

Visit <https://bit.ly/birn-data>, click scraping

# データ サイエンティスト DOJO

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Knight Chair, Columbia University

# About me

- Studied **Cognitive Science** @ UVA
- **Machine Learning and AI** @ Columbia
- **Professor in Data Journalism** at Columbia Graduate School of Journalism
- Worked for **New York Times**, ProPublica, founded a data news team at the nation's **largest radio station**
- Non-traditional path into journalism and academia (web development, design, education)



why are you learning  
from a data journalist?

it's a very good question.

# journalism layoffs...

**MEDIA**  
**Over 500 journalists were laid off in January 2024 alone**  
The job cuts come after an already bleak year in the news business.

**POLITICO**

**Los Angeles Times**

More than 100 employees were let go from The Los Angeles Times in January. | Patrick T. Fallon/AFP via Getty Images

By KIERRA FRAZIER  
02/01/2024 07:31 AM EST

[Facebook](#) [Twitter](#) [Email](#) [More](#)

**Publishers** | September 4, 2024

## News media job cuts 2024 tracked: **Guardian, Time, Axios, Tampa Bay Times, NYPost, Hollywood Reporter all hit in August**

Big losses at the likes of The Messenger, Sports Illustrated and Media Ireland started 2024.

By Charlotte Tobitt

A giant CNN sign is seen at the entrance to the CNN Center in Atlanta, Georgia, in 2022. Picture: Shutterstock/Tada Images

**FC News and media layoffs 2024**

announced layoffs in the media space

**FAST COMPANY**

- *The Los Angeles Times* laid off 20% of its newsroom in January.
- NBC News and MSNBC laid off around 75 employees in January.
- *Sports Illustrated* laid off most of its staff (around 100) after it failed to pay licensing fees to its parent company in January.
- *Time* laid off 15% of its staff, or roughly 30 employees, in January.
- *Business Insider* CEO Barbara Peng announced a staff reduction of 8% in January.
- *Forbes* reduced its staff by 3% in late January.
- *TechCrunch* laid off a handful of staffers and is going to end its paid subscription options.
- *The Messenger*, a news startup, shut down entirely at the beginning of February after less than a year in operation, leaving more than 300 employees jobless.
- *The Wall Street Journal* let 20 staff members go at its Washington, D.C., bureau in early February.
- CBS News also cut 20 jobs at its D.C. bureau in early February, as a larger round of 800 cuts at Paramount.
- *The Intercept* laid off 15 staff members, including its editor-in-chief, in mid-February.
- *NowThis* cut half of its editorial team in mid-February, a loss of 26 jobs.
- BuzzFeed sold one of its sub-brands, Complex, this week, and subsequently announced a 16% reduction in staff. This comes after shutting its entire news division last year.
- Vice Media will stop publishing on Vice.com and will lay off hundreds, per recent reports.
- WAMU radio, the NPR affiliate in Washington, D.C., said it will shut down the local news website DCist and lay off its staff.

# ...but data is booming!

**Post**

**Bloomberg Graphics**  

@BBGVisualData

Bloomberg is expanding its data journalism and visualization team globally by hiring approximately 40 new data journalists, data visualization reporters, editors and engineers.

