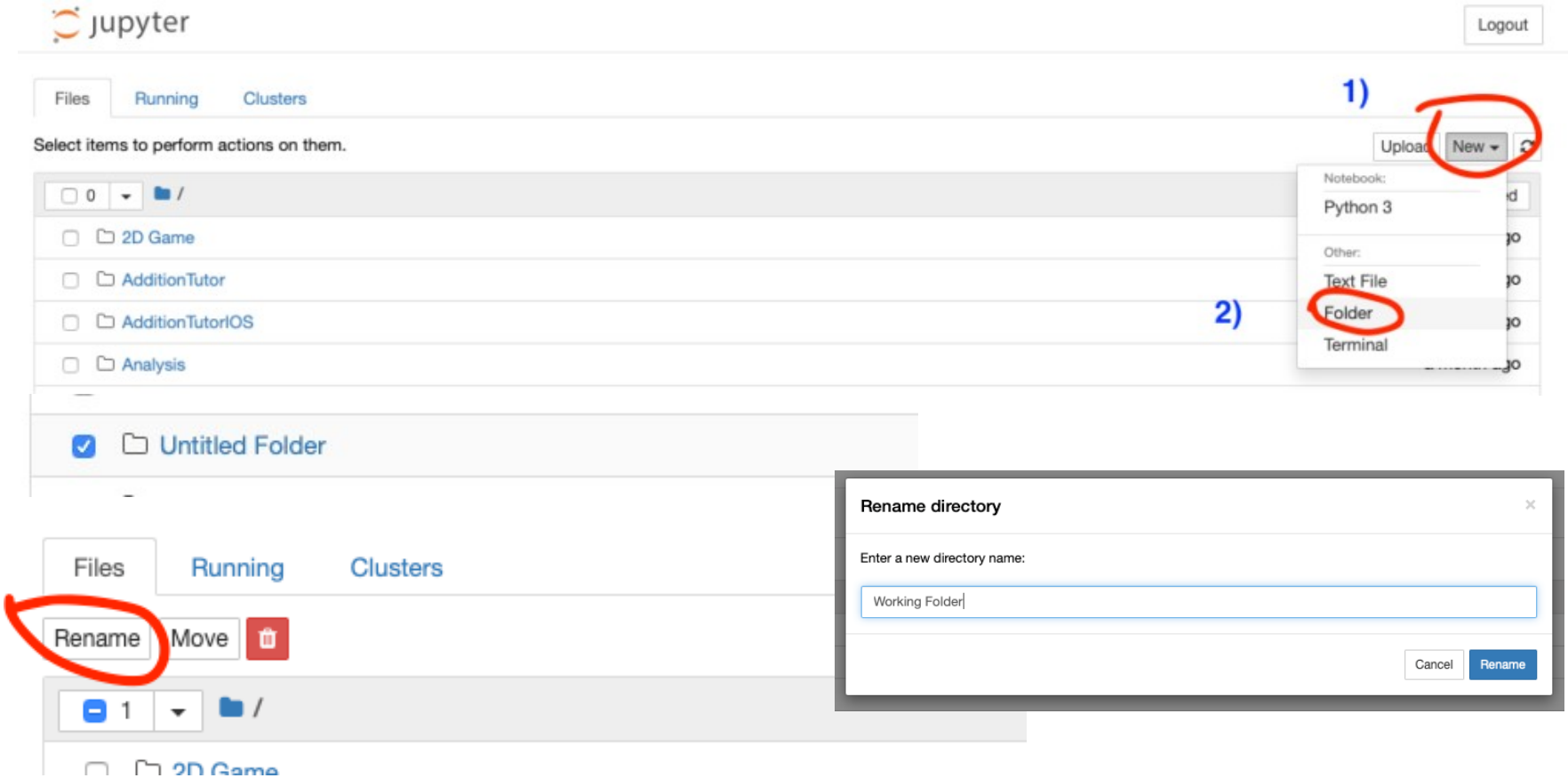
Jupyter Notebook Tutorials

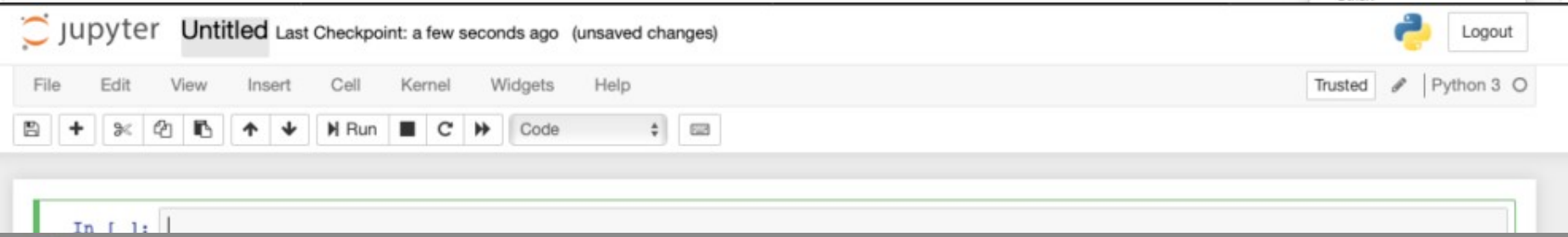
Create a working folder in the Jupyter Notebook

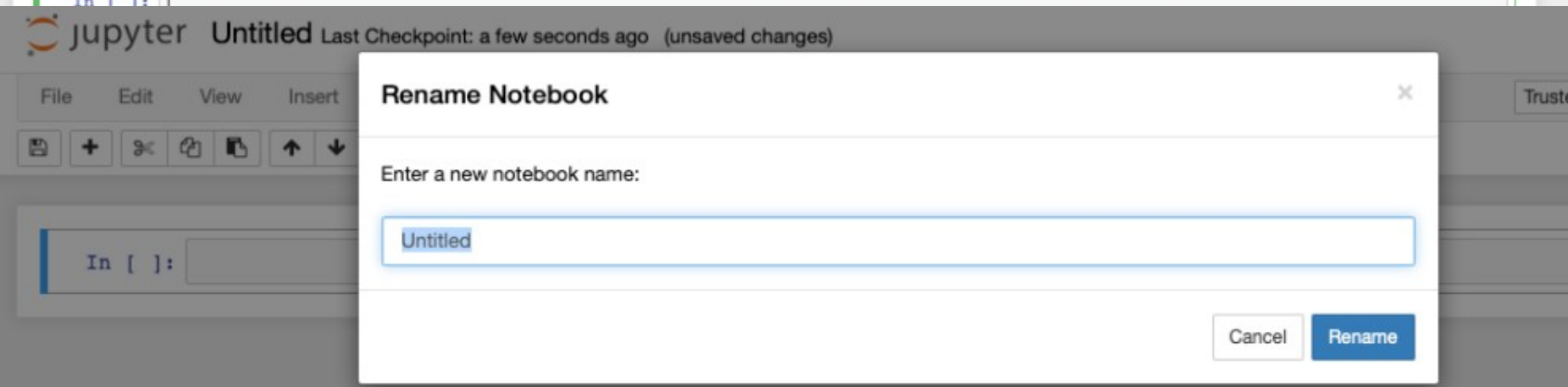
By default the Jupyter notebook will open in your current directory. However, you can create an other working folder for your notebooks.



