STRINGFEST ANALYTICS

PYTHON-POWERED EXCEL

OBJECTIVES FOR TODAY

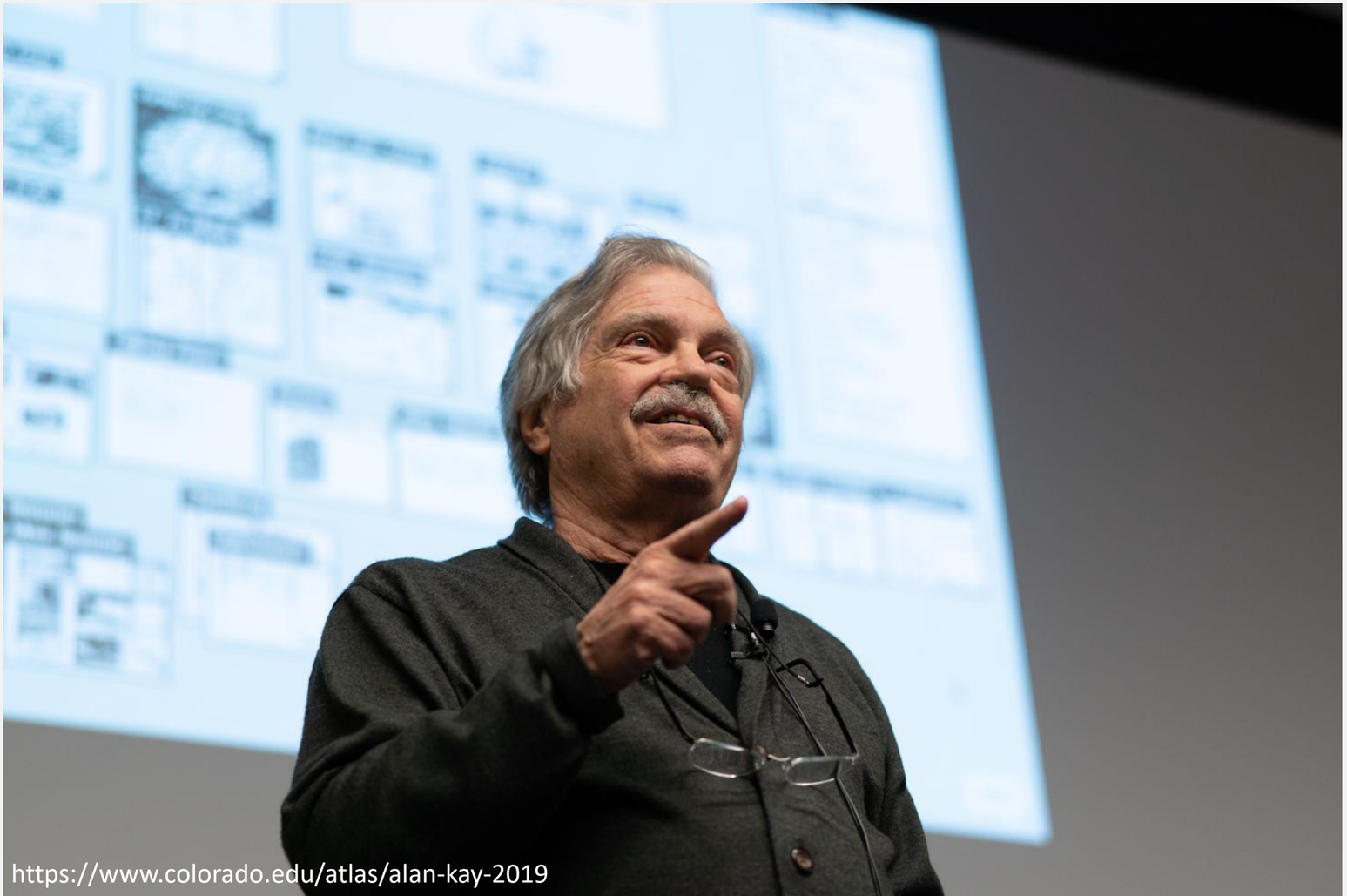
- Load, view and write workbooks to and from Python
- Add custom formats, protections, data, and metadata to workbooks from Python
- Identify common Python packages for data analysis, visualization, and Excel automation
- Navigate and execute code in Jupyter notebooks