a thread 



# We're

 Hearst Television

**Data Journalist** 

Washington, DC · Reposted 1 week ago · Over 100 applicants

 \$95K/yr - \$105K/yr · Full-time · Mid-Senior level

 Realtor.com

**Data Journalist** 

Austin, TX · Reposted 1 day ago · 87 applicants

 Full-time

 hims & hers

**Freelance Data Journalist**

United States · Reposted 4 days ago · Over 100 applicants

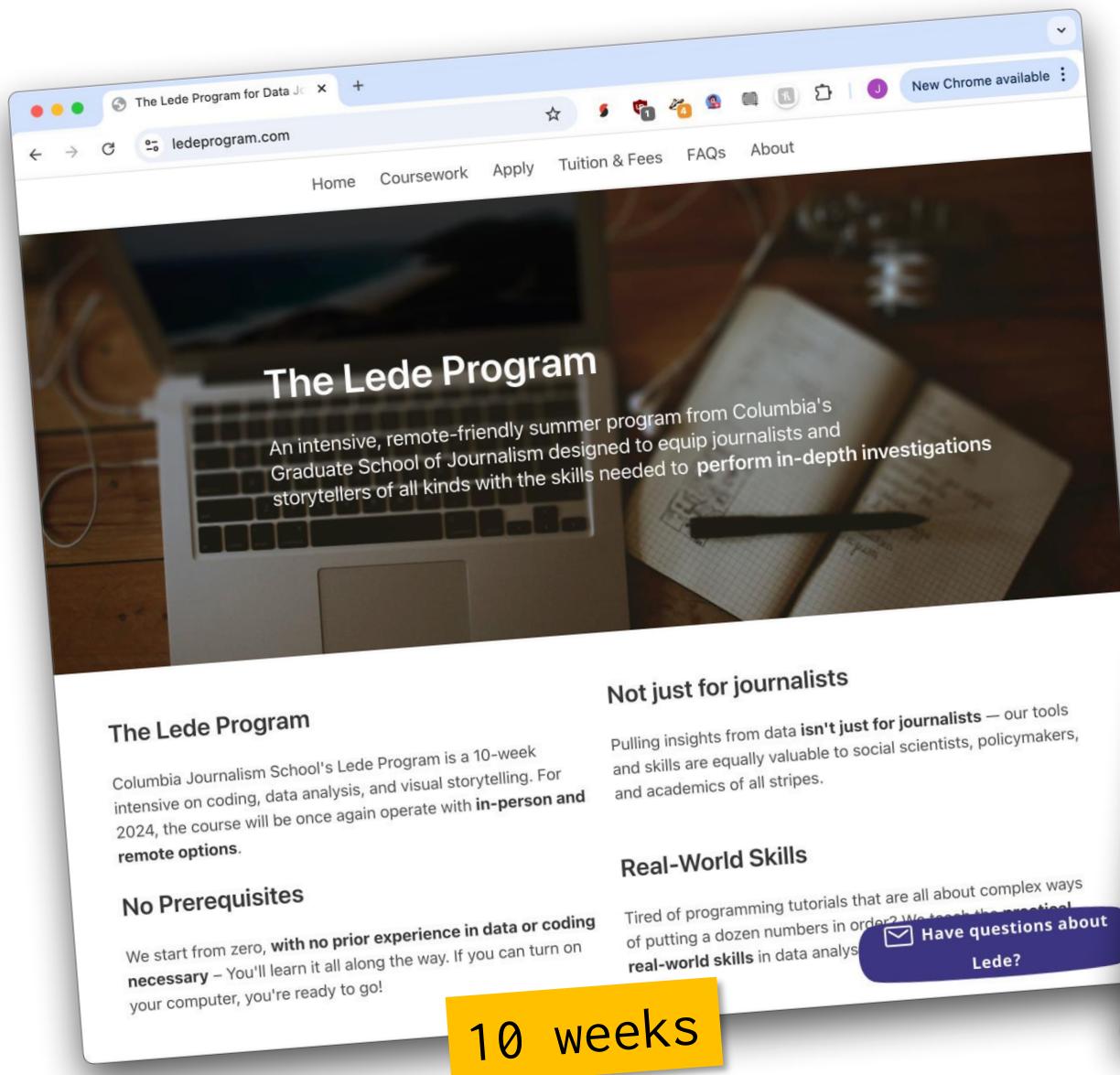
 Remote · Full-time · Mid-Senior level

data is flexibility

taking information,  
explaining it to others

# new business plans

- Non-journalism companies need to communicate
- A journalism organization in Brazil scrapes legislation, organizes and categorizes it, then sells the information to lawyers
- Skilled interactive news and graphics teams do development work for large, well-paying clients to support their journalism work
- **With a little extra knowledge and skills, many many many many many more things are possible**



The Lede Program

An intensive, remote-friendly summer program from Columbia's Graduate School of Journalism designed to equip journalists and storytellers of all kinds with the skills needed to perform in-depth investigations

**The Lede Program**

Columbia Journalism School's Lede Program is a 10-week intensive on coding, data analysis, and visual storytelling. For 2024, the course will be once again operate with **in-person and remote options**.

**No Prerequisites**

We start from zero, **with no prior experience in data or coding necessary** – You'll learn it all along the way. If you can turn on your computer, you're ready to go!

**10 weeks**

**Not just for journalists**

Pulling insights from data **isn't just for journalists** — our tools, and skills are equally valuable to social scientists, policymakers, and academics of all stripes.

**Real-World Skills**

Tired of programming tutorials that are all about complex ways of putting a dozen numbers in order? We teach the practical of putting a dozen numbers in order? **Have questions about real-world skills in data analysis?**

**Lede?**



COLUMBIA JOURNALISM SCHOOL

Academics ▾ People ▾ Professional Learning ▾ Centers ▾ Community ▾ About ▾

Program Spotlight: M.S. in Data Journalism

**COLUMBIA JOURNALISM SCHOOL**

**PROGRAM SPOTLIGHT** 

**M.S. in Data Journalism**

Watch on 

**M.S. Data Journalism**

Journalism in the 21st century is... **analyzing data for storytelling,**

**12 months**

データサイエンティストDOJO

nikkeibp.co.jp/seminar/nb/ddojo/?n\_cid=emsl\_...

特徴 プログラム 開催概要 お問い合わせ お申し込み

米コロンビア大学 ジョナサン・ソーマ教授が来日し直伝

データに裏打ちされた事業計画を立案する力が身につく  
マネジメント層とリーダーのための

**データサイエンティスト  
DOJO(道場)**

全6日間集中講座

2024年9月23日(月)開講

米コロンビア大学で開催している  
人気プログラムを日本で開催

one week!

事業計画や中期経営計画の立案で、  
過去の経験や勘に頼ってはいませんか？

データの裏付けがない計画は、実効力がありません。プロジェクトリーダー自らが、適切な仮説を打ち立て、データの意味を読み解き、深い洞察力を身に着ける必要があります。データサイエンティストとしてのスキルを学ぶにとどまらず、データに裏打ちされた仮説を検証する思考回路を要請するのが、この研修の主たる目的です。「仮説を立てる」→「データを集める」→「データを分析する」→「ビジュアライゼーションによって、理解と洞察力を深化する」→「チームで共有し、次なる仮説を立てる」このサイクルを繰り返すことによって、より精度の高い事業計画や中期経営計画の立案が可能になります。

# Goals

- We are not aiming for expertise!
- We are aiming for foundational knowledge
- We want to be adaptable

“with time, I can  
accomplish this”

...almost? maybe?

What you don't know, you can learn.  
With a good foundation, everything is  
possible.

# *introductions*

Turn to the people next to you, in front of you, behind you. Introduce yourself.  
**Where are you from + why are you here?**

# Our schedule

- **Monday through Friday + Monday**
  - 10:00-12:00 Class
  - 12:00-01:00 Lunch
  - 01:00-03:00 Class
- **Homework**
  - Optional!
  - A large amount for learning later
- **This Friday:** Working on personal projects
- **Next Monday:** Project presentations

# What we'll learn

- **Coding:** Fundamentals of Python
- **Data analysis:** pandas (Excel for Python)
- **Structured data:** APIs
- **Unstructured data:** Scraping
- **AI tricks:** Transcription, data tools, app building
- **Data visualization:** Coding and no-code tools
- **Project planning:** Make sure you finish!

