WTPC
Workshop en técnicas de programación científica

1 al 11 de Marzo @Tucumán, Argentina

Documentación y herramientas de documentación automáticas

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Documentación

Documentar significa comunicar

Es necesaria en todos los niveles:

1) Anotaciones en el código: de formato, comentarios, de estructuración de funciones de clases.

2) Manual de usuario o de referencia

3) Introducción para nuevos usuarios o desarrolladores.

Documentación

El código que escribimos puede ser reutilizado y leído varias veces.

-Es importante la claridad, mas que la astucia al escribir.

-Elegir un estilo y respetarlo: estructura de bloques, indentación, ser cuidadoso con el nombre de las variables, la longitud de linea

-Respetar las convenciones de lenguaje la comunidad en la que uno esta trabajando (en Python, ver PEP 8)

-Ser consistente (no cambiar a la mitad!!)

Documentación

Explicar la intención más que el trabajo hecho

```
def tripleTuple(x):
    # assign x to y
    y = x
    # assign x to z
    z = x
    # double y
    y *= 2
    # triple z
    z *= 3
    # create tuple
    t = (x, y, z)
    # return the tuple
    return t
```

```
def tripleTuple(x):
    y = z = x
    # apply foo scaling, see [34] eq (2.3)
    y *= 2
    z *= 3
    return (x, y, z)
```

También cualquier desviación de respecto de los estándares

Documentación

```
/*****************************//**
*.comentarios..
*******************************/
```

o bien

```
//////////////////////////////////
/////comentarios..
//////////////////////////////////
```

Documentación

Existen algunas herramientas que automáticamente extraen la documentación escrita en el código

Pydoc

Doxygen

Sphinx

Documentación

Doxygen

-Soporte para C++, C, Obj-C, C#, PHP, Java, Python, IDL, Fortran, VHDL, Tcl

-Puede ser estructurada desde files sin documentar.

-Visualización gráfica de las dependencias

-Permite escribir también paginas generales

Documentación

-Soporte muy bueno para los principiantes.

-Especial para generar documentación en python.

Documentación

http://www.sphinx-doc.org/es/stable/tutorial.html

Install Sphinx

Install Sphinx, either from a distribution package or from PyPI with

```
$ pip install Sphinx
```

Setting up the documentation sources

The root directory of a Sphinx collection of reStructuredText document sources is called the source directory. This directory also contains the Sphinx configuration file `conf.py`, where you can configure all aspects of how Sphinx reads your sources and builds your documentation. [1]

Sphinx comes with a script called **sphinx-quickstart** that sets up a source directory and creates a default `conf.py` with the most useful configuration values from a few questions it asks you. Just run

```
$ sphinx-quickstart
```

and answer its questions. (Be sure to say yes to the "autodoc" extension.)

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and answer its questions. (Be sure to say yes to the "autodoc" extension.)

There is also an automatic "API documentation" generator called **sphinx-apidoc**; see Invocation of sphinx-apidoc for details.

Defining document structure

Let's assume you've run **sphinx-quickstart**. It created a source directory with `conf.py` and a master document, `index.rst` (if you accepted the defaults). The main function of the master document is to serve as a welcome page, and to contain the root of the "table of contents tree" (or *toctree*). This is one of the main things that Sphinx adds to reStructuredText, a way to connect multiple files to a single hierarchy of documents.

The toctree directive initially is empty, and looks like this:

```
.. toctree::
   :maxdepth: 2
```

You add documents listing them in the *content* of the directive:

```
.. toctree::
   :maxdepth: 2

   intro
   tutorial
   ...
```

This is exactly how the toctree for this documentation looks. The documents to include are given as document names, which in short