Jupyter Notebook Tutorials

Create a new Jupyter Notebook

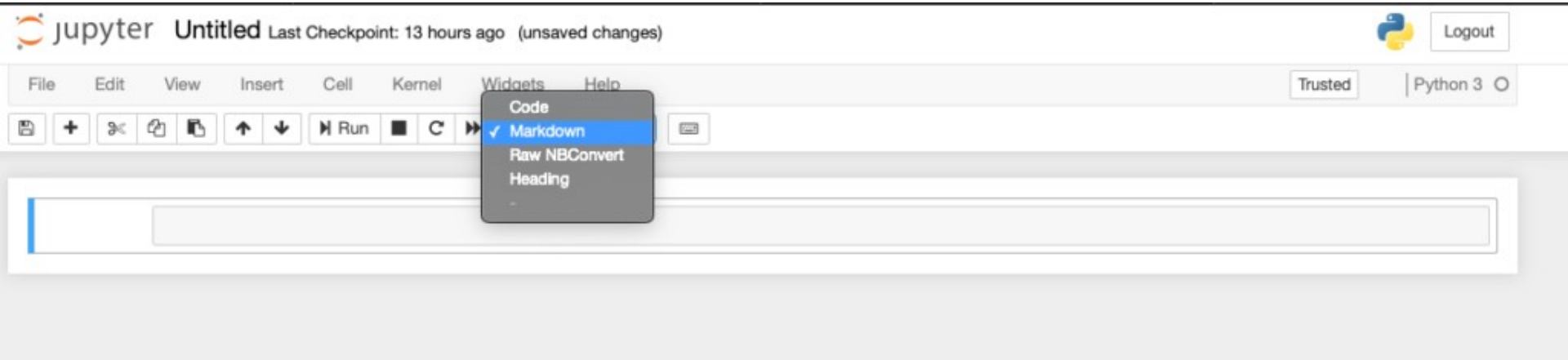




Jupyter Notebook Tutorials

Working with Markdown Cells

Select a **cell** in an open Jupyter Notebook
In the toolbar select "Markdown" from the cell type dropdown