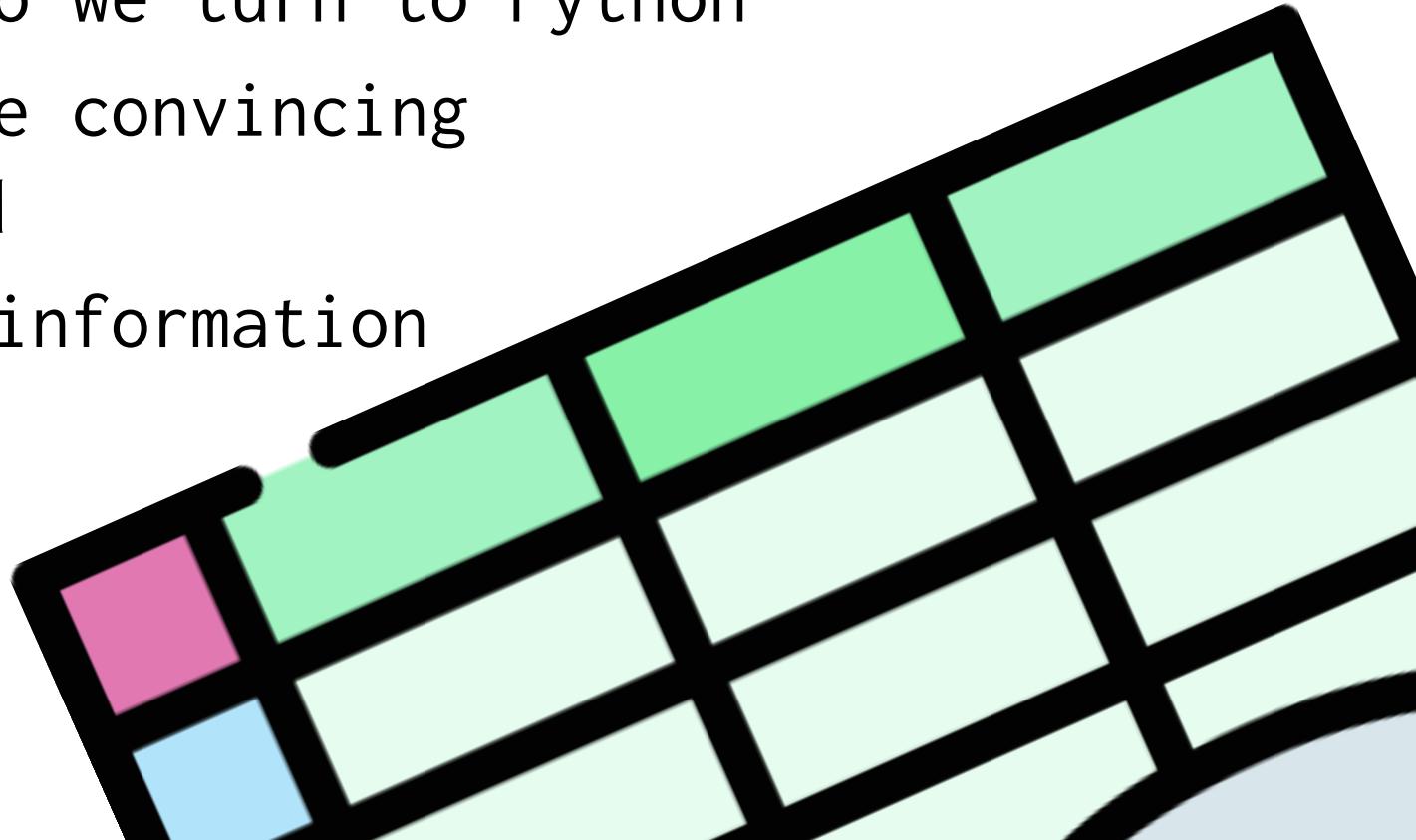
# Python programming

- Fundamental to every other skill
- A superpower that allows you to do anything
- Not just “coding”: **Python is special**
  - Academic for research
  - Industry for software development
  - Online tools, desktop applications, databases
  - Powers most of the AI tools



# Data analysis

- A person produces ~6GB of data per hour
- Excel has limitations, so we turn to Python
- Data makes arguments more convincing
  - ...but that makes me sad
- Just one more source of information



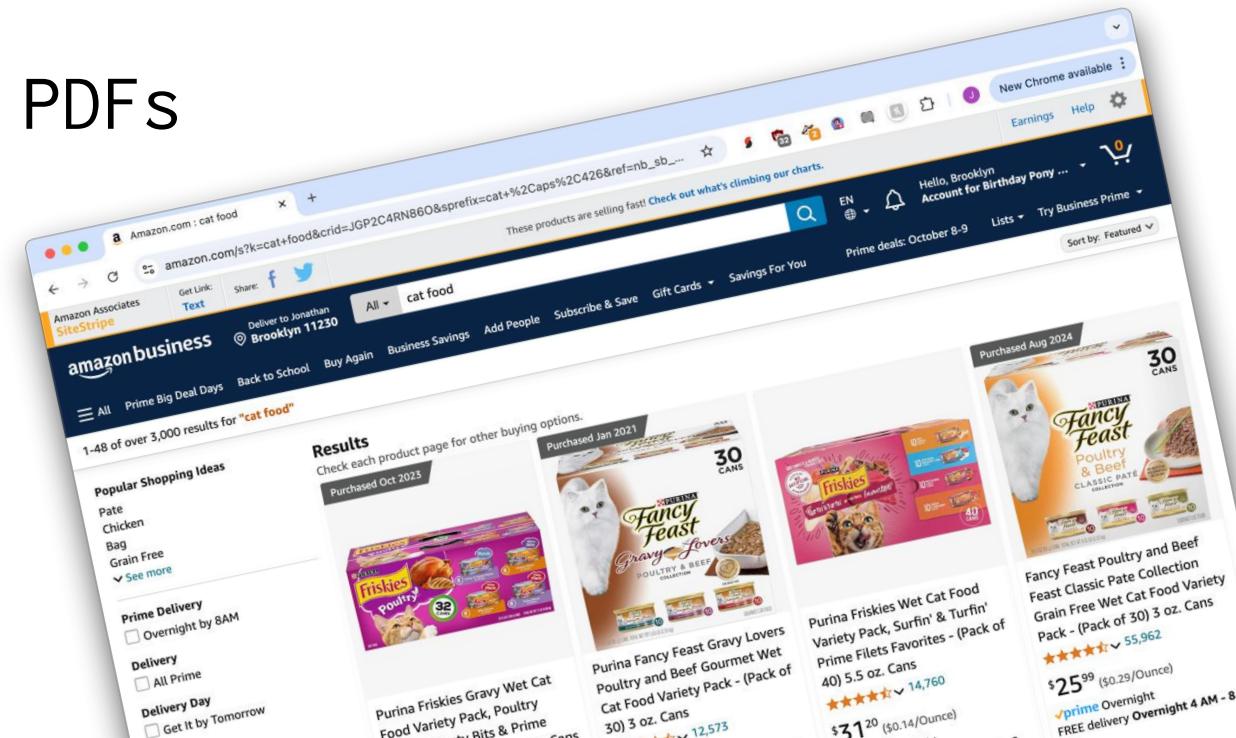
# Structured data

- Data that is easy for computers to understand: Excel, CSV, XML, JSON, APIs, databases
  - APIs: Computers talking to computers
  - Available from governments and industry
  - Easy to reformat or process to display to members of your company or customers
  - Add value by combining with other data

