Jupyter Guide Easy

1. Coding Styles

$$\hat{R} \sim \mathcal{N}(4, 9.0),~~\hat{b} \sim \mathcal{N}(0, 0.2)$$
$$\hat{R} \sim \mathcal{N}(4, 9.0), \quad \hat{b} \sim \mathcal{N}(0, 0.2)$$

```
Writing Linear Equation
```

$V = RI + b$

$$V = RI + b.$$

```
Creating a table
```

Current (A)	Voltage (V)
0.2	1.23

0.3	1.38
0.4	2.06
0.5	2.47
0.6	3.17

Current (A)	Voltage (V)
0.2	1.23
0.3	1.38
0.4	2.06
0.5	2.47
0.6	3.17

```
Horizontal Line
```

---

2. Basics

2.1 Data types

input	output
x = 5 print(type(x))	<class 'int'>

https://www.w3schools.com/python/python_datatypes.asp

Float to integer:
int(some_float_number)

2.2 Dictionaries

Dictionaries are used to store data values in key:value pairs. A dictionary is a collection which is ordered, changeable and doesn't allow duplicates.

command

```
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(thisdict["brand"])
```

Output

Ford

Memory Allocation

```
a = 1
a = a + 1
----------
```

2.3 Lists

```
------ Delete element from a list
>>> a = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
>>> del a[-1]
>>> a [0, 1, 2, 3, 4, 5, 6, 7, 8]
```

https://stackoverflow.com/questions/627435/how-to-remove-an-element-from-a-list-by-index

2.4 Create txt file

```
with open('docs/readme.txt', 'w') as f:
    f.write('Create a new text file!')
```

https://www.pythontutorial.net/python-basics/python-create-text-file/

2.5 Math

Square root:

Import math
math.sqrt()

2.6 Directories

What is the current directory?

```
import os
cwd = os.getcwd()
```

2.7 Throw/Raise Error

https://stackoverflow.com/questions/22132272/how-to-quit-python-function-throwing-error-statement-without-quitting-python-in

3. Libraries

	pip install scikit-image	Image processing in Python
OpenCV	pip install opencv-python	

m2bk	is command line tool that performs a number of mongodb database backups via mongodump, compresses them into a gzipped tarball and finally sends them to an AWS S3 bucket

3.1 Matplotlib

plt.imshow features & properties

colormap - ‘jet’ (low is blue, high is red)
origin of the image is top left corner

Variable in a string

plt.title('hello is: %dx%d' %(x, y))

Remove matplot lib axes

https://stackoverflow.com/questions/9295026/how-to-remove-axis-legends-and-white-padding

3.2 Numpy

Shape

np.shape
https://numpy.org/doc/stable/reference/generated/numpy.shape.html
np.shape(np.eye(3))
(3, 3)

Mean

np.mean(array_here)

3.2.2 Maximum and Minimum of array elements

https://www.geeksforgeeks.org/find-the-maximum-and-minimum-element-in-a-numpy-array/

3.3 Restoration Metrics

https://towardsdatascience.com/measuring-similarity-in-two-images-using-python-b72233eb53c6

3.3 Ski-image

3.3.1 Metrics

structural_similarity

peak_signal_noise_ratio

normalized_root_mse

mean_squared_error

https://scikit-image.org/docs/stable/api/skimage.metrics.html

Issue 1: ImportError: cannot import name 'compare_mse' from 'skimage.measure'

Solution: https://github.com/williamfzc/stagesepx/issues/150#issuecomment-872447692
This function was renamed from skimage.measure.compare_ssim to skimage.metrics.structural_similarity

3.4 MLXTEND

A library of Python tools and extensions for data science.

```
🎯pip install mlxtend
```

https://pypi.org/project/mlxtend/

3. Environments

4. Visualization Tools

Progress bar

```
🎯pip install tqdm
```

Interactive Graphs

plotly.py is an interactive, open-source, and browser-based graphing library for Python

```
🎯pip install plotly
```

https://pypi.org/project/plotly/

Buttons and Widgets

https://medium.com/@technologger/how-to-interact-with-jupyter-33a98686f24e

Dialog Boxes

pip install tk
https://www.tutorialspoint.com/how-to-install-tkinter-in-python

4.5. Data Science Tool (MLXTEND)

A library of Python tools and extensions for data science.

5. Computation Time

Display execution time in jupyter

https://stackoverflow.com/questions/32565829/simple-way-to-measure-cell-execution-time-in-ipython-notebook

5. Memory Management

Check how much memory you have

6. Machine Learning

Performance metrics

Accuracy

```
from sklearn.metrics import accuracy_score
accuracy = accuracy_score(y_test, y_pred)
print("Accuracy: %.2f%%" % (accuracy * 100.0))
```

7. To know

1. Classes?
2. Self.something in python?

8. Issues

Uncategorized

Issue 1. Jupyter notebook doesn’t lunch from cmd (command prompt)

Error message: 'jupyter' is not recognized as an internal or external command,
operable program or batch file.

Solution 1: Confirmed works

> Yes, This is the problem which I faced also during the installation of **Jupyter Notebook**. But I know the solution of this. I hope, it also works for you as well.
>
> 1. Open **cmd**.
> 2. Type: **pip install notebook**.

https://stackoverflow.com/questions/52287117/jupyter-is-not-recognized-as-an-internal-or-external-command

Memory Error

MemoryError: Unable to allocate 1.99 GiB for an array with shape (15, 17, 1024, 1024) and data type float64