

Apresentando Python



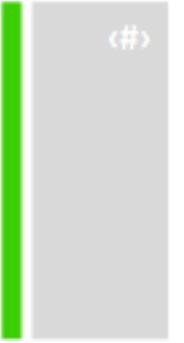
Prof. Dr. Dilermando Piva Jr.

O que é Python ?

- Python é uma linguagem de programação desenvolvida por Guido van Rossum no final da década de 1980 com o objetivo de ser fácil e intuitiva, porém poderosa.
- Suas principais características são:
 - Linguagem de programação de alto nível
 - Interpretada e de código-fonte aberto
 - Interativa
 - Multi-plataforma e Multi-paradigma
 - Sintaxe simples, fácil de aprender e de manter
 - Tipagem forte e dinâmica
- Tudo em Python é um objeto: variáveis, funções, etc. Cada objeto tem um ID, tipo e valor
- Curiosamente o nome não tem nenhuma relação com o anfíbio de mesmo nome e sim uma homenagem ao grupo de comédia britânico Monty Python!



O que é Python ?

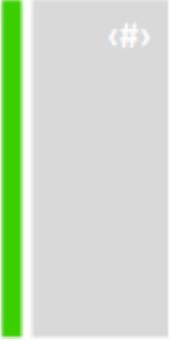


Por que Python?

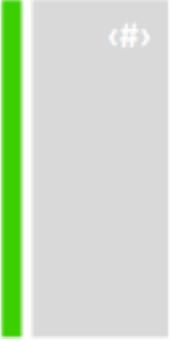


Por que Python

É fácil



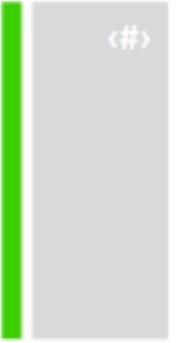
Por que Python



É fácil

É poderoso

Por que Python



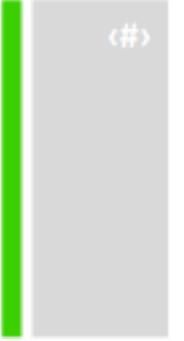
É fácil

É poderoso

É divertido



Por que é fácil



- Semelhança com pseudo-código.

```
x = 5
```

```
if x == 5:
```

```
    y = 0
```

```
    while y <=10:
```

```
        print "Valor de y é: ", y
```

```
        y = y+1
```

```
for i in [5,6,7,8,9]:
```

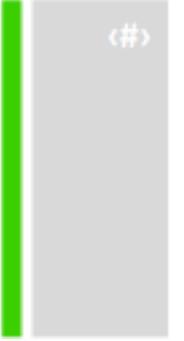
```
    print i
```

```
for i in range(100):
```

```
    print i
```