納稅義務者一人当たり課税対象所得										
	A	B	C	D	E	F	G	H	I	J
1207	奈良県 天理市	292044	1,422	1,592	1,675	1,794	1,913	2,030	2,149	2,263
1208	奈良県 樅原市	292052	1,504	1,645	1,773	1,908	2,101	2,275	2,412	2,526
1209	奈良県 枝井市	292061	1,398	1,458	1,640	1,763	1,916	2,088	2,238	2,363
1210	奈良県 五條市	292079	1,338	1,416	1,532	1,624	1,705	1,823	1,939	2,026
1211	奈良県 舞鶴市	292087	1,373	1,453	1,617	1,737	1,793	1,984	2,148	2,242
1212	奈良県 生駒市	292095	1,889	2,074	2,142	2,375	2,579	2,884	3,162	3,372
1213	奈良県 香芝市	292109	1,352	1,483	1,623	1,768	1,897	2,401	2,582	2,788
1214	奈良県 葛城市	292117	1,305	1,413	1,489	1,640	1,759	1,941	2,189	2,380
1215	奈良県 宇陀市	292125	1,247	1,360	1,463	1,570	1,691	1,887	2,062	2,172
1216	奈良県 山添村	293229	1,111	1,188	1,244	1,354	1,468	1,579	1,665	1,767
1217	奈良県 平群町	293423	1,733	1,878	1,989	2,196	2,302	2,521	2,715	2,906
1218	奈良県 三郷町	293431	1,785	1,963	2,018	2,223	2,363	2,644	2,827	2,973
1219	奈良県 斎場町	293440	1,600	1,723	1,931	2,070	2,171	2,335	2,532	2,709
1220	奈良県 斎場所	293458	1,370	1,455	1,654	1,833	1,962	2,147	2,280	2,425
1221	奈良県 西町	293610	1,355	1,629	1,670	1,868	2,006	2,177	2,318	2,476
1222	奈良県 三宅町	293628	1,715	1,801	1,764	1,979	2,001	2,196	2,473	2,558
1223	奈良県 田原本町	293636	1,349	1,434	1,604	1,756	1,914	2,115	2,323	2,423
1224	奈良県 曽爾村	293857	1,182	1,233	1,326	1,366	1,558	1,574	1,650	1,672
1225	奈良県 御杖村	293865	1,108	1,179	1,317	1,386	1,440	1,551	1,549	1,603
1226	奈良県 高取町	294012	1,315	1,424	1,535	1,672	1,815	1,951	2,101	2,166
1227	奈良県 明日香村	294021	1,268	1,346	1,468	1,603	1,728	1,898	2,092	2,154
1228	奈良県 上牧町	294241	1,448	1,532	1,775	1,958	2,163	2,403	2,598	2,749
1229	奈良県 妙王寺町	294250	1,626	1,881	1,988	2,086	2,190	2,379	2,528	2,672
1230	奈良県 庄屋町	294268	1,324	1,392	1,564	1,671	1,770	2,070	2,065	2,126
1231	奈良県 河合町	294276	1,788	1,933	2,029	2,250	2,476	2,683	2,916	3,139
1232	奈良県 吉野町	294411	1,344	1,455	1,546	1,625	1,717	1,883	1,942	1,997
1233	奈良県 大淀町	294420	1,161	1,367	1,377	1,469	1,582	1,794	1,946	2,050
1234	奈良県 下市町	294438	1,169	1,401	1,365	1,411	1,503	1,650	1,732	1,860
1235	奈良県 里塚村	294446	1,471	2,004	1,753	1,833	2,037	2,063	2,193	2,193

# Unstructured data

- Data that is easy for people to understand
  - Our job is to make computers understand it
- Scraping data from websites
- Extracting data from text or PDFs
- Add value by processing it!



# AI tricks

- Accomplish impossible tasks!
- Be successful with skills you don't have
- Get better with skills you do have
- Automate “grunt work” and “intern jobs”
- It's for more than rewriting emails :)

# Data visualization

- Communicating with data is difficult
- Sell your content more effectively
- Everyone loves charts and graphs!

# Project Planning

- Estimating time is very difficult for tech projects
- Finishing is the hardest part

# Hello world: AI!

we have a secret weapon,  
it's artificial intelligence



A.I. is not

perfect

A.I. should be used for

***error-resilient tasks***

JS

**You**

Write a sonnet about my fat, mean cat Mulberry.

**ChatGPT**

Beneath the moon, Mulberry takes her throne,  
A cat of girth, with fur like midnight's shade.  
Her eyes, twin emeralds, cold as stone,  
Within their depths, her fierce commands are made.

Her claws, like daggers, glint in soft moonlight,  
A queen who rules with strict and stern decree.  
Her growl can turn the bravest heart to fright.  
Her hiss a symphony of

low-quality output is ignorable

when shadows dance and silent

She curls beside me, softening I

Revealing tender moments, warr

For though she's fat and often se

In dreams, sweet Mulberry's a gei



## New York Sessions

Year Session

2023-  
2024

General Assembly

20091

3380

[Browse](#)

tight feedback loops

```
# Python function to calculate fibonacci sequence
def fibonacci(n):
    if n == 0:
        return 0
    elif n == 1:
        return 1
    else:
        return fibonacci(n-1) + fibonacci(n-2)
```

errors are expected

[Introduced](#)

[Completed](#)

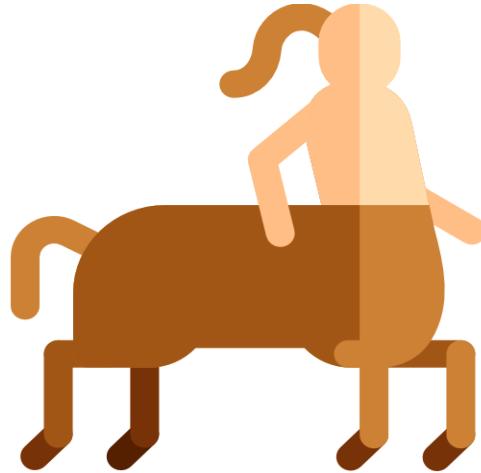
[Legislation](#)

(a.k.a. "intern work")

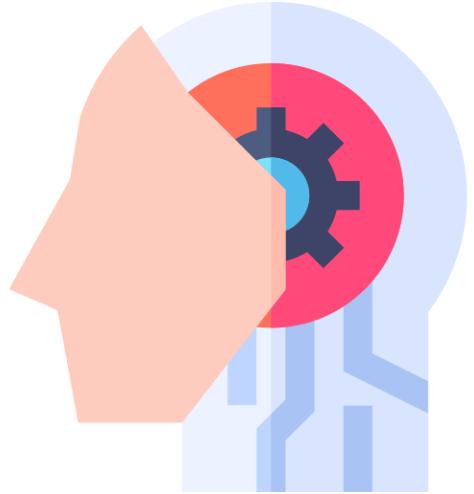


```
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        return 1
    else:
        return fibonacci(n-1) + fibonacci(n-2)
```

tight feedback loops



# Centaurs and cyborgs



- Clear division of labor between AI and person
- One task for AI, one task for human
- **Intuition** of humans, **trust** in AI
- Intertwined, deep integration of AI into human work
- **Collaborative**, back-and-forth process

we will be both!

that will be our week!

any questions?