reStructuredText directives

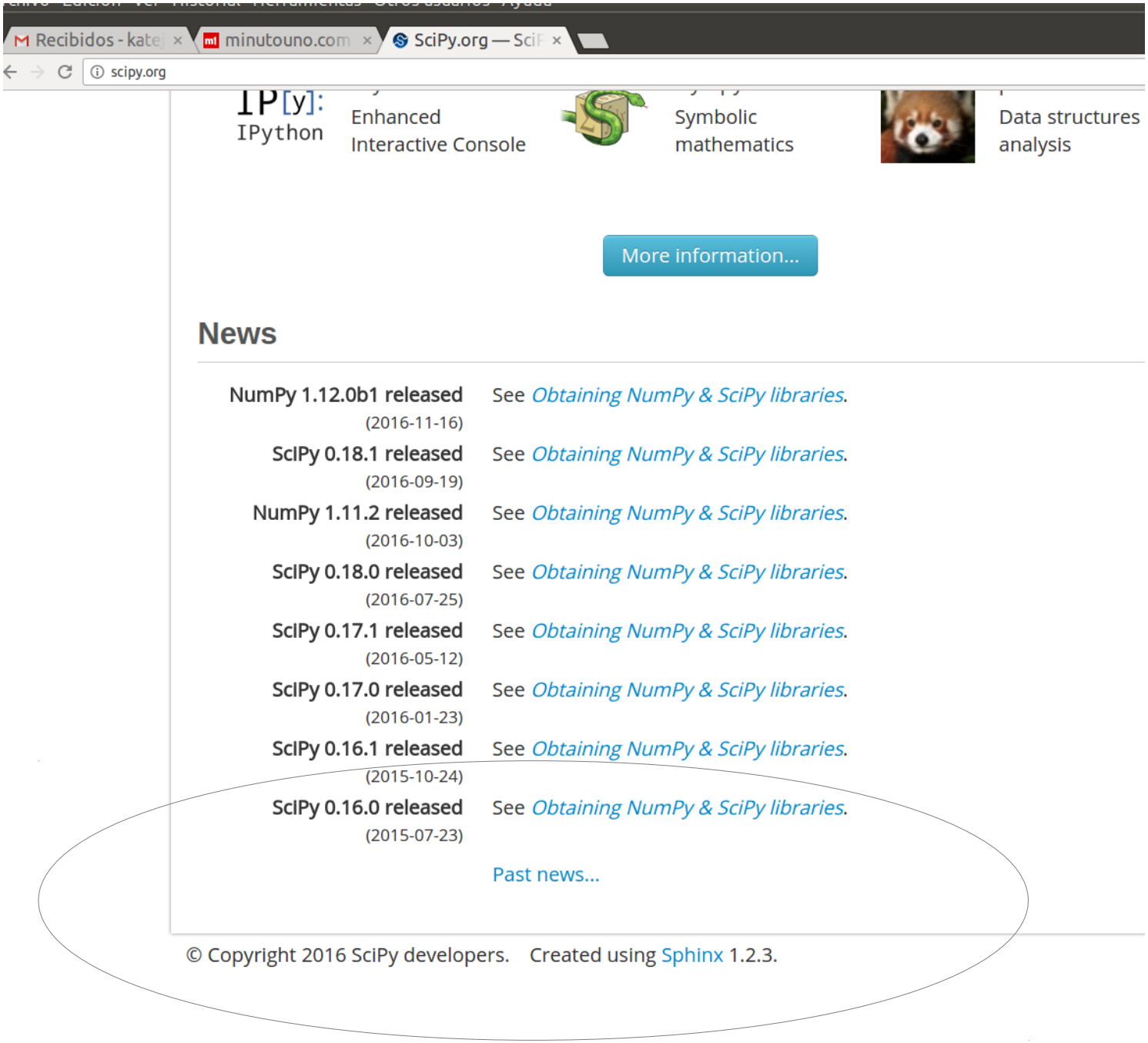
`toctree` is a reStructuredText *directive*, a very versatile piece of markup. Directives can have arguments, options and content.

Arguments are given directly after the double colon following the directive's name. Each directive decides whether it can have arguments, and how many.

Options are given after the arguments, in form of a "field list". The `maxdepth` is such an option for the `toctree` directive.

Content follows the options or arguments after a

Documentación



Documentación

SciPy.org Sponsored By ENTHOUGHT

Scipy.org | Docs | NumPy v1.12 Manual | NumPy Reference | Routines | Statistics

index | next | previous

numpy.correlate

numpy.correlate(*a, v, mode='valid'*) [source]

Cross-correlation of two 1-dimensional sequences.

This function computes the correlation as generally defined in signal processing texts:

```
c_{av}[k] = sum_n a[n+k] * conj(v[n])
```

with a and v sequences being zero-padded where necessary and conj being the conjugate.

Parameters: **a, v** : *array_like*
Input sequences.
mode : *{'valid', 'same', 'full'}, optional*
Refer to the convolve docstring. Note that the default is 'valid', unlike convolve, which uses 'full'.
old_behavior : *bool*
old_behavior was removed in NumPy 1.10. If you need the old behavior, use *multiarray.correlate*.

Returns: **out** : *ndarray*
Discrete cross-correlation of *a* and *v*.

See also:

convolve Discrete, linear convolution of two one-dimensional sequences.
multiarray.correlate Old, no conjugate, version of correlate.

Notes

The definition of correlation above is not unique and sometimes correlation may be defined differently. Another common definition is:

```
c'_{av}[k] = sum_n a[n] conj(v[n+k])
```

which is related to `c_{av}[k]` by `c'_{av}[k] = c_{av}[-k]`.

Previous topic
numpy.corrcoef

Next topic
numpy.cov

Documentación

Notes

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```
c'_{av}[k] = sum_n a[n] conj(v[n+k])
```

which is related to `c_{av}[k]` by `c'_{av}[k] = c_{av}[-k]`.

Examples

```
>>> np.correlate([1, 2, 3], [0, 1, 0.5])
array([ 3.5])
>>> np.correlate([1, 2, 3], [0, 1, 0.5], "same")
array([ 2. ,  3.5,  3. ])
>>> np.correlate([1, 2, 3], [0, 1, 0.5], "full")
array([ 0.5,  2. ,  3.5,  3. ,  0. ])
```

Using complex sequences:

```
>>> np.correlate([1+1j, 2, 3-1j], [0, 1, 0.5j], 'full')
array([ 0.5-0.5j,  1.0+0.j ,  1.5-1.5j,  3.0-1.j ,  0.0+0.j ])
```

Note that you get the time reversed, complex conjugated result when the two input sequences change places, i.e., `c_{va}[k] = c^{*}_{av}[-k]`:

```
>>> np.correlate([0, 1, 0.5j], [1+1j, 2, 3-1j], 'full')
array([ 0.0+0.j ,  3.0+1.j ,  1.5+1.5j,  1.0+0.j ,  0.5+0.5j])
```

Documentación

Evitar el karma de la programación:

No le hagas a otros lo que no te gusta que te hagan!!!! Escribí todo lo necesario para que otro pueda usar tu código y programar usando tu código!!!

Documentación

Existen Siempre es buena idea leer el manual de usuario un poco al menos(ahorra tiempo!!)

También sirve hacer los tutoriales (se aprende mas rápido)