FOLLOWING ALONG

- Each section is a sub-folder
- Demos = follow along with me
- Drills = try it yourself
  - Refresh your memory with the demo notes

1. UP AND RUNNING WITH PYTHON IN EXCEL

SORRY THE THE SLOW WIND-UP..



https://www.colorado.edu/atlas/alan-kay-2019

"Perspective is worth 80 IQ points."

-- Alan Kay

https://en.wikiquote.org/wiki/Alan_Kay

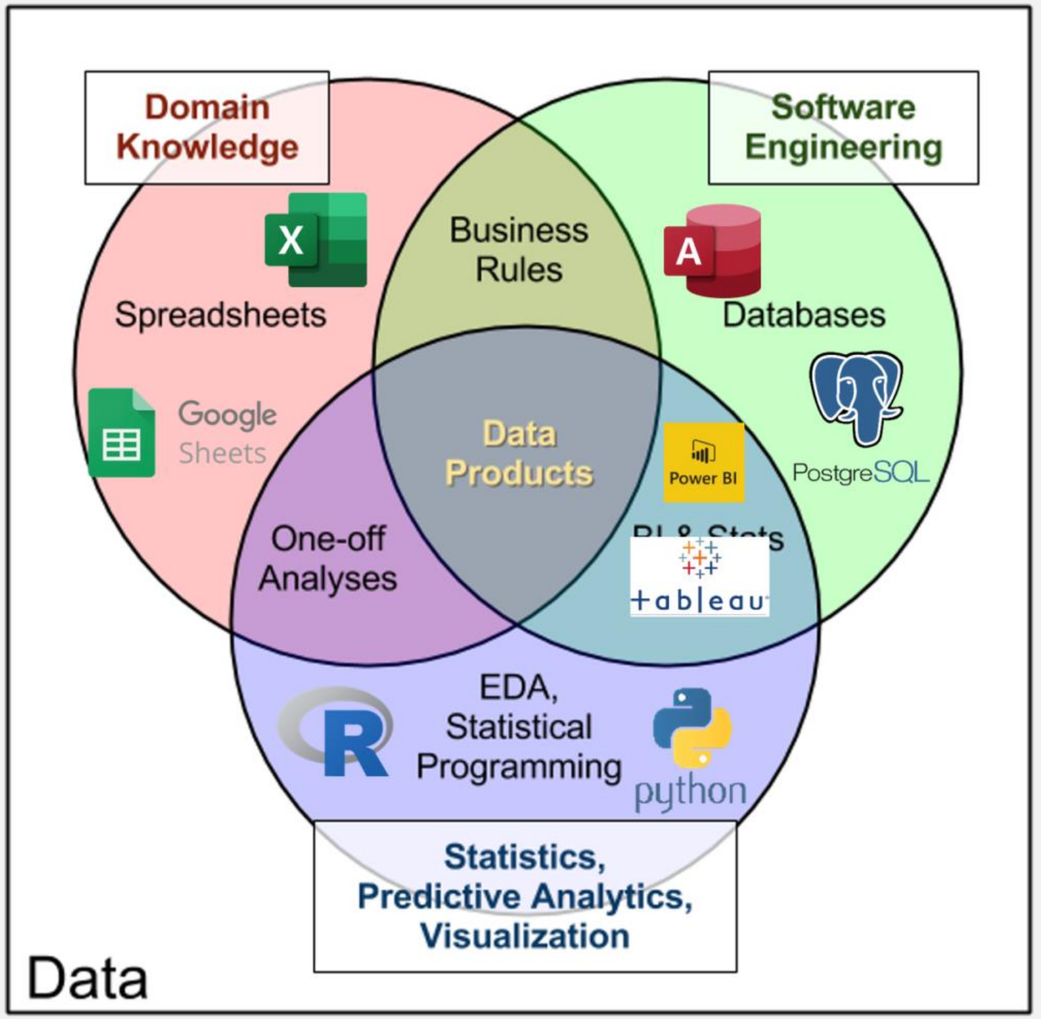
PYTHON IS:

- A programming language
- Open source

PYTHON IS NOT:

- Commercially supported
- A spreadsheet or database

THE DATA ANALYTICS STACK



http://www.datacommunitydc.org/blog/2013/09/the-data-products-venn-diagram

PYTHON & EXCEL: “YES, AND” DATA ANALYSIS

IT'S HAPPENING

How can we improve Excel for Windows (Desktop Application)?

← Excel for Windows (Desktop Application)

6,793
votes

Vote

Python as an Excel scripting language

Let us do scripting with Python! Yay! Not only as an alternative to VBA, but also as an alternative to field functions (=SUM(A1:A2))

Daniel shared this idea · November 04, 2015 · Flag idea as inappropriate…

ADMIN

ACCEPTING VOTES · **Excel Team [MSFT]** (Product Owner, Office.com) responded · March 11, 2021

Thank you for the continued interest in this space. While we don't have specific plans to announce at this time, we have been researching the topic, conducting customer interviews, and are working with the Python team at Microsoft so we can build a plan that we think can address the scenarios you told us about and ensure it can run wherever Excel runs.

Keyur [Microsoft Excel]

Show previous admin responses (6)

https://excel.uservoice.com/forums/304921-excel-for-windows-desktop-application/suggestions/10549005-python-as-an-excel-scripting-language

PYTHON: THERE'S A PACKAGE FOR THAT!

Two steps:

1. Install the package *(already done for you)*

```
pip install packagename
conda install packagename
```

2. Open the package

```
import packagename as pn
```

PYTHON: THERE'S A PACKAGE FOR THAT!

Our stack for today:

Data analysis:

- `pandas`

Data visualization

- `matplotlib`
- `seaborn`

Write Excel workbooks:

- `xlsxwriter`

PYTHON <> EXCEL – THE POSSIBILITIES!

Package	Pro	Cons
`xlsxwriter`	Write almost anything to Excel from Python	Writes to Excel only
`xlwings`	Feature-rich: write data/UDFs, call VBA, robust debugging tools	Local downloads needed
`Openpyxl`	Read and write Excel files	Limited file editing
`pyxlsb`	Read and write *.xlsb* files	Limited features
`Xlrd, xlwt, xlutils`	Can work with *.xls* files	Limited features

QUESTIONS?

SEE YOU ON JUPYTER

Start: `1-up-and-running/up-and-running.ipynb`

- Read data into Python from Excel
- Analyze data using pandas
- Write results to Excel (limited formatting)