Time for a survey!



<https://bit.ly/ds-dojo-survey>

# Software Installation

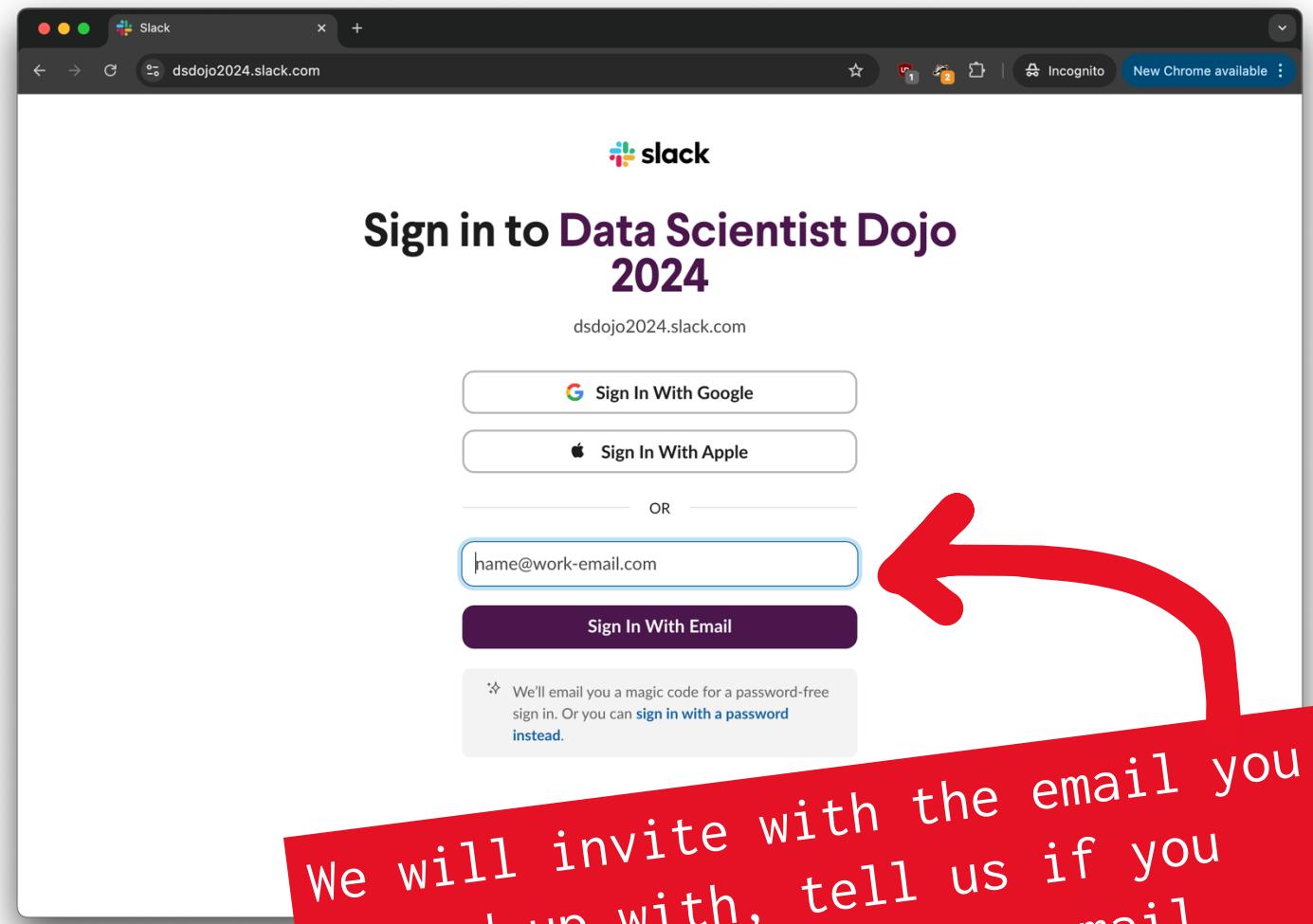
Usually the worst part.  
This time, not terrible!

# dsdojo2024.slack.com



Join Slack

Slack: for  
communications and  
cut-and-paste code



We will invite with the email you  
signed up with, tell us if you  
want to use a different email

# Running+Installing Python

The image displays two applications side-by-side. On the left is the Python Wrangler application, which lists installed Python environments. On the right is the Anaconda Navigator interface.

**Python Wrangler (Left):**

- Python Installations:** Shows 19 installed Python environments.
- Commands:** python, python3
- Version:** 3.6.4
- Installation:** pyenv, pythonorg, homebrew (repeated)
- Packages:** 75 packages, 18 packages, 200 packages, 130 packages, 130 packages, 200 packages
- Location(s):** /Users/jonathansoma/.pyenv/shims/python (in PATH), /Library/Frameworks/Python.framework/Versions/3.6/bin/python3.6, /Library/Frameworks/Python.framework/Versions/3.6/bin/python3 (in PATH, symlink), /usr/local/Cellar/python3/3.6.1/Frameworks/Python.framework/Versions/3.6/bin/python3, /usr/local/Cellar/python3/3.6.1/bin/python3 (symlink), /usr/local/Cellar/python/2.7.13/Frameworks/Python.framework/Versions/2.7/bin/python, /usr/local/Cellar/python/2.7.13/bin/python (symlink), /usr/local/Cellar/python3/2.7.13/Frameworks/Python.framework/Versions/2.7/bin/python3, /usr/local/Cellar/python3/2.7.13/bin/python3 (symlink), /usr/local/Cellar/python/3.6.4\_4/Frameworks/Python.framework/Versions/3.6/bin/python3, /usr/local/Cellar/python/3.6.4\_4/bin/python3 (symlink)

**Anaconda Navigator (Right):**

- Home**
- Documentation (26)**
- Training**
- Connect**

# Running+Installing Python

- **Anaconda:** Popular with data scientists
  - Simple installation
- **Visual Studio Code:** Popular for web site development
  - Integration with many common tools
- **Google Colab:** In the cloud, popular for AI development
  - Easy access to powerful computer resources
- **Jupyter:** Popular with data sciences and data journos
  - Good for having “conversations” with your data
- **It doesn’t matter which you use!!!!!!** They are all a little difficult to set up and use.