Por que é fácil



- Uso de indentação para marcar bloco.

```
x = 5

if x == 5:

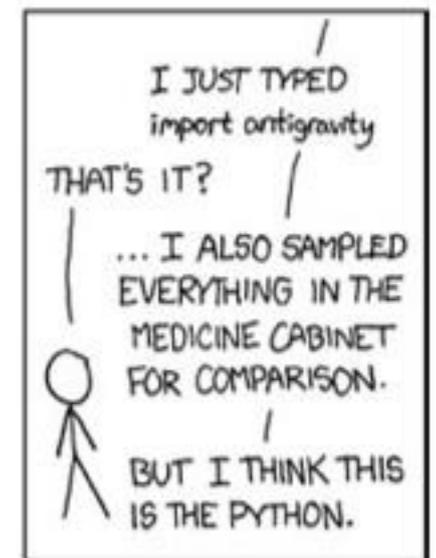
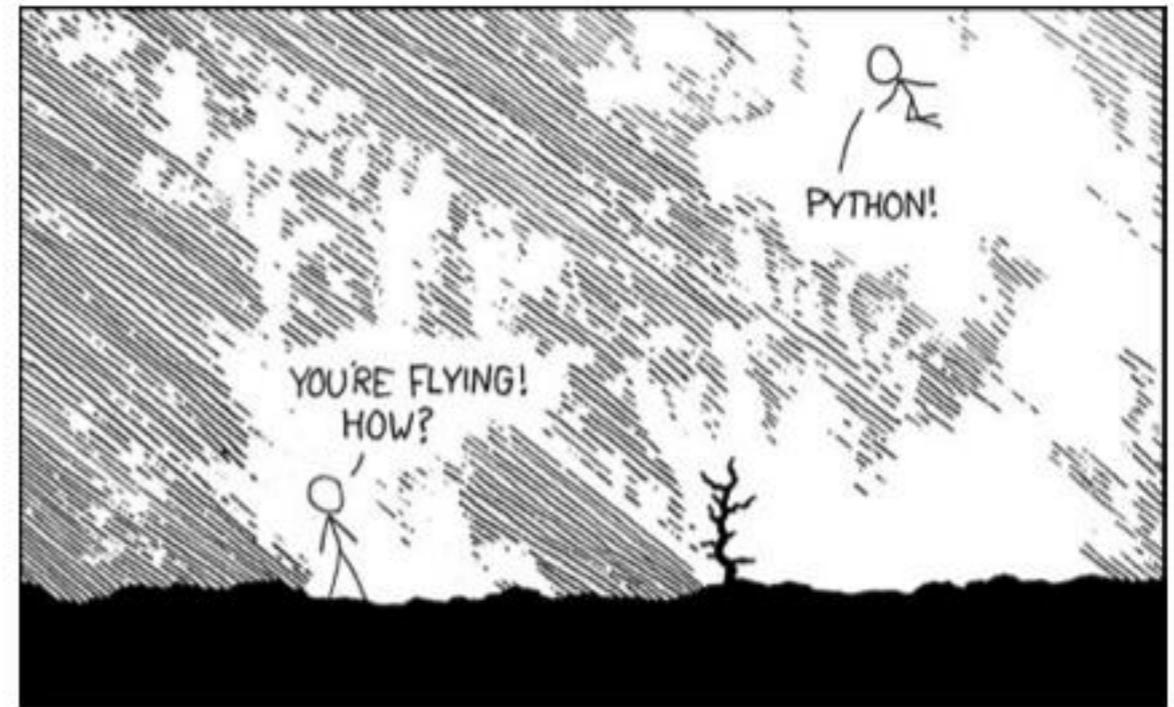
    y = 0
    while y <=10:
        print "Valor de y é: ", y
        y = y+1

    for i in [5,6,7,8,9]:
        print i

    for i in range(100):
        print i|
```

Por que é fácil

- Orientação à objetos
- Biblioteca padrão completa
- Multi-paradigma
- Multi-plataforma
- Facilmente extensível
- Free Software (GPL)





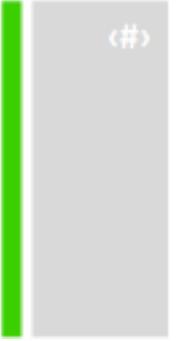
Por que é fácil



```
lista = ['laranja', 'banana', 'uva']  
lista.sort()
```

```
for item in lista:  
    print (item.capitalize())  
    ou  
    print (item.title())
```

