B12_jupyter_markdown

February 22, 2024

0.1 Introduction

A notebook cell can also contained text formatted in **markdown**. **markdown** is a language that makes it easy to structure a text. **markdown** has fewer features than *html* or *Latex* yet it is very adapted to a scientific context.

markdown benefits from a large community. A documentation lies here.

0.2 Main functionalities

[ ]:
```
A new line is inserted only if a blank line is added: line 1

line 2
```

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line 2

[ ]:
```
**bold** and *italic*

Same with: __bold__ and _italic_
```

bold and *italic*

Same with: **bold** and *italic*

[ ]:
```
Items list:

- item 1
- item 2
```

Items list:

- item 1
- item 2

[ ]:
```
Numbered list:

1. item 1
2. item 2
3. item 3
```

Numbered list:

1. item 1
2. item 3
3. item 3

[ ]:
```
titles:
# Level 1
## Level 2
### Level 3
#### Etc...
```

titles:

Level 1

Level 2

Level 3

Etc...

[ ]:
```
URL: [search engine](www.google.fr)
```

URL: search engine

[ ]:
```
Image:  ![some elephants](figures/elephants.png)
```

Image: 

[ ]:
```
Reference to a software component, for instance the `matplotlib` library.
```

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[ ]:
```
Mathematical formulas are (mainly) written using the Latex commands :

- In-line mode: $a_{3,4}=\sum_{j}{b^{j}_{3}\times c^{j}_{4}}$

- Block mode:
  $$ a_{3,4}=\sum_{j}{b^{j}_{3}\times c^{j}_{4}} $$
```

Mathematical formulas are (mainly) written using the Latex commands :

- In-line mode: $a_{3,4} = \sum_j b_3^j \times c_4^j$
- Block mode:

$$a_{3,4} = \sum_j b_3^j \times c_4^j$$

0.3 Make the best of markdown

One can combine in the same **notebook** some cells of **markdown** and some cells of code. Dans une démarche scientifique, c'est utile **en phase de développement** pour garder une trace maths/physique du code.

For instance:

"[...] after the fit I compute the quadratic error:

$$\epsilon = \sum_i (\hat{y}_i - \bar{y}_i)^2$$

"

[4]:
```
from numpy import sum, array

def sum_square(y_predicted, y_mean):
    return sum((y_predicted - y_mean)**2)

y_predicted = array([1,2,3])
sum_square(y_predicted, 0.5)
```

[4]:
```
8.75
```

One can easily convert a notebook into a Latex or PDF file. This is very hand to produce a scientific report where code has a major importance.

0.4 See also

markdown is one out of many languages of a similar type: the **markup languages**.

An interesting library is `pandoc` (doc): it converts content from a markup language to another.