DYALOG

2021

Python + APL = Py'n'APL

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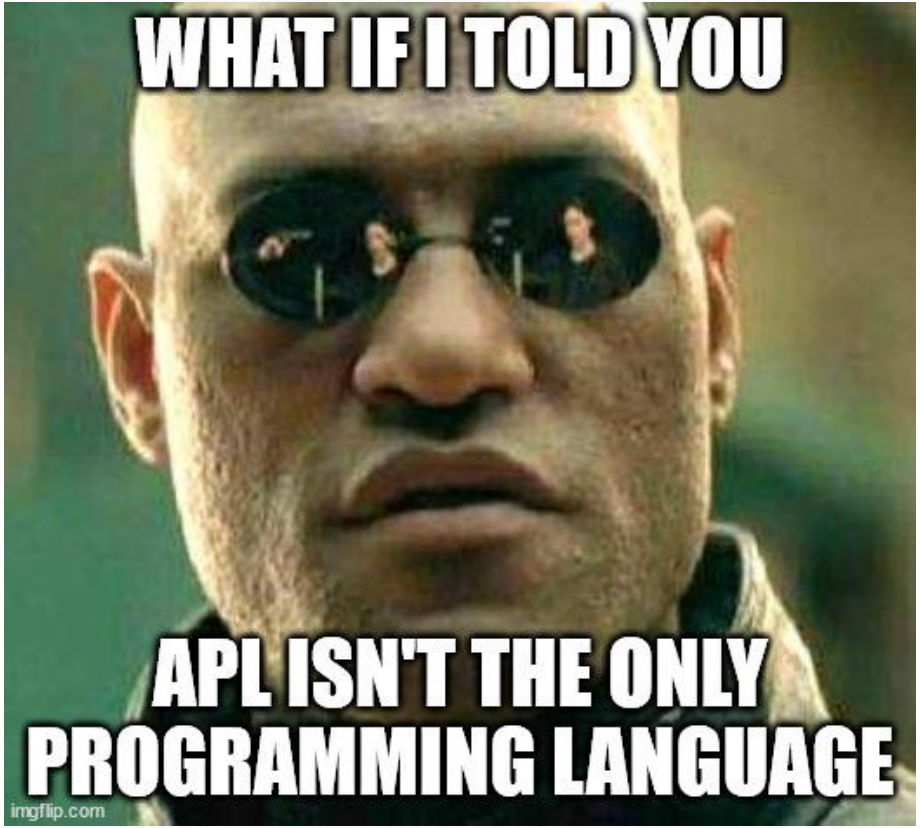
A wee bit about me

- APL "evangelist" & "teacher"
  - Online MDAPL
  - YT series on neural nets
  - YT series on solving LeetCode
  - Workshops, webinar(s), ...


