

# Python 101

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# Hello World!

- 21:30 – 22:00 背景介绍
- 22:00 – 22:20 内容规划
- 22:20 – 22:30 问题 / 交流

# About me...

- LinkedIn: <https://www.linkedin.com/in/jiawen-yan/>
- Education:
  - SWUFE (2014), RIEM, GPA: 4.2/5.0
  - Texas A&M, 2016 fall, GPA: 4.0/4.0
  - Tsinghua U (2018) BA, Columbia U (2019) BA, dual master program
- Research
  - NYU Shanghai
  - CUHK(SZ)
- Projects
  - 2016 MCM Outstanding Winner
  - Web Crawlers: EastMoney, LinkedIn, Analyst and Reports, Conf. Calls etc.
  - Machine Learning (TensorflowText CNN)
  - NLP

我们为什么要做这件事？

- 我们有较多项目构想，需要发现人才
- 诸多Prof.课程组需要RA
- 综合实验课程拥有大量数据
- 课程改革试点
- ...

# Reasons

- Why should you learn a programming language?
- Benefits 😊
  - Invest yourself, thinking from distinctive perspective
  - Improve both GPA and English
  - More Career Choices, as needed in Research / Industry
  - More Friends
  - Better life quality ( Girlfriend / Boyfriend)
  - CS is Profitable
  - ...
- Costs ☹️
  - Time (at least 6 hours per week)
  - Some start money
  - ...

# Where are we?

## ■ Python

- Object oriented programming/ Not Process oriented programming (C)
- Easy to write, *debug*, and run
- Popular (Good environment and Community)
- Lite and easy to run/migrate
- ...

Mar 2018	Mar 2017	Change	Programming Language	Ratings	Change
1	1		Java	14.941%	-1.44%
2	2		C	12.760%	+5.02%
3	3		C++	6.452%	+1.27%
4	5	▲	Python	5.869%	+1.95%
5	4	▼	C#	5.067%	+0.66%

# 0. Setup - OS

- If Mac OSX ... you are fine ☺
- If Win OS ...
  - 如果电脑内存  $\geq 4\text{GB}$
  - 建议：下载VirtualBox (<https://www.virtualbox.org/wiki/Downloads>)
    - 虚拟机
    - 分配 20GB硬盘， 1-2GB内存
  - 安装 64 bit Ubuntu 16.04 LTS (<https://mirrors.tuna.tsinghua.edu.cn/ubuntu-releases/16.04/ubuntu-16.04.4-desktop-amd64.iso> )
- 64 bit Python 3.5+ <https://www.python.org/downloads/> ( Ubuntu系统自带)
- 建议**不要**使用Anaconda/Miniconda
- 安装完成标准
  - CMD 能够运行 python3, pip3

# 0. Setup – Github (important)

- Register a Github Account @ <https://github.com>
- Upload **most of** your codes to Git.
  - Share
  - Safe/Rollback
- Tips
  - Learn to use Documentation
  - Add sufficient comments
  - Coding Style
  - ...

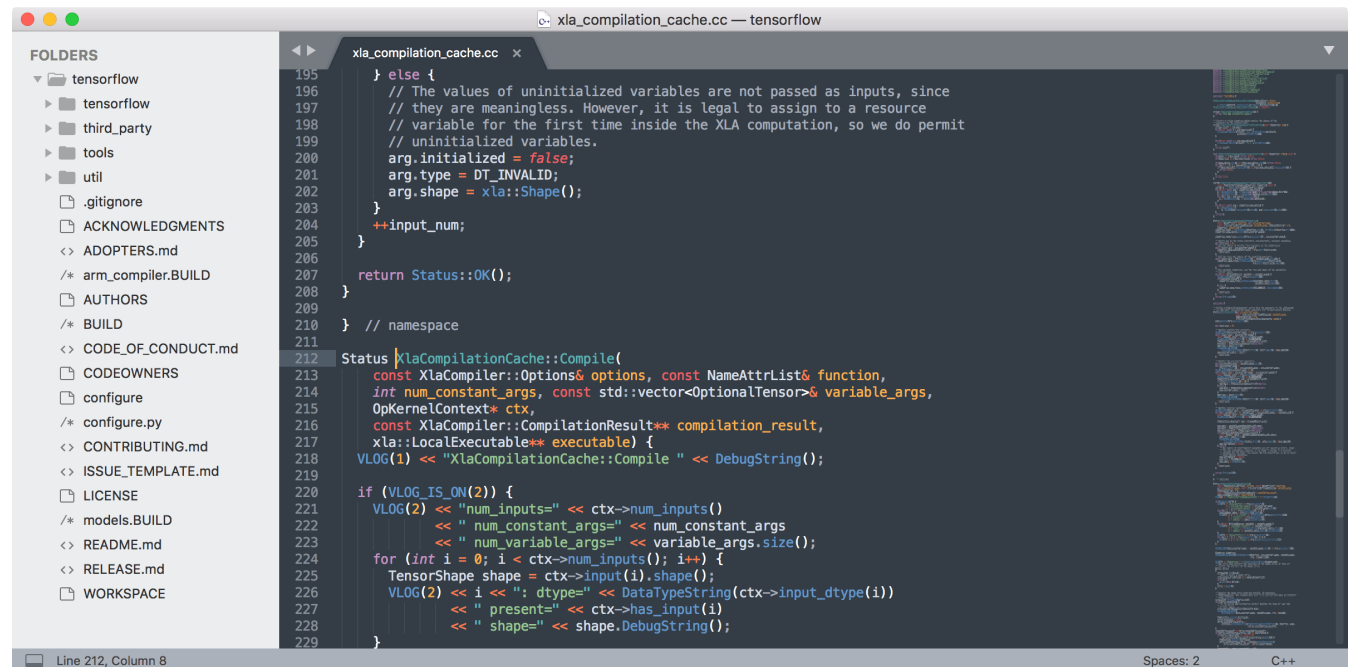


# 0. Setup – 代码编辑器

- My Suggestion: **Sublime Text**
- Download Link: <https://www.sublimetext.com/3>

- Other Choices:

- PyCharm (Education License)
- IDLE
- Notepad++
- ...