Por que é poderoso



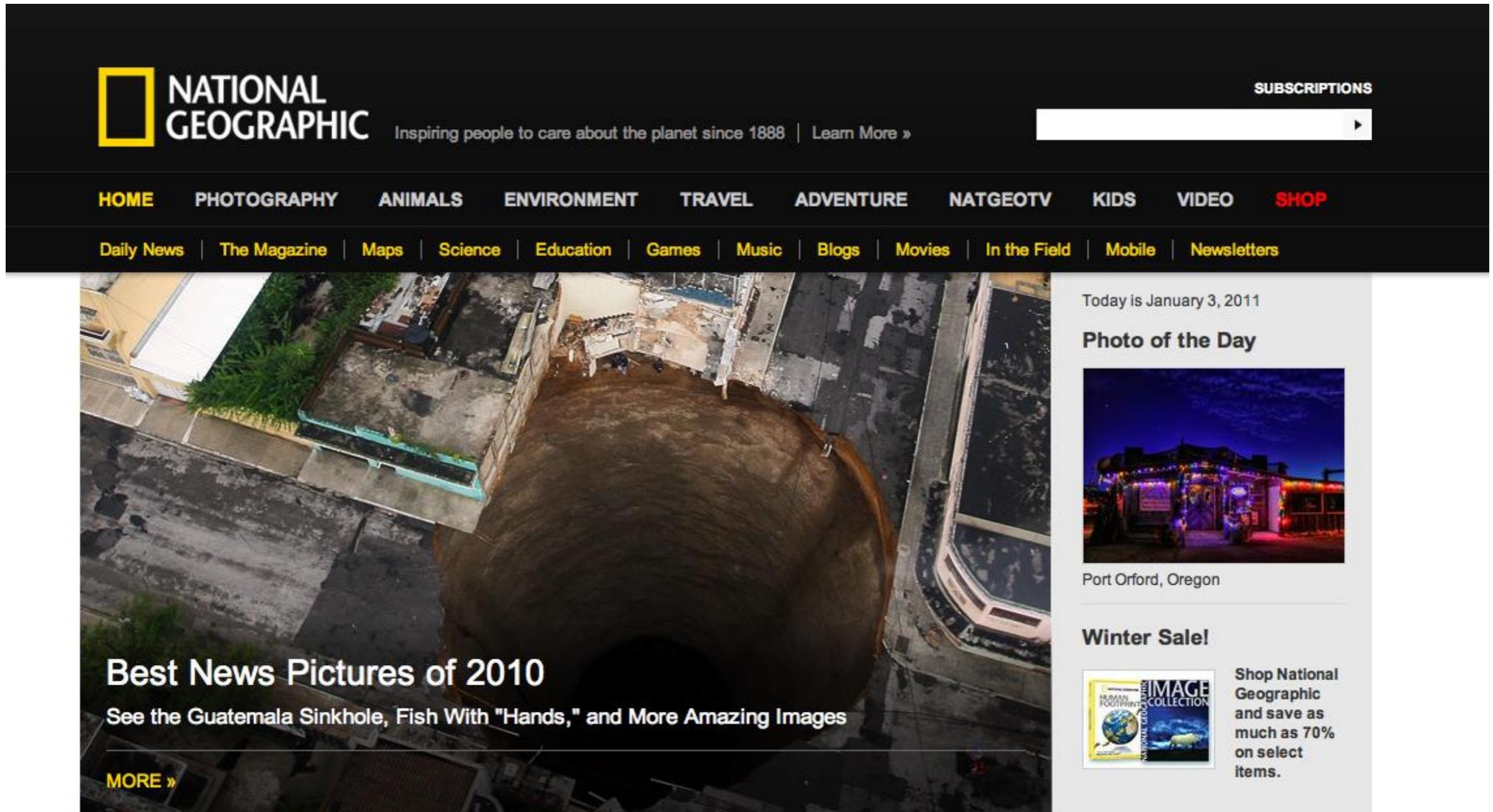
- Python para Web

- Web é presente -> Futuro!
- **Django** (<http://www.django.org>)
- Web2Py (<http://www.web2py.com>)
- Pyramid (<http://trypyramid.com>)
- Flask (<https://palletsprojects.com/p/flask/>)
- Bottle (<http://bottlepy.org/>)
- Turbogears (<http://www.turbogears.org>)