WHAT IF I TOLD YOU
APL ISN'T THE ONLY PROGRAMMING LANGUAGE
imgflip.com

Python + APL

- Python – "Language of the people"*

+

- APL – "Language of the Gods"*

=

- Py'n'APL

(*) views are my own

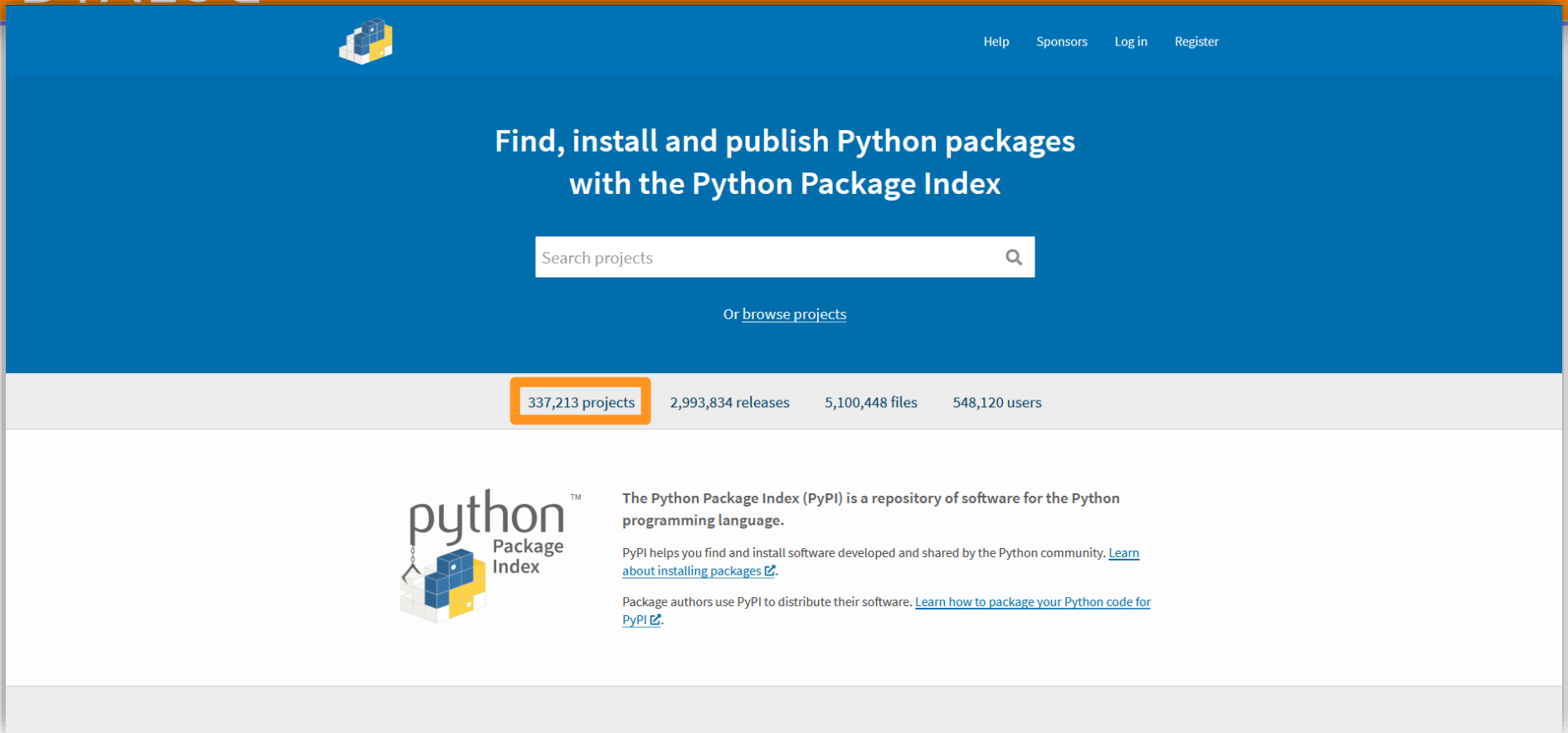
Py'n'APL

- Bidirectional interface:
  - use APL from Python
  - use Python from APL
- Originally by Marinus (@marinuso)
- Open-source (on GitHub)

What's in it for APL?

If you can imagine it, there is ~~porn of it~~.

Python code for it.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Find, install and publish Python packages with the Python Package Index
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337,213 projects
2,993,834 releases
5,100,448 files
548,120 users
python Package Index
The Python Package Index (PyPI) is a repository of software for the Python programming language.
PyPI helps you find and install software developed and shared by the Python community. Learn about installing packages.
Package authors use PyPI to distribute their software. Learn how to package your Python code for PyPI.

What's in it for APL?

- Access to +330,000 packages
  - all-things domain-specific
    - data I/O
    - algorithms
    - ...
  - API wrappers
  - AI/ML/DL/RL/... libraries


THIS IS YOUR MACHINE LEARNING SYSTEM?
YUP! YOU POUR THE DATA INTO THIS BIG PILE OF LINEAR ALGEBRA, THEN COLLECT THE ANSWERS ON THE OTHER SIDE.
WHAT IF THE ANSWERS ARE WRONG?
JUST STIR THE PILE UNTIL THEY START LOOKING RIGHT.
DATA
ANSWERS

What's in it for Python?

- Bend arrays/data to our will
  - (APL ≈ `numpy` on steroids++)
- Quickly prototype algorithms
  - Martin Janiczek during APL Seeds '21
  - My YT series on neural nets

Demos

- Array-heavy simulation (Game of Life)
- AI algorithm prototype
- Data I/O
- Google Sheets API

References & useful links

- YT series on neural nets: https://www.youtube.com/playlist?list=PLgTqamKi1MS3p-O0QAgjv5vt4NY5OgpiM
- YT series on solving LeetCode: https://www.youtube.com/playlist?list=PLgTqamKi1MS2b-aKabbnAsnTiQgJAbmnr
- Online Mastering Dyalog APL: https://mastering.dyalog.com/
- Py'n'APL on GitHub: https://github.com/Dyalog/pynapl/
- xkcd 305, Rule 34: https://xkcd.com/305/
- Python Package Index (PyPI): https://pypi.org/
- `numpy`: https://numpy.org/
- `gspread`: https://docs.gspread.org/en/latest/
- `pygame`: https://www.pygame.org/docs/
- `PIL`: https://pillow.readthedocs.io/en/stable/
- "Drawing the Mandelbrot Set" webinar: https://www.youtube.com/watch?v=ozaRMHeYWYM
- Google Sheet demo: https://docs.google.com/spreadsheets/d/1pM5DbsyquFRHPqkhC0oWEK3KWsC3VH92Im8kns5Pkq4
- Conway's Game of Life in APL" by John Scholes: https://www.youtube.com/watch?v=a9xAKttWgP4
- xkcd 1838, Machine Learning: https://xkcd.com/1838/

website

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name company