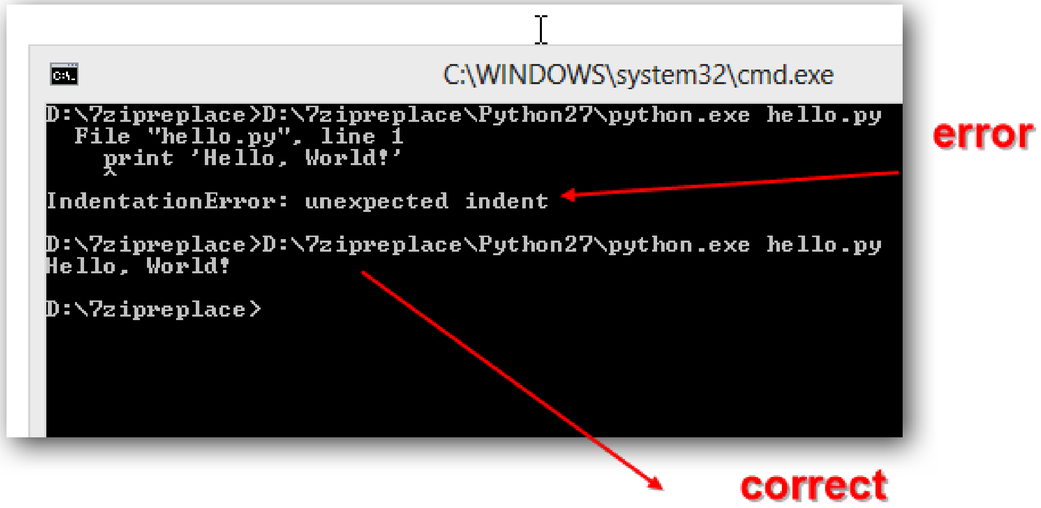
Python 入手教程

人生苦短，我用Python

- ~~编译~~**解释性**语言 Interpretive
- 面向对象 Object Oriented
- 支持函数式编程 Lambda

如何黑Python

- 双管枪
  - 请认准Python3
  - Python 2.7（2020停止更新）
- 空格/制表符缩进
  - 请用空格缩进



解释性语言

- 无需编译，所见即所得 Python Shell
- 生成中间文件*.pyc，然后在python虚拟机执行

```
Python 3.6.2 (default, Jul 17 2017, 16:44:45)
[GCC 4.2.1 Compatible Apple LLVM 8.1.0 (clang-802.0.42)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> a = 1
>>> b = 2
>>> c = a*2 + b*2
>>> print(c)
6
>>> c = a^2 + b^2
>>> print(c)
7
>>>
```

Python脚本

```
luxin433@mac 03-06 19:34:16 functions $ cat 1.py
a = 1
b = 2
c = a*2 + b*2
print(c)
c = a^2 + b^2
print(c)

luxin433@mac 03-06 19:34:20 functions $ python3 1.py
6
7
```