Web

<#>

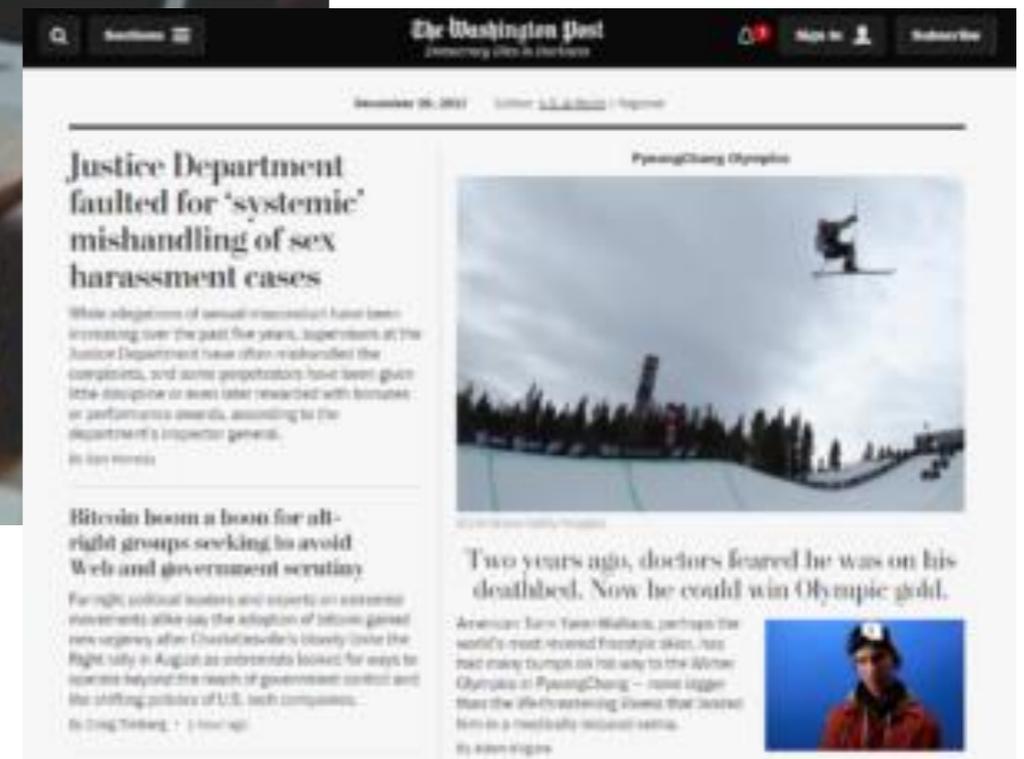


The screenshot shows the National Geographic website homepage. At the top left is the National Geographic logo with the tagline "Inspiring people to care about the planet since 1888" and a "Learn More" link. To the right is a "SUBSCRIPTIONS" button. Below the logo is a navigation menu with categories: HOME, PHOTOGRAPHY, ANIMALS, ENVIRONMENT, TRAVEL, ADVENTURE, NATGEOTV, KIDS, VIDEO, and SHOP. A secondary menu lists "Daily News", "The Magazine", "Maps", "Science", "Education", "Games", "Music", "Blogs", "Movies", "In the Field", "Mobile", and "Newsletters". The main content area features a large aerial photograph of a sinkhole in Guatemala. Below the photo is the text "Best News Pictures of 2010" and "See the Guatemala Sinkhole, Fish With 'Hands,' and More Amazing Images", with a "MORE »" link. To the right of the main image is a "Photo of the Day" section for Port Orford, Oregon, and a "Winter Sale!" promotion for National Geographic products.

<http://www.nationalgeographic.com/>

Web

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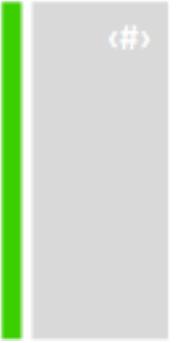