## 0. Setup – Others

- If you still decide to use Windows:
  - Download Notepad++
  - <https://www.lfd.uci.edu/~gohlke/pythonlibs/> whl files
- Baidu Disk
  - We need to large, fast and reliable share space
- Learn how to “科学上网” (Youtube)
  - One choice ExpressVPN: Refer Link: [https://www.expressrefer.com/refer-friend?referrer\\_id=14427994&utm\\_campaign=referrals&utm\\_medium=copy\\_link&utm\\_source=referral\\_dashboard](https://www.expressrefer.com/refer-friend?referrer_id=14427994&utm_campaign=referrals&utm_medium=copy_link&utm_source=referral_dashboard)
  - Another Choice: ShadowSock, Purchase a Digital Ocean Server
- Useful sources:
  - Google, not Baidu
  - Github
  - Stackoverflow

## 0. Setup– Most Important...

- 坚韧不拔、具有耐性
- 心平气和、沉得住气
- 脚踏实地、戒骄戒躁
- 虚心请教、团队合作
- Finally, I will randomly Team up your guys

# 1. Outlook

- Planned as a standard COURSE
- Course Pace
  - 60% of you will feel comfortable with the pace
  - Rest 20% feel too fast, 20% feel too slow.
- Course Object
- Do we have course HW? Yes (60%)
- Do we have course Project? Yes (30%)
- Do we have course Test? 90% Not...
- Do we have prize? BIG YES !!!

# 1. Course Plan

- Week 1-3: Basics and more Basics (HW1)
- Week 4-6: Data manipulation, storage and visualization (HW2, 3)
  - Pandas, SQLite3, Matplotlib
- Week 7-9: Natural Language Processing (HW4, Individual Project1)
  - NLTK, intro to SKLearn
- Week 10-12: Web Crawlers (Group Project 2)
  - Requests library
  - Scrapy Framework
  - Anti-anti-spider strategies, etc.

# 1. To Begin...

- Team Viewer
- QQ + WeChat
- Use Github to submit your codes
  
- Expectation: **6+** hours / week (At least 2 days )
  - 3 + 2 + 1
  - 3: <https://pythonprogramming.net/> Video Tutorials
  - 2-3: Self coding session
  - 0-1: Team project

# 1. Course Plan, week 1

## ■ Tasks

- 打印函数与字符串操作 (Print Function and String Manipulation)  
<https://pythonprogramming.net/python-tutorial-print-function-strings/>
- Python中的数学运算 (Math Operations)  
<https://pythonprogramming.net/math-basics-python-3-beginner-tutorial/>
- Python中的变量简介 (Variables in Python)  
<https://pythonprogramming.net/python-3-variables-tutorial/>
- 循环语句 (for, while, do)  
<https://pythonprogramming.net/python-3-loop-tutorial/> and  
<https://pythonprogramming.net/loop-python-3-basics-tutorial/>
- 条件语句 (if statement)  
<https://pythonprogramming.net/if-statement-python-3-basics-tutorial/> ,  
<https://pythonprogramming.net/else-python-3-tutorial/> and  
<https://pythonprogramming.net/elif-else-python-3-tutorial/>

- Ends



# 1. Course Plan, week 2

- 函数 (Functions)

<https://pythonprogramming.net/functions-python-3-basics-tutorial/>

- 函数参数设置 (Func. Parameters)

<https://pythonprogramming.net/function-parameters-python-3-basics/>  
<https://pythonprogramming.net/function-parameter-defaults-python-3-basics/>

- 全局变量 (Global Vars.)

<https://pythonprogramming.net/global-local-variables/>

- 安装与导入包 (pip install xx)

<https://pythonprogramming.net/installing-modules-python-3/>,  
<https://pythonprogramming.net/using-pip-install-for-python-modules/>,  
<https://pythonprogramming.net/module-import-syntax-python-3-tutorial/>

- 文件处理 (File operations, writing, reading and appending, )

<https://pythonprogramming.net/writing-file-python-3-basics/>,  
<https://pythonprogramming.net/appending-file-python-3-tutorial/>,  
<https://pythonprogramming.net/reading-file-python-3-tutorial/>,  
<https://pythonprogramming.net/reading-csv-files-python-3/>

# 1. Course Plan, week 3

- 链, 元组, 字典 (list, tuples, dict)

<https://pythonprogramming.net/python-lists-vs-tuples/>,  
<https://pythonprogramming.net/python-3-list-manipulation/>,  
<https://pythonprogramming.net/python-3-multi-dimensional-list/>,  
<https://pythonprogramming.net/dictionaries-tutorial-python-3/>

- 内置函数 (os, sys)

<https://pythonprogramming.net/built-functions-python-3/> ,  
<https://pythonprogramming.net/python-3-os-module/> ,  
<https://pythonprogramming.net/sys-module-python-3/>

- 错误处理 (error handling)

<https://pythonprogramming.net/common-errors-python-3-basics/>,  
<https://pythonprogramming.net/handling-exceptions-try-except-python-3/>

- 其它 (others - Urllib , Regex, )

<https://pythonprogramming.net/urllib-tutorial-python-3/> ,  
<https://pythonprogramming.net/regular-expressions-regex-tutorial-python-3/>,  
<https://pythonprogramming.net/parse-website-using-regular-expressions-urllib/>