Create Headers Cells

```
# MarkDown Cell H1
## MarkDown Cell H2
### MarkDown Cell H3
#### MarkDown Cell H4
```

MarkDown Cell H1

MarkDown Cell H2

MarkDown Cell H3

MarkDown Cell H4

Un-numbered Lists

```
- un-numbered list item 1
- un-numbered list item 2
```

- un-numbered list item 1
- un-numbered list item 2

Numbered List

```
1. numbered list item 1
2. numbered list item 2
```

1. numbered list item 1
2. numbered list item 2

Sub-Numbered List

```
1. numbered list item 1
   1. sub numbered list
   2. sub numbered list
2. numbered list item 2
```

1. numbered list item 1
   1. sub numbered list
   2. sub numbered list
2. numbered list item 2

Working with Markdown Cells

Formatted Text

italic text

bold text

~~strikethrough text~~

italic text

bold text

~~strikethrough text~~

Links

[Link Example](http://google.com)

Link Example

Local and Online Images

![local image](images/logo.png)

Code Examples

```python
s = "Python Programming"
print s
```

```
s = "Python Programming"
print s
```

Tables

Col1	Col2	Col3
1234	5678	9124
abcd	efgh	ijkl

Col1	Col2	Col3
1234	5678	9124
abcd	efgh	ijkl

HTML

Hello</
strong>
<hr>

Hello

Working with Markdown Cells

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italic text

bold text

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Local and Online Images

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HTML

Hello</
strong>
<hr>

Hello

Working with Code Cells

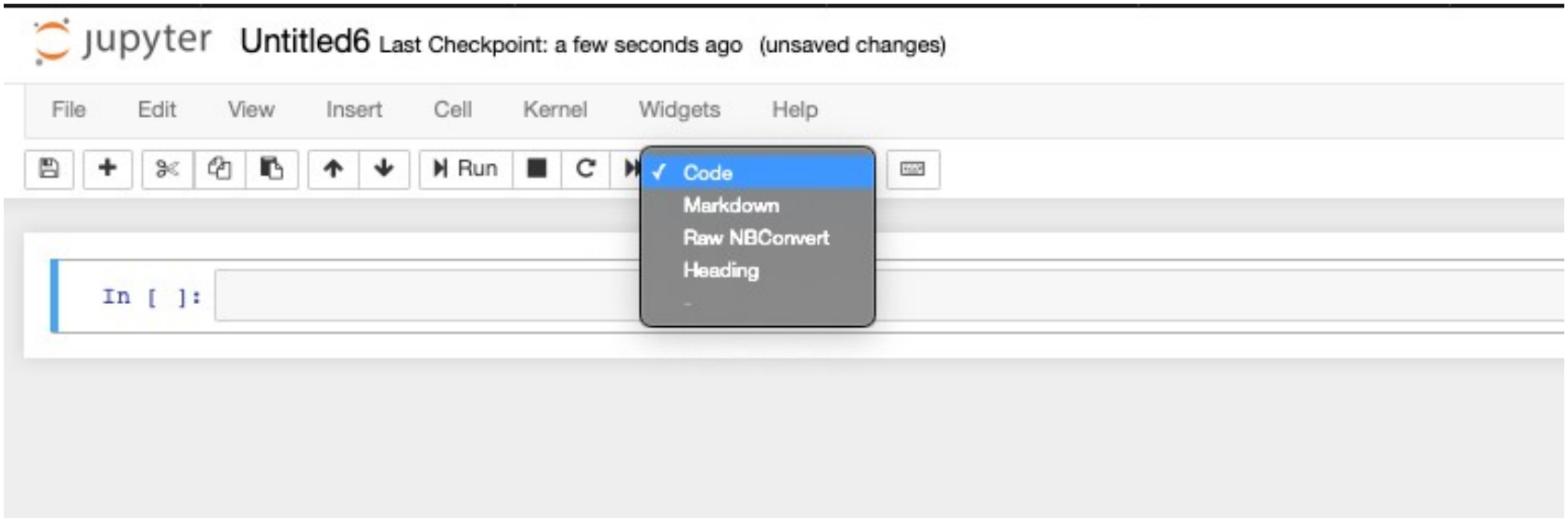
Code Cells have 2 modes:

Edit Mode: Edit mode is the mode that allows you to edit the code in the cell. When in edit mode keyboard input is interpreted as cell content. Edit mode can be identified by the green outline on the cell. To enter command mode click in a cell.