Por que é poderoso

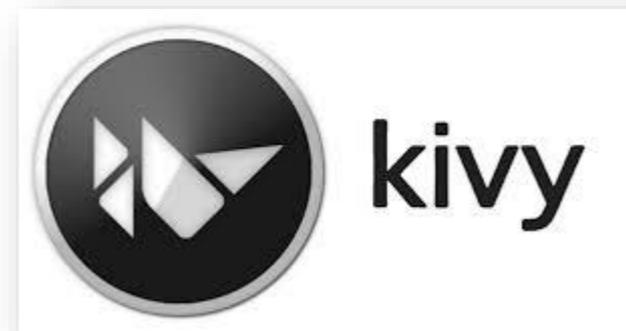
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- Python para gestão empresarial
 - **PyGObject** is a Python package which provides bindings for GObject based libraries such as GTK, GStreamer, WebKitGTK, GLib, GIO and many more.
 - PyQT5 (<https://www.riverbankcomputing.com/software/pyqt/download5>)
Biblioteca: location and positioning services, multimedia, NFC and Bluetooth connectivity, a Chromium based web browser, as well as traditional UI development.
 - MySQL, PostgreSQL, Oracle, **Sqlite**

Por que é poderoso

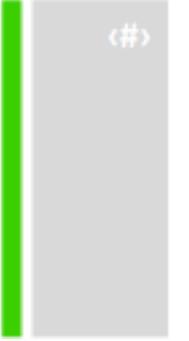


- Python para dispositivos móveis
 - Kivy (<http://kivy.org>)





Por que é poderoso



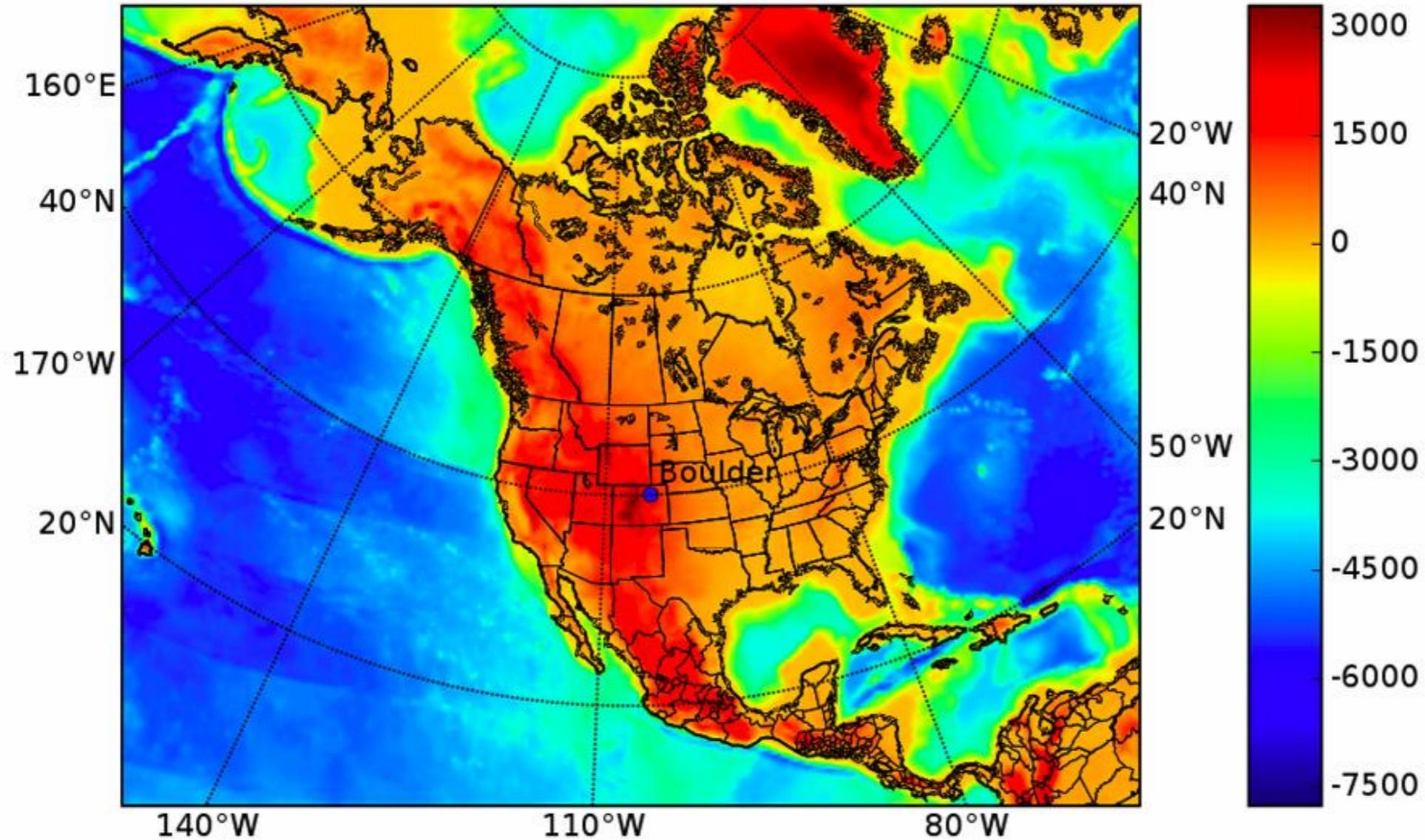
- Python para ciência
 - SciPy, NumPy
 - BioPython
 - **Matplotlib**



