PROGRAMMING WITH PYTHON

GO.GWU.EDU/LIBWORKSHOPS

Today's Instructors

- Dan Kerchner kerchner@gwu.edu
- Laura Wrubel lwrubel@gwu.edu
- Dolsy Smith dsmith@gwu.edu
- Megan Potterbusch mpotterbusch@gwu.edu

Materials: go.gwu.edu/pyw

Today's Plan

~2 hours: Basic Concepts	~2 hours Data with Pandas

About today...

- Ask questions!
- If you're stuck:
  - Ask us
  - Help each other out!
- If something is confusing in the workshop, it probably needs improvement; let us know.
- Stay as long as you like

Adapted from slides by Terian Koscik @spine_cone

Why Python?

- Free
- General purpose
- Easy to learn
- Readable*
- Community-developed / Open Source
- Widely used and documented
- Good built-in and contributed libraries

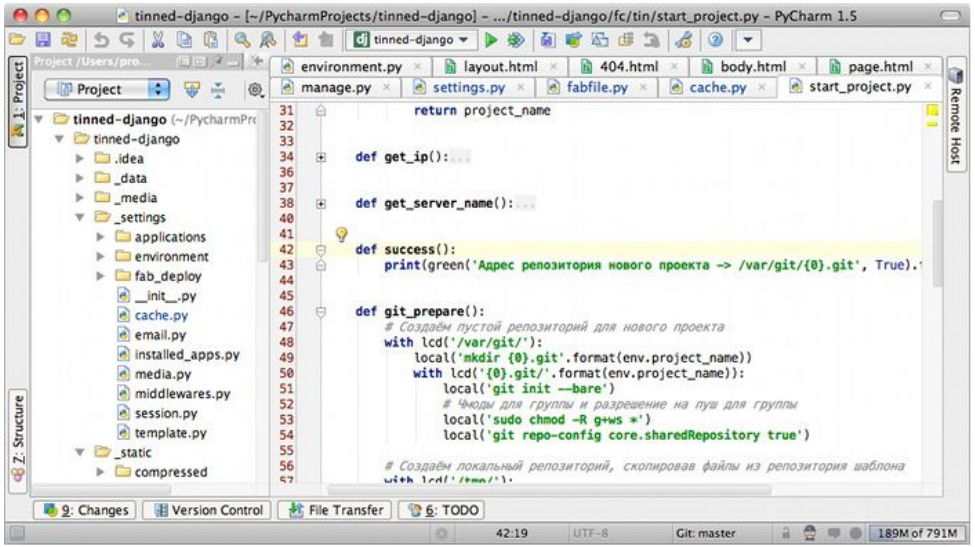
Different ways to use Python

- Command line/REPL

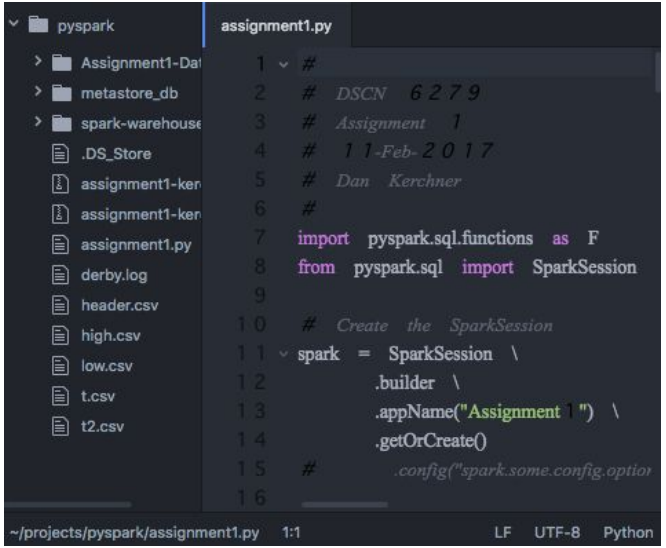
```
Last login: Mon Mar 20 22:09:33 on ttys001
GLSS-M17LFFT:~ kerchner$ python
Python 2.7.10 (default, Oct 23 2015, 19:19:21)
[GCC 4.2.1 Compatible Apple LLVM 7.0.0 (clang-700.0.59.5)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>>
>>> opinion = "This workshop is awful!"
>>> opinion == True
False
>>>
```

Different ways to use Python

- Integrated Development Environment (IDE) – Spyder, pyCharm, pyDev, Sublime, …



- File editor (e.g. Atom, vim) + command line tools (pip, virtualenv, …)



Different ways to use Python (continued)

- "Notebooks":
  - Jupyter notebooks
  - Google Colab (available in your Google Drive!)
  - Kaggle notebooks
  - others?

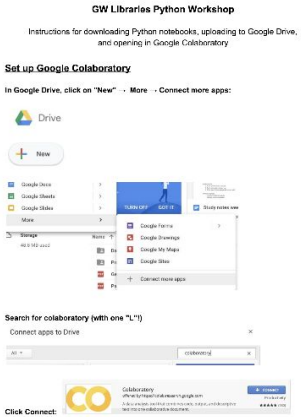
Even more ways to use Python

Anaconda = Python (and R) plus:

- **Jupyter notebooks**
- lots of libraries
  - data processing
  - analytics
  - scientific computing
  - including: **Pandas**

Setup

- Google Colaboratory



- Backup plan: https://jupyter.lai.gwu.edu

Some recommendations

- Python 3
- Write assuming your code will be read (incl. by Future You)
- Version your code 

- Learn to be "Pythonic" in your style
- Isolate your projects from each other (try: virtualenv)
- Google is your friend
- Keep learning!

Some Python libraries/frameworks

Building web applications	Django Flask
Scientific/numerical	Numpy Scipy Pandas
Machine Learning	scikit-learn
Data Visualization	matplotlib ggplot (like ggplot2 in R) plotly (<- interactive) seaborn

To Learn More

- learnpython.org
- Software Carpentry, Data Carpentry (not just Python)
- Lynda.com lynda.it.gwu.edu courses: 13 Python, 3 Pandas
- More on Pandas:
  - http://pandas.pydata.org/pandas-docs/stable/10min.html
  - http://pandas.pydata.org/pandas-docs/stable/tutorials.html
  - http://pandas.pydata.org/pandas-docs/stable/cookbook.html
  - http://www.datacarpentry.org/python-ecology-lesson/
- More on Pandas and on Data Viz: https://www.kaggle.com/learn/
- Coding Consultations at GW Libraries – go.gwu.edu/coding

Contact us:

Coding Appointments (Laura, Dan, Dolsy):

go.gwu.edu/coding

Stats Appointments:

calendly.com/statistical-consulting-gw

Workshop Materials: go.gwu.edu/pyw