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4. Magic Commands

- IPython's special commands (which are not built into Python itself) are known as “magic” commands. These are designed to facilitate common tasks and enable you to easily control the behavior of the IPython system.
- A magic command is any command prefixed by the percent symbol %.

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```
In [20]: a = np.random.randn(100,100)
```

- For example, you can check the execution time of any Python statement, such as a matrix multiplication, using the %timeit magic function (which will be discussed in more detail later):

```
In [21]: %timeit np.dot(a,a)
```

20.5 μ s \pm 1.49 μ s per loop (mean \pm std. dev. of 7 runs, 10000 loops each)

- Magic commands can be viewed as command-line programs to be run within the IPython system. Many of them have additional “command-line” options, which can all be viewed (as you might expect) using ?:

```
In [22]: # %debug?
```

- Explore all of the special commands available by typing `%quickref` or `%magic`.

In [23]: `# %quickref`

In [24]: `# %magic`