Command Mode: Command mode is the mode where you can execute keyboard shortcuts. Keyboard input is interpreted as keyboard shortcuts. **To enter command mode click outside the cells or press the escape key.**

Create a code cell

1 Select a **cell** in an open Jupyter Notebook
2 In the toolbar select "**Code**" from the cell type dropdown



Jupyter Notebook Keyboard Shortcuts

View all available keyboard shortcuts

To view the entire list of keyboard shortcuts by going into Command Mode (Press Escape) and then pressing the“H” key.

Some useful Command mode keyboard shortcuts

“A” : Insert cell above
“B”: Insert cell below
“C”: Copy selected cell
“X”: Cut selected cell
“S”: Save and Checkpoint
Shift + Enter: Run current cell and select cell below”
“M” : Change cell to Markdown
“Y” : Change cell to Code

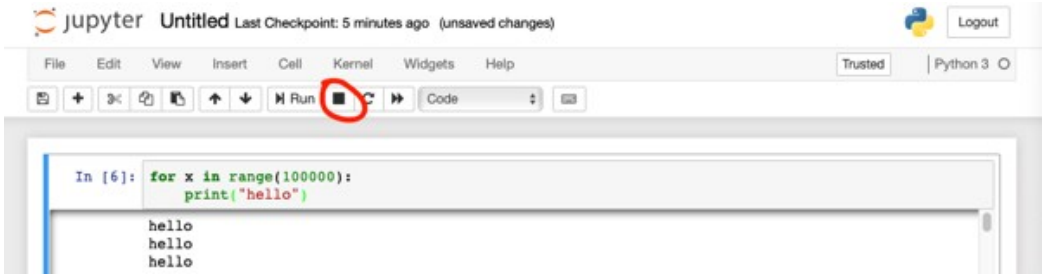
Some useful Edit mode keyboard shortcuts

Command/Control] : Indent
Command /Control [: Decent
Command/Control / : Comment
Command/Control A : Select All
Command/Control up : Go to cell Start

Jupyter Notebook Tutorials

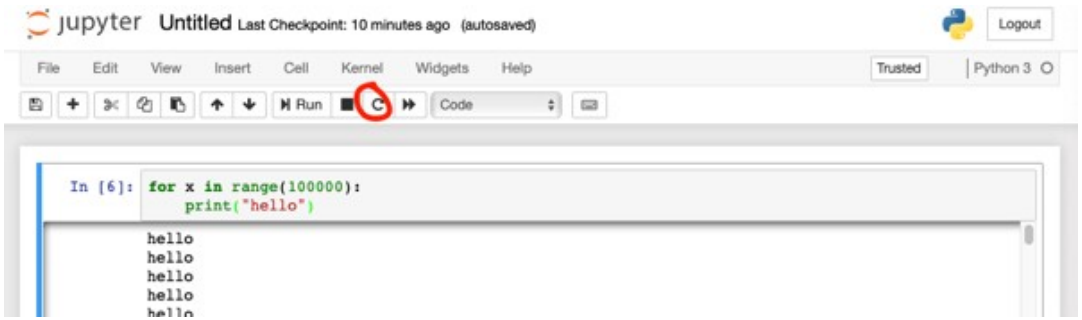
How to Interrupt the Kernel (Stop code from running)

To stop code from running press the STOP button



How to reset the Kernel (Clear all in memory objects and stop the code)

To reset the kernel press the reset button



How to hide a output

Double click on the left of result

How to remove a output

Esc + R + Y

How to removeall output

select the Cell -> All Output -> Clear menu item.

Using Magic Commands

Magic Commands are powerful shortcuts exposed by the kernel that allow you to solve many common problems.

