Learn AI

Release 0.1

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CONTENTS:

Learning AI made Easy. LearnAI provides simple examples, code snippets, useful collection of links and many more to make you start learning AI in no time.

Note: This project is under active development.

Check out the usage section for further information, including how to install the project.

CHAPTER

ONE

CONTENTS

1.1 Output Examples

This notebook is designed to provide examples of different types of outputs that can be used to test the JupyterLab frontend and other Jupyter frontends.

[27]:
```
from IPython.display import display
from IPython.display import (
    HTML, Image, Latex, Math, Markdown, SVG
)
```

1.1.1 Text

Plain text:

[28]:
```
text = """Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam urna
libero, dictum a egestas non, placerat vel neque. In imperdiet iaculis fermentum.
Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia
Curae; Cras augue tortor, tristique vitae varius nec, dictum eu lectus. Pellentesque
id eleifend eros. In non odio in lorem iaculis sollicitudin. In faucibus ante ut
arcu fringilla interdum. Maecenas elit nulla, imperdiet nec blandit et, consequat
ut elit."""
print(text)
```

```
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam urna
libero, dictum a egestas non, placerat vel neque. In imperdiet iaculis fermentum.
Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia
Curae; Cras augue tortor, tristique vitae varius nec, dictum eu lectus. Pellentesque
id eleifend eros. In non odio in lorem iaculis sollicitudin. In faucibus ante ut
arcu fringilla interdum. Maecenas elit nulla, imperdiet nec blandit et, consequat
ut elit.
```

Text as output:

[29]:
```
text
```

[29]:
```
'Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam urna\nlibero, dictum a␣
↪egestas non, placerat vel neque. In imperdiet iaculis fermentum. \nVestibulum ante␣
↪ipsum primis in faucibus orci luctus et ultrices posuere cubilia \nCurae; Cras augue␣
↪tortor, tristique vitae varius nec, dictum eu lectus. Pellentesque \nid eleifend eros.␣
↪In non odio in lorem iaculis sollicitudin. In faucibus ante ut \narcu fringilla␣
↪interdum. Maecenas elit nulla, imperdiet nec blandit et, consequat \nut elit.'
```

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Standard error:

[30]:
```
import sys; print('this is stderr', file=sys.stderr)
```

```
this is stderr
```

1.1.2 HTML

[31]:
```
div = HTML('<div style="width:100px;height:100px;background:grey;" />')
div
```

[31]:
```
<IPython.core.display.HTML object>
```

[32]:
```
for i in range(3):
    print(10**10)
    display(div)
```

```
10000000000
```

```
<IPython.core.display.HTML object>
```

```
10000000000
```

```
<IPython.core.display.HTML object>
```

```
10000000000
```

```
<IPython.core.display.HTML object>
```

1.1.3 Markdown

[33]:
```
md = Markdown("""
### Subtitle

This is some *markdown* text with math $F=ma$.

""")
md
```

[33]:

Subtitle

This is some *markdown* text with math $F = ma$.

[34]:
```
display(md)
```

Subtitle

This is some *markdown* text with math $F = ma$.

1.1.4 LaTeX

Examples LaTeX in a markdown cell:

$$\nabla \times \vec{\mathbf{B}} -\, \frac1c\, \frac{\partial\vec{\mathbf{E}}}{\partial t} = \frac{4\pi}{c}\vec{\mathbf{j}} \tag{1.1}$$
$$\nabla \cdot \vec{\mathbf{E}} = 4 \pi \rho \tag{1.2}$$
$$\nabla \times \vec{\mathbf{E}}\, +\, \frac1c\, \frac{\partial\vec{\mathbf{B}}}{\partial t} = \vec{\mathbf{0}} \tag{1.3}$$
$$\nabla \cdot \vec{\mathbf{B}} = 0 \tag{1.4}$$

[35]:
```
math = Latex("$F=ma$")
math
```

[35]: $F = ma$

[36]:
```
maxwells = Latex(r"""
\begin{align}
\nabla \times \vec{\mathbf{B}} -\, \frac1c\, \frac{\partial\vec{\mathbf{E}}}{\partial t}␣
↪& = \frac{4\pi}{c}\vec{\mathbf{j}} \\   \nabla \cdot \vec{\mathbf{E}} & = 4 \pi \rho \\
\nabla \times \vec{\mathbf{E}}\, +\, \frac1c\, \frac{\partial\vec{\mathbf{B}}}{\partial␣
↪t} & = \vec{\mathbf{0}} \\
\nabla \cdot \vec{\mathbf{B}} & = 0
\end{align}
""")
maxwells
```

[36]:

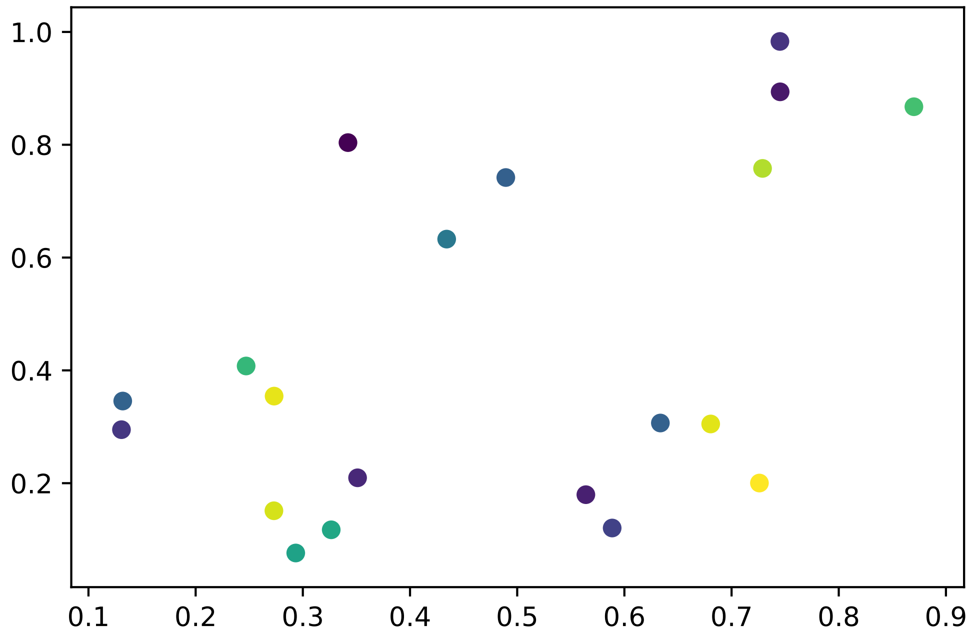
$$\nabla \times \vec{\mathbf{B}} -\, \frac1c\, \frac{\partial\vec{\mathbf{E}}}{\partial t} = \frac{4\pi}{c}\vec{\mathbf{j}} \tag{1.5}$$
$$\nabla \cdot \vec{\mathbf{E}} = 4 \pi \rho \tag{1.6}$$
$$\nabla \times \vec{\mathbf{E}}\, +\, \frac1c\, \frac{\partial\vec{\mathbf{B}}}{\partial t} = \vec{\mathbf{0}} \tag{1.7}$$
$$\nabla \cdot \vec{\mathbf{B}} = 0 \tag{1.8}$$

1.1.5 PDF

[37]:
```
%matplotlib inline
import matplotlib.pyplot as plt
import numpy as np
from IPython.display import set_matplotlib_formats
set_matplotlib_formats('pdf')
```

[38]:
```
plt.scatter(np.random.rand(20), np.random.rand(20), c=np.random.rand(20))
```

[38]:
```
<matplotlib.collections.PathCollection at 0x7f48b5cdf5c0>
```



1.1.6 Image

[39]:
```
img = Image("https://apod.nasa.gov/apod/image/1707/GreatWallMilkyWay_Yu_1686.jpg")
img
```

[39]:

Set the image metadata:

[40]:
```
img2 = Image(
    "https://apod.nasa.gov/apod/image/1707/GreatWallMilkyWay_Yu_1686.jpg",
    width=100,
    height=200
)
img2
```

[40]:

1.1.7 SVG

[41]:
```
svg_source = """
<svg width="400" height="110">
  <rect width="300" height="100" style="fill:#E0E0E0;" />
</svg>
"""
svg = SVG(svg_source)
svg
```

[41]:

[42]:
```
for i in range(3):
    print(10**10)
    display(svg)
```

```
10000000000
```

```
10000000000
```

```
10000000000
```

1.1.8 HTML Tables

[47]:
```
from vega_datasets import data
```

[50]:
```
df = data.cars()
```

[51]:
```
df.head()
```

[51]:
```
                        Name  Miles_per_Gallon  Cylinders  Displacement  \
0  chevrolet chevelle malibu              18.0          8         307.0
1          buick skylark 320              15.0          8         350.0
2         plymouth satellite              18.0          8         318.0
3              amc rebel sst              16.0          8         304.0
4                ford torino              17.0          8         302.0

   Horsepower  Weight_in_lbs  Acceleration       Year Origin
0       130.0           3504          12.0 1970-01-01    USA
1       165.0           3693          11.5 1970-01-01    USA
2       150.0           3436          11.0 1970-01-01    USA
3       150.0           3433          12.0 1970-01-01    USA
4       140.0           3449          10.5 1970-01-01    USA
```

Compared to a table in a Markdown cell:

Firstname

Lastname

Age

Jill

Smith

50

Eve

Jackson

94