Plote gráficos!

(#)

ETOPO Topography - Lambert Conformal Conic



Por que é poderoso

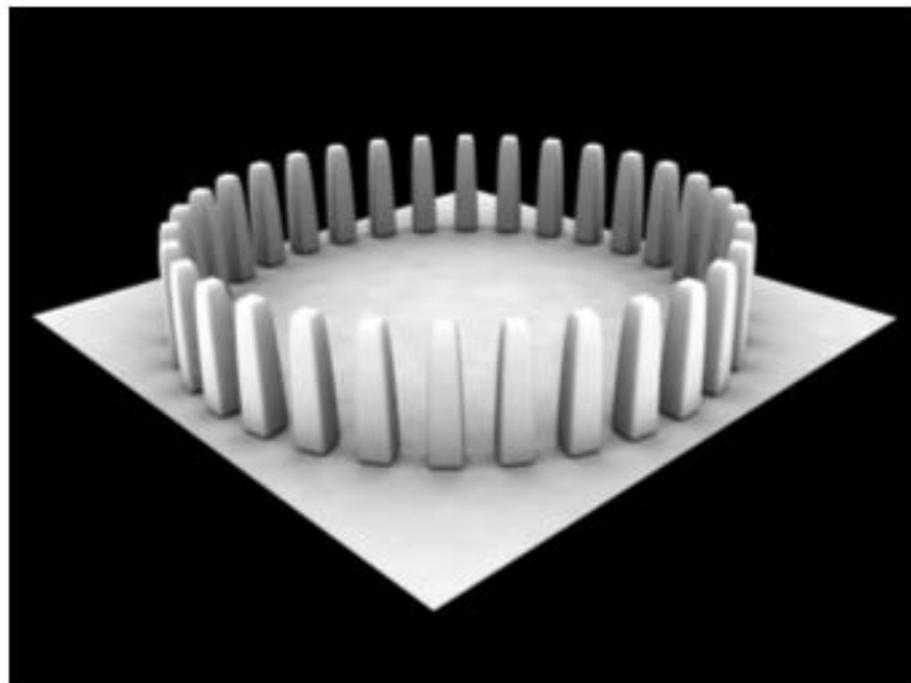
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<http://www.pygame.org/news.html>