List all available magic commands

Use %lsmagic

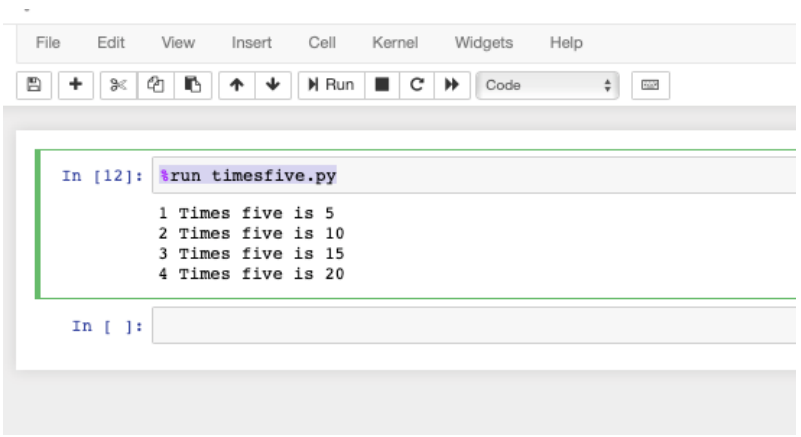
```
In [6]: %lsmagic

Out[6]: Available line magics:
%alias  %alias_magic  %autocall  %automagic  %autosave  %bookmark  %cat  %cd  %clear  %colors  %config  %connect_inf
o  %cp  %debug  %dhist  %dirs  %doctest_mode  %ed  %edit  %env  %gui  %hist  %history  %killbgscripts  %ldir  %less
%lf  %lk  %ll  %load  %load_ext  %loadpy  %logoff  %logon  %logstart  %logstate  %logstop  %ls  %lsmagic  %lx  %macr
o  %magic  %man  %matplotlib  %mkdir  %more  %mv  %notebook  %page  %pastebin  %pdb  %pdef  %pdoc  %pfile  %pinfo  %
pinfo2  %popd  %pprint  %precision  %profile  %prun  %psearch  %psource  %pushd  %pwd  %pycat  %pylab  %qtconsole  %
quickref  %recall  %rehashx  %reload_ext  %rep  %rerun  %reset  %reset_selective  %rm  %rmdir  %run  %save  %sc  %se
t_env  %store  %sx  %system  %tb  %time  %timeit  %unalias  %unload_ext  %who  %who_ls  %whos  %xdel  %xmode

Available cell magics:
%%!  %%HTML  %%SVG  %%bash  %%capture  %%debug  %%file  %%html  %%javascript  %%js  %%latex  %%markdown  %%perl  %%p
run  %%pypy  %%python  %%python2  %%python3  %%ruby  %%script  %%sh  %%svg  %%sx  %%system  %%time  %%timeit  %%writ
efile
```

Run External Code using the %run magic command

Create a python file outside of the Jupyter Notebook.
To run an external file input the command %run <python file name>
Press shift + enter

timesfive.py

```
1  def timesfive(x):
2      """multiply by 5"""
3      return x * 5
4
5  for N in range(1, 5):
6      print(N, "Times five is", timesfive(N))
```



Jupyter Notebook Tutorials

Using Magic Commands

Magic Commands are powerful shortcuts exposed by the kernel that allow you to solve many common problems.

To use the shell use the %system magic command

```
In [21]: %system date
Out[21]: ['Mon Mar 11 22:54:49 CDT 2019']

In [28]: %system pwd
Out[28]: ['/Users/henrypalma']

In [23]: %system ls
Out[23]: ['2D Game',
          'AdditionTutor',
          'AdditionTutorIOS',
```

Measure the execution time of code using **%timeit** magic command

To measure a single line of code use **%timeit** magic command before the line of code you want to measure.
To measure multiple lines of code use the **%%timeit** magic command before the lines of code you want to measure.

```
In [18]: %timeit TestData = [n ** 5 for n in range(1000)]
294 µs ± 10.4 µs per loop (mean ± std. dev. of 7 runs, 1000 loops each)

In [20]: %%timeit
TestData = []
for n in range(1000):
    TestData.append(n ** 5)
333 µs ± 16.4 µs per loop (mean ± std. dev. of 7 runs, 1000 loops each)
```

Jupyter Notebook Tutorials

Triks

Convert your notebook in html, under a terminal type :

jupyter nbconvert --to html notebook.ipynb

Or from menu of jupyter : File/Downloads/html

Convert your notebook in pdf :

jupyter nbconvert --to pdf notebook.ipynb

Also pass the --execute flag to generate the output cells :

jupyter nbconvert --execute --to html notebook.ipynb
jupyter nbconvert --execute --to pdf notebook.ipynb

To insert a youtube video (in a Code cell):

```
from IPython.display import YouTubeVideo
YouTubeVideo("gKQvQG8FwQk",560,315,rel=0)
```