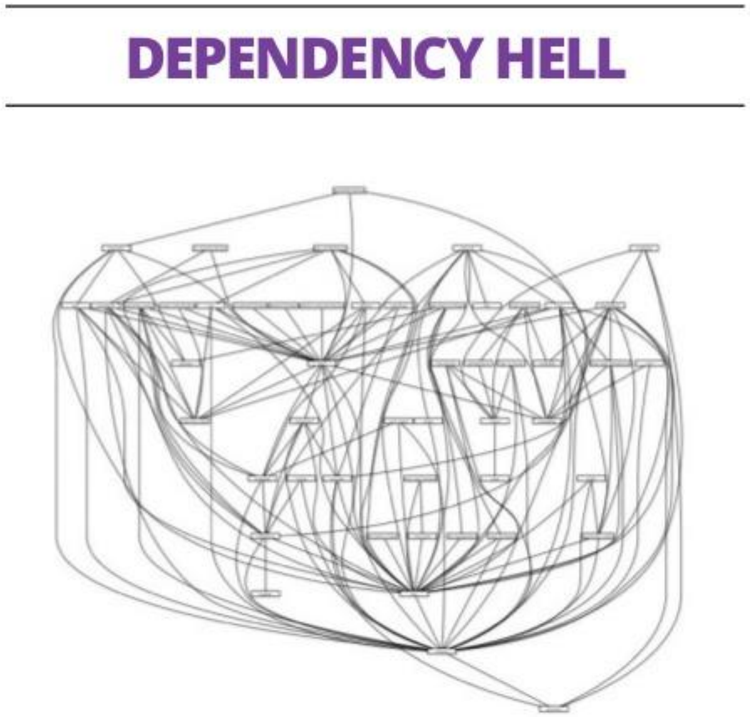
面向对象

- C语言：~~类型~~/算术运算/条件循环/~~指针/头文件~~
- OO的三大基石
- 代码块 -> 方法 -> 类 -> 包
- python 通过import语句来引用包

```
Python 3.6.2 (default, Jul 17 2017, 16:44:45)
[GCC 4.2.1 Compatible Apple LLVM 8.1.0 (clang
Type "help", "copyright", "credits" or "licen
>>> import os;
>>> os.getcwd()
'/Users/luxin433/WorkSpace/ResearchLab/Shell/
>>>
```

pip

- pip 是python的包管理工具(package manager)
- pip —version 查看pip版本和安装位置
- pip install/uninstall 安装/删除包
- pip list 列出所有的安装的包



函数式编程

```
items = [1, 2, 3, 4, 5]
squared = []
for i in items:
    squared.append(i**2)
```

- Map allows us to implement this in a much simpler and nicer way

```
items = [1, 2, 3, 4, 5]
squared = list(map(lambda x: x**2, items))
```

http://book.pythontips.com/en/latest/

Debug Python

```
import pdb

def make_bread():
    pdb.set_trace()
    return "I don't have time"

print(make_bread())
```

http://book.pythontips.com/en/latest/debugging.html

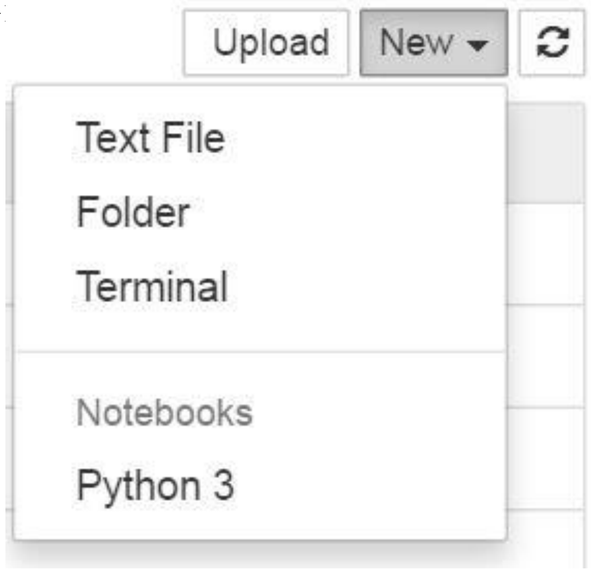
Shell集成

```
luxin433@mac 03-06 18:03:25 functions $ cat Relu.sh
#!/usr/bin/env python3                    —> Python3  Shell shebang

import matplotlib.pyplot as plt
import numpy as np
x = np.linspace(-5,5,100)
relu = lambda x: np.maximum(x, 0)
plt.plot(x, relu(x), color='blue', lw=2)
plt.show()
luxin433@mac 03-06 18:04:28 functions $ ./Relu.sh
```

Python编程环境

- Jupyter Notebooks
  - 一个在浏览器中的交互式编程环境，支持python和markdown语
  - 在浏览器中即可编辑和运行代码，实时查看代码运行结果
  - 如何新建一个文件：
    - 可从下落菜单中选择
      - 文档
      - 文件夹
      - python文件



Jupyter Notebook

- 菜单栏：

Jupyter Notebook

- Cell简介

  - 代码以cell为单位运行，In[]表示输入

```
In [1]: a = 10
```

  - cell可使用markdown或LaTeX语法，多样化文档内容

  - 运行cell使用Shift+Enter或按菜单栏上的播放键

  - 输出或报错信息会紧跟在In cell后面显示

※ 程序无反应时可使用菜单栏中的Kernel-Restart Kernel强行结束程序

Enjoy Python~

面向StackOverflow编程

- 用Google来寻找Keyword
- 用Github来寻找Code
- 用StackOverflow来Debug
- 参照Document来阅读修改源代码(RTFD)