Por que é poderoso



```

dietrich@pippi: ~
Compiled with Python version 2.5.1.
Checking for installed Python... got it!
Starting the Blender server port - listening on port 7777.
Handling client 127.0.0.1
Handling client 127.0.0.1

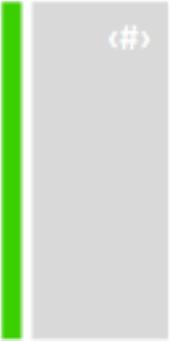
mule[1]: {formgames-python-diary.2007-06 | ~
ewki Diedel PhD DSpell File Edit Options Buffer
mesh2_verts.extend(vertices2)
mesh2_faces.extend(faces2)
object2 = scene.objects.new(mesh2, 'object2')
object2.size = (1, 1, 1)
Redraw()

for scene in bpy.data.scenes:
    mesh2_verts.extend(vertices2)
    mesh2_faces.extend(faces2)
    object2 = scene.objects.new(mesh2, 'object2')
    object2.size = (1, 1, 1)
    Redraw()

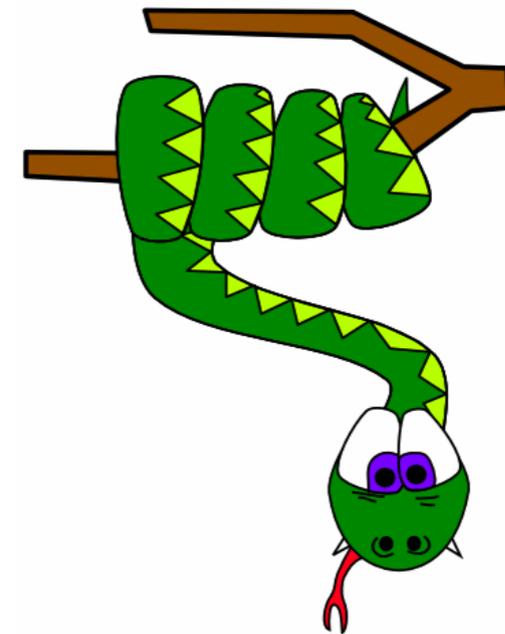
dietrich@pippi: ~
diedrich@pippi ~$ bash --port 7777
This is Blash - the GNU Blender-Again Shell :)
Connection to Blender Server established. (IP address: 127.0.0.1, port: 7777)
>>> from Blender import *
>>> vertices = [[1,1,0],[-1,1,0],[-1,-1,0],[1,-1,0],[0,0,1,27]]
>>> faces = [[1,2,1,0],[0,1,4],[1,2,4],[2,3,4],[3,0,4]]
>>> mesh = Mesh_New('mesh')
>>> mesh_verts.extend(vertices)
>>> mesh_faces.extend(faces)
>>> scene = Scene_GetCurrent()
>>> object = scene.objects.new(mesh, 'object')
>>> object.size = (1,27, 1,27, 1,27)
>>> Redraw()
  
```

<http://www.blender.org/>

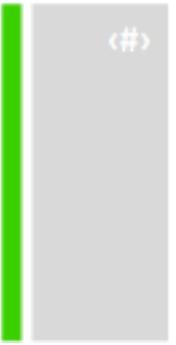
Por que é divertido



Porque é poderoso e fácil ao mesmo tempo



Quem usa Python?





TIOBE Index

Position Dec 2010	Position Dec 2009	Delta in Position	Programming Language	Ratings Dec 2010	Delta Dec 2009	Status
1	1	=	Java	17.999%	+0.94%	A
2	2	=	C	16.076%	-0.21%	A
3	4	↑	C++	9.014%	-0.16%	A
4	3	↓	PHP	7.511%	-2.26%	A
5	6	↑	C#	6.687%	+0.43%	A
6	7	↑	Python	6.482%	+1.30%	A
7	5	↓↓	(Visual) Basic	5.118%	-2.66%	A
8	13	↑↑↑↑↑	Objective-C	3.242%	+2.08%	A
9	9	=	Perl	2.331%	-0.36%	A
10	11	↑	Delphi	2.171%	-0.13%	A

Aug 2019	Aug 2018	Change	Programming Language	Ratings	Change
1	1		Java	16.028%	-0.85%
2	2		C	15.154%	+0.19%
3	4	↑	Python	10.020%	+3.03%
4	3	↓	C++	6.057%	-1.41%
5	6	↑	C#	3.842%	+0.30%
6	5	↓	Visual Basic .NET	3.695%	-1.07%
7	8	↑	JavaScript	2.258%	-0.15%
8	7	↓	PHP	2.075%	-0.85%
9	14	↑↑	Objective-C	1.690%	+0.33%
10	9	↓	SQL	1.625%	-0.69%

Vai ficar fora?



Até a próxima aula!
Prof. Piva