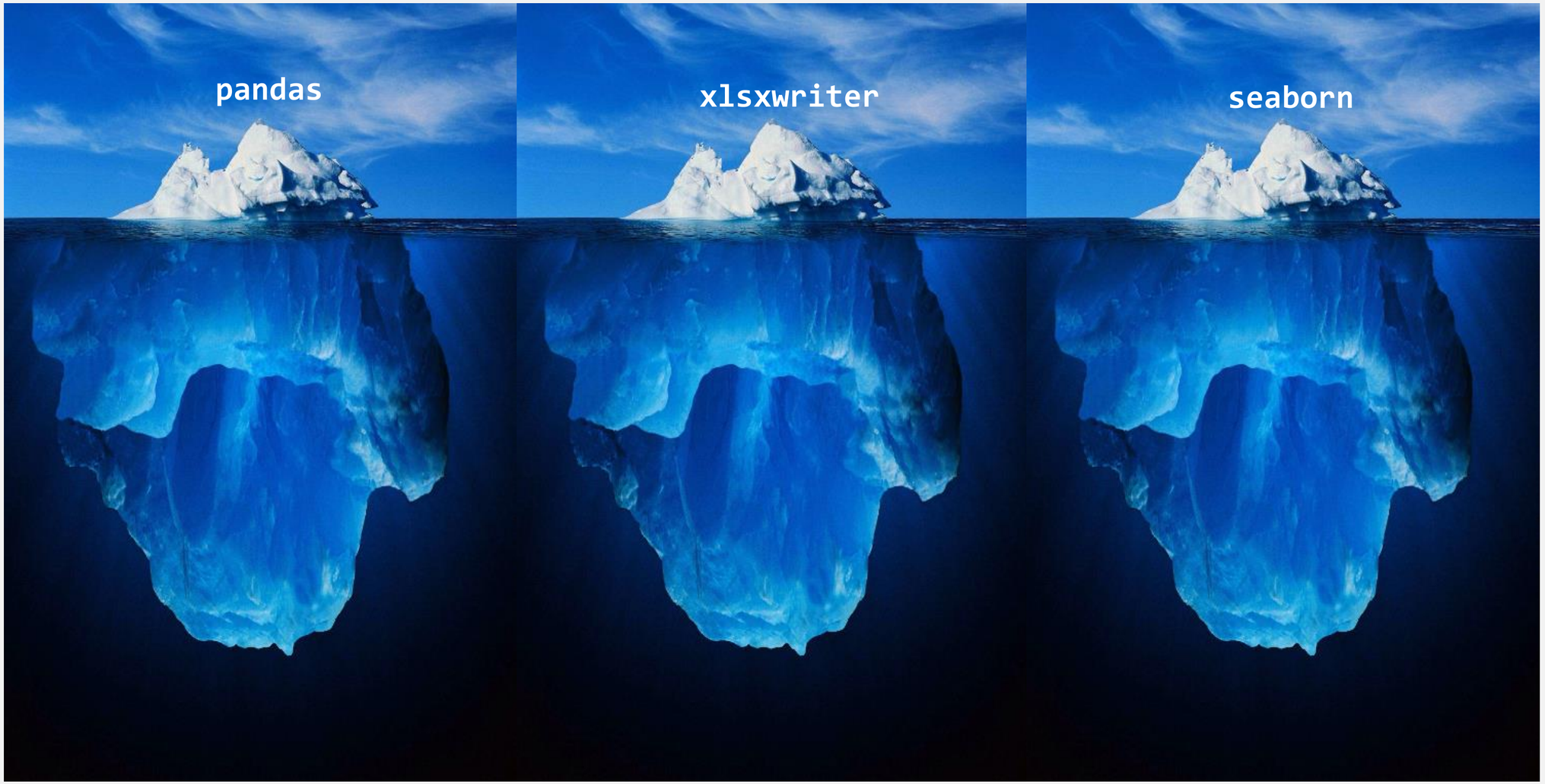
HOUSE RULES ON JUPYTER:

DON’T PANIC

QUESTIONS?

4. CONCLUSION

FUTURE LEARNING



Future learning

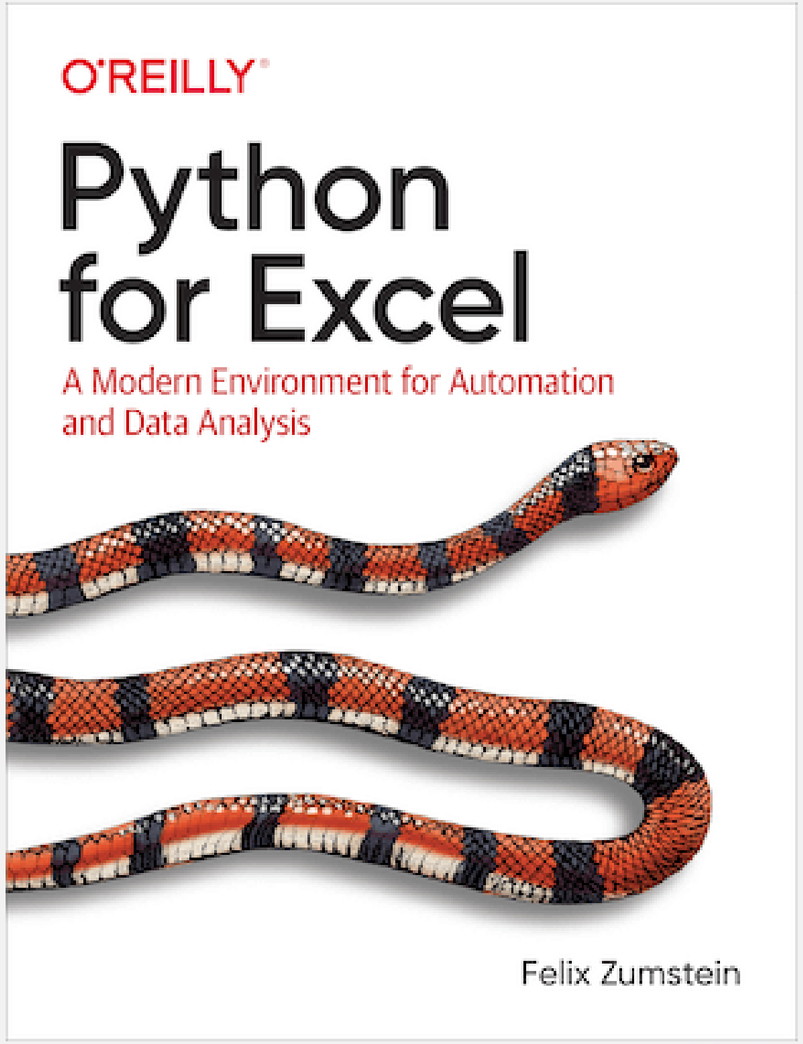
- Explore the `xlsxwriter` documentation (617 pages!)
- Creating and manipulating Python data structures: lists, dictionaries
- `pandas` for data analysis
- `xlwings` applications

Download a local Anaconda distribution of Python

- Download for free at https://www.anaconda.com/products/individual

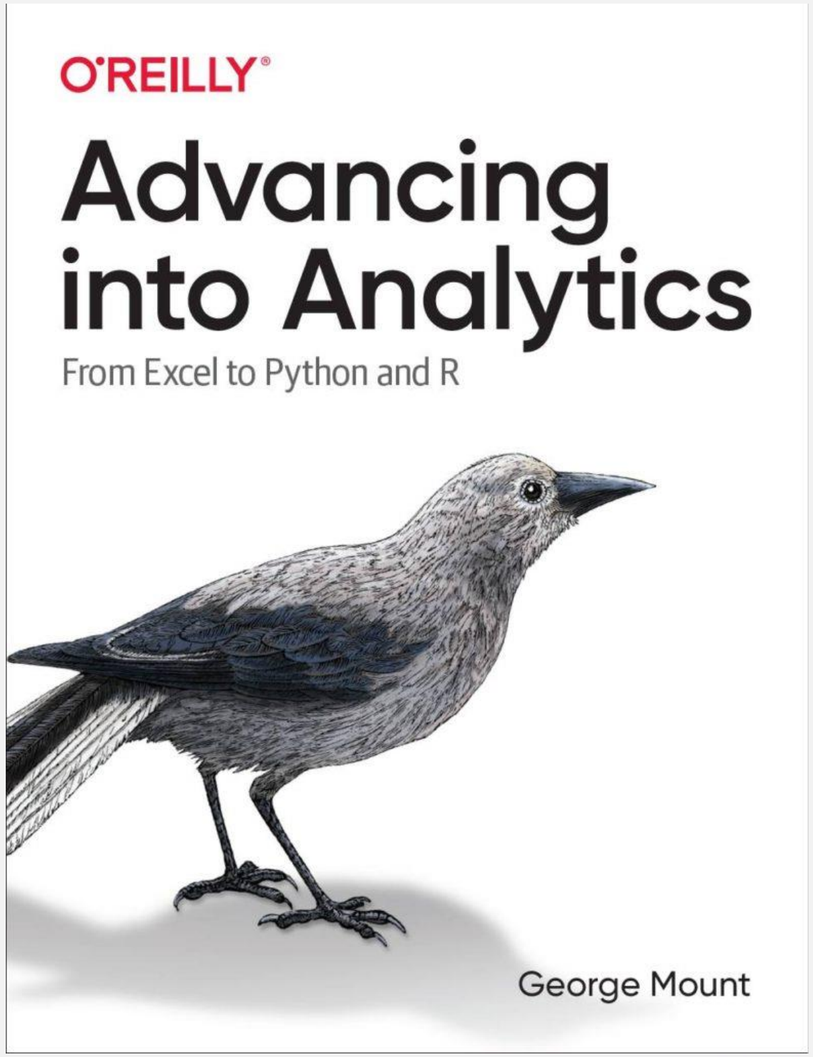
Python for Excel
by Felix Zumstein

- On O'Reilly Learning at https://learning.oreilly.com/library/view/python-for-excel/9781492080992/



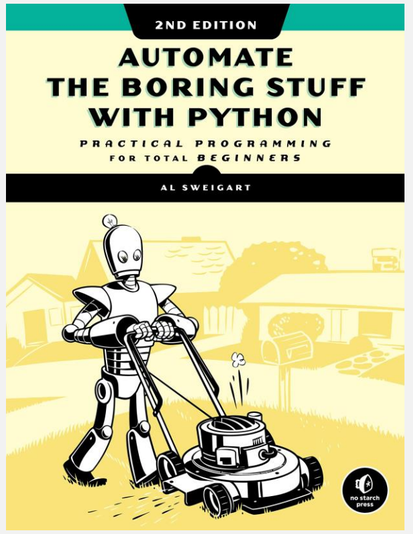
Advancing into Analytics by George Mount

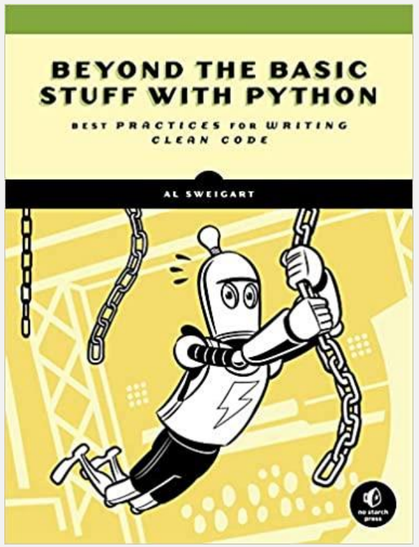
- On O'Reilly Learning at https://learning.oreilly.com/library/view/python-for-excel/9781492080992/

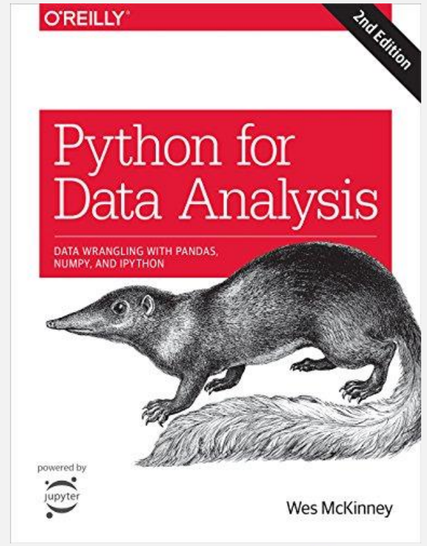


Honorable Mention (Find on O'Reilly Online Learning):

- *Python for Data Analysis*, 2nd Edition
- *Automate the Boring Stuff with Python*, 2nd Edition
- *Beyond the Basic Stuff with Python*







STRINGFEST ANALYTICS

THANK YOU

WEBSITE

stringfestanalytics.com

GITHUB

github.com/summerofgeorge

QUESTIONS?