# JupyterLab Desktop

<https://bit.ly/ds-jupyterlab>

- Windows, Macs, Linux
- Very easy to install
- **No trouble with Python**
- Easy to change to more “professional” tools later



① Visit <https://bit.ly/ds-jupyterlab>

② Scroll down

mbektas Merge pull request #865 from jupyterlab/release-v4.2.5-1 ae61c96 · 3 weeks ago 1,665 Commits

.github .vscode dist-resources update icon

electron-builder-scripts overwrite symlink

env\_installer Update to JupyterLab 4.2.5 last month

media update UI modes documentation 6 months ago

scripts Delete get\_latest\_version.py 5 months ago

src improve terminal environment UI and env selector popup up... 6 months ago

workflow\_env use build\_platform last year

.eslintrignore python env manager UI and env selector popup up... 8 months ago

③ We want “Installation”

## Installation

Install JupyterLab Desktop using one of the methods listed below for your system.

Windows (10, 11)	Mac (macOS 10.15+)	Linux
<a href="#">x64 Installer</a>	<a href="#">arm64 Installer (Apple silicon)</a>	<a href="#">Snap Store [recommended]</a>
	<a href="#">x64 Installer (Intel chip)</a>	<a href="#">.deb x64 Installer (Debian, Ubuntu)</a>
		<a href="#">.rpm x64 Installer (Red Hat, Fedora, SUSE)</a>

Additionally, JupyterLab Desktop can be installed on Windows via winget: `winget install jupyterlab`.

If you need to remove a previous JupyterLab Desktop installation, please follow the [uninstall instructions](#).

# Which one to pick?

Windows PC

## Installation

Install JupyterLab Desktop using one of the methods listed below for your system.

Windows (10, 11)	Mac (macOS 10.15+)	Linux
<a href="#">x64 Installer</a>	<a href="#">arm64 Installer (Apple silicon)</a> <a href="#">x64 Installer (Intel chip)</a>	<a href="#">Snap Store [recommended]</a>
		<a href="#">.deb x64 Installer (Debian, Ubuntu)</a> <a href="#">.rpm x64 Installer (Red Hat, Fedora, SUSE)</a>

Newer M1 , M2 , M3 macs

Older macs, not M1/M2/m3

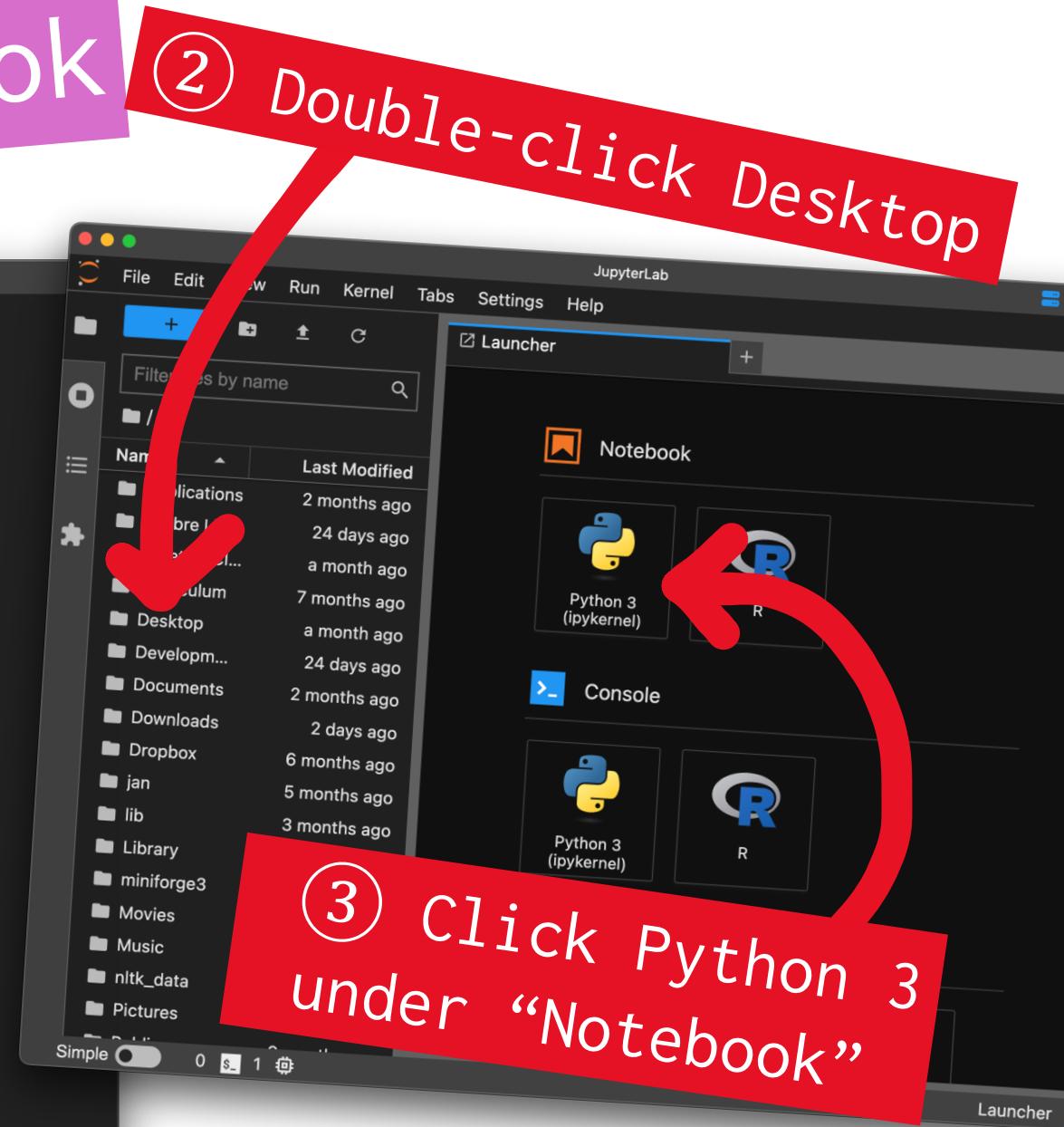
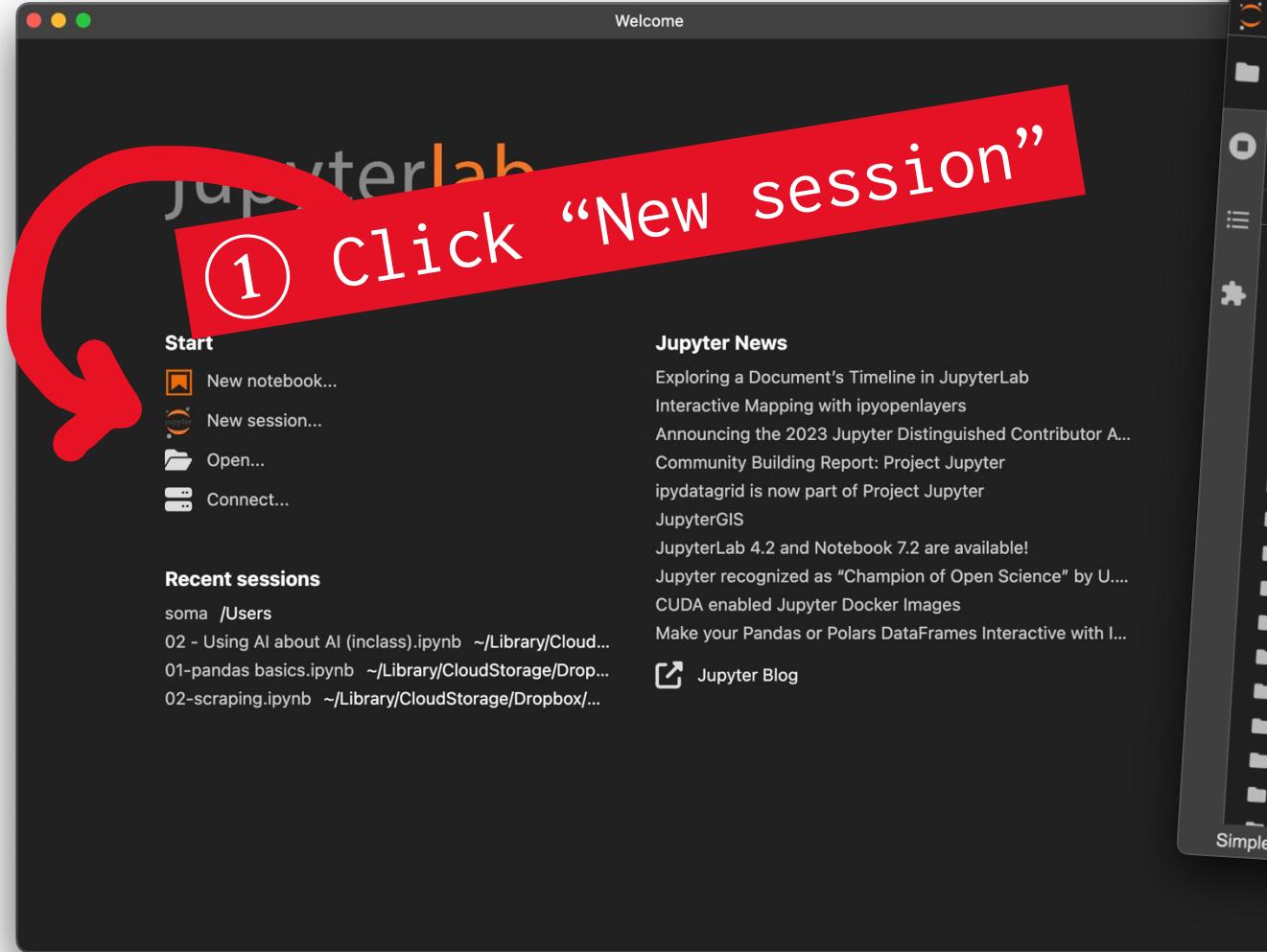
iPads or Chromebooks:  
You'll use [Google Colab](#)

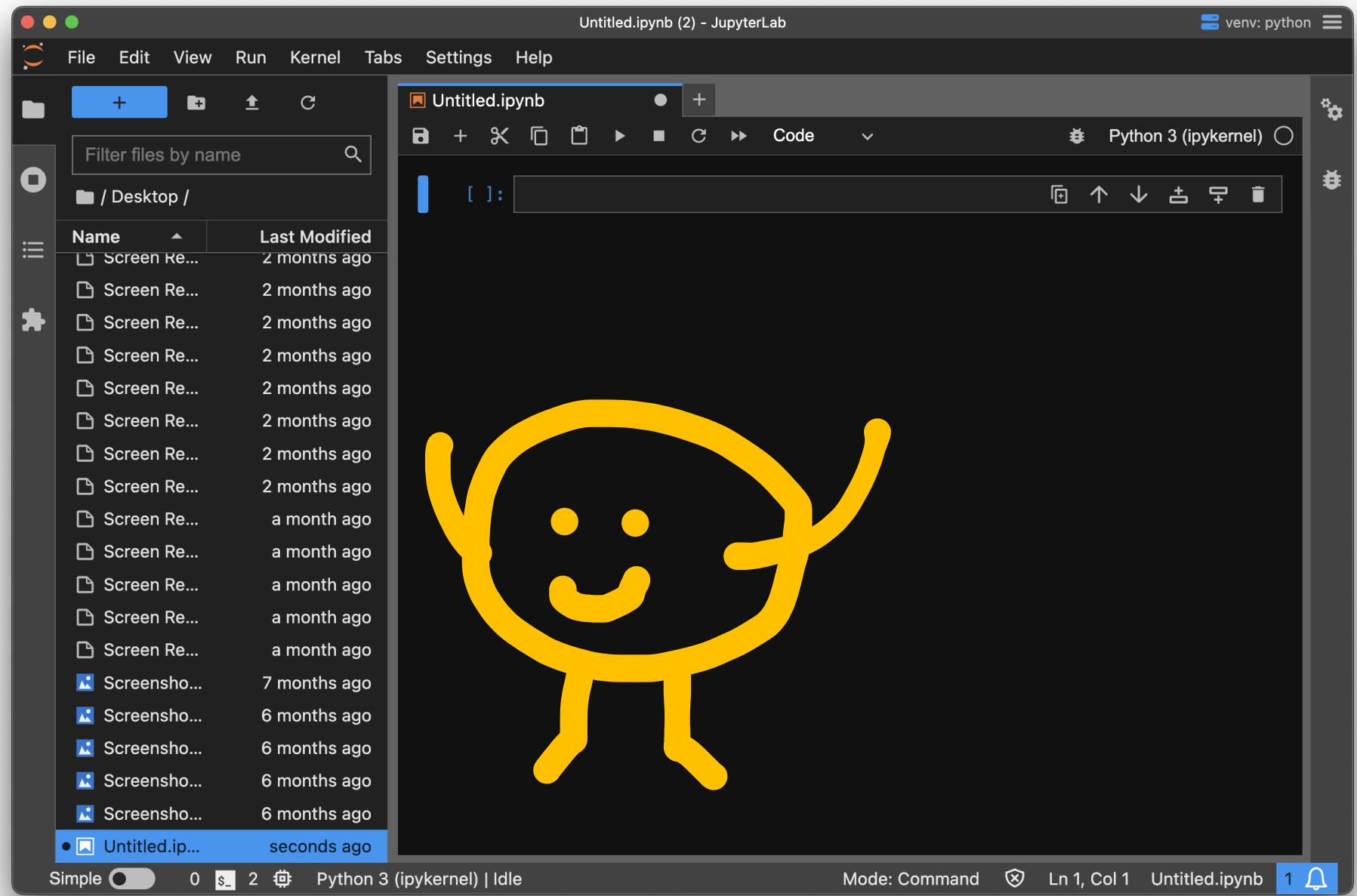
# Installation

- Download and run the installer
  - **Security warning?** Say yes!
- After installation, open the **JupyterLab Desktop** app
- **Maybe it maybe will want to install Python:** there will be a banner to click on the bottom.
- Grey “New notebook?” Close, open again, look for Python install



# Create a new notebook





Untitled.ipynb

[ ]: `print("Hello world")`

Python 3 (ipykernel)

A screenshot of a Jupyter Notebook interface. The title bar says "Untitled.ipynb". Below it is a toolbar with icons for file operations like new, open, save, and a play button. The main area shows a code cell with the command `print("Hello world")`. To the right of the cell is a status bar showing "Python 3 (ipykernel)". A red arrow points from the text "Press Play or Shift+Enter/Return" to the play button in the toolbar.

You should see this

Untitled.ipynb

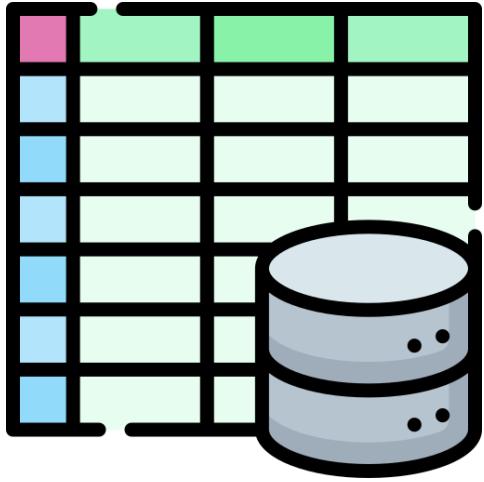
[2]: `print("Hello world")`

Hello world

[ ]:

Python 3 (ipykernel)

A screenshot of a Jupyter Notebook interface, identical to the one above but showing the result of running the code. The code cell [2] now displays the output `Hello world`. A red arrow points from the text "You should see this" to the output cell.



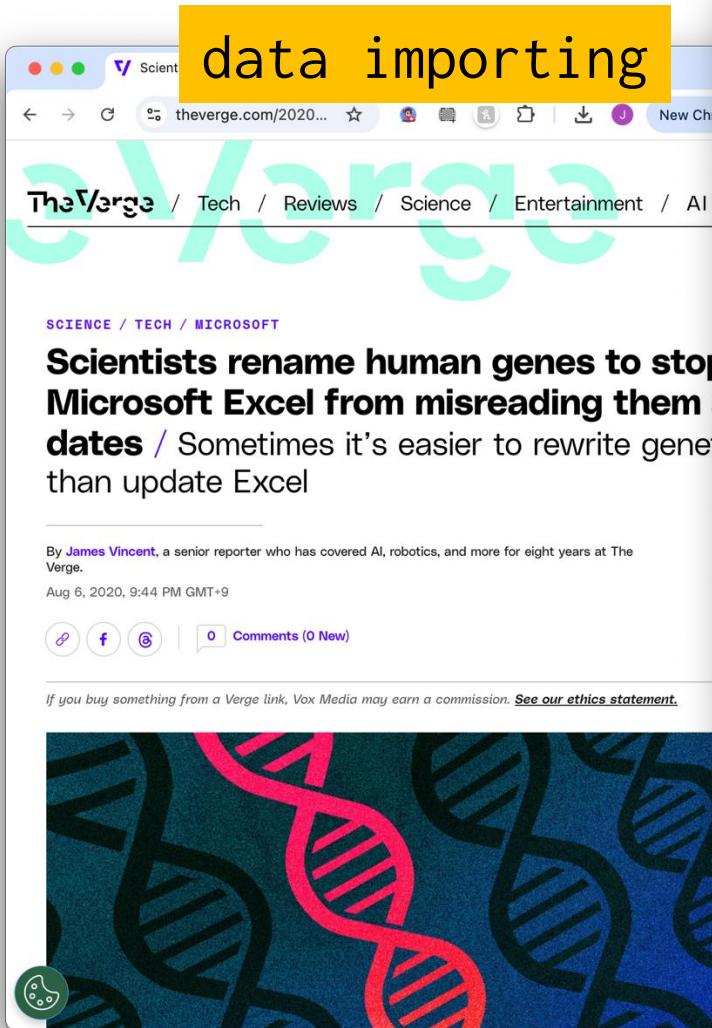
# Excel vs. Python



- Easy to get started
- Easy to see results
- Common in business environments
- Easy to make mistakes
- Difficult to install
- Difficult to begin learning
- Difficult to share with non-programmers
- **Everything is possible!**

# Problems with Excel

data importing



The Verge / Tech / Reviews / Science / Entertainment / AI / SCIENCE / TECH / MICROSOFT

## Scientists rename human genes to stop Microsoft Excel from misreading them as dates

