

PyQB Monga

Programming in Python¹

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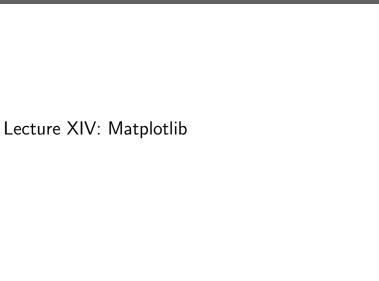
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Matplotlib

When you have arrays with many data it is useful to have a way to display them graphically.

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- The most popular is matplotlib https://matplotlib.org/
- Many other graphical frameworks (e.g., seaborn) based on it
- Many, many possibilities to tune your graphics! It's hard to master every detail.
- Be careful: it can be used with two different styles.
 - 1) The (preferred) object-oriented way: clean and rational, but a bit more verbose
 - 2 The procedural way: mostly useful only for "throw-away" scripts, but for this reason more common in the examples you can find online



Graphical output is an operating system service

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Graphical command

- Output is a service provided by the operating system: textual output is very standardized even across different platform, graphics is not so stable
- When you deal with graphical programs: expect installation headaches, portability glitches, etc.

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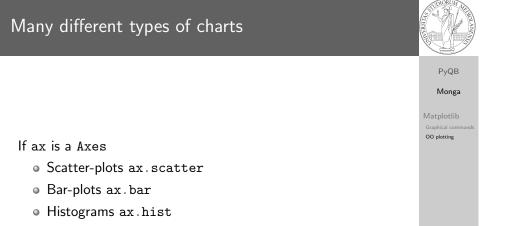
The OO style



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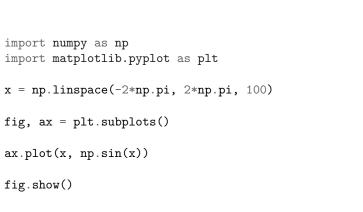
- You need always to objects: a Figure and a Axes
- plotting happens on axes, framed in a figure
- very flexible: you can add plots on the same axis, or you can have many axes collected in a single figure

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• 2D ax.imshow

Basic example

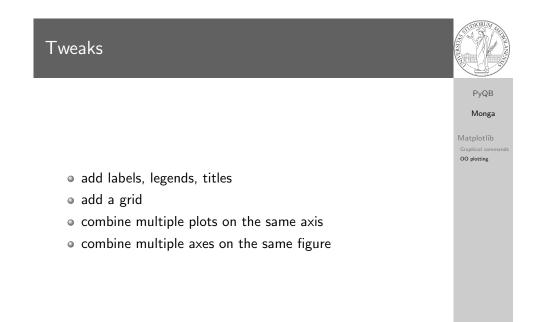


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import matplotlib.pyplot as plt

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Save your pictures!



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A Figure can be saved in a file with savefig. You should keep in mind the difference between:

- bitmap formats (png jpg ...): the file is matrix of pixels
- vector formats (svg pdf ...): the file is a set of instructions to reproduce the picture, less portable but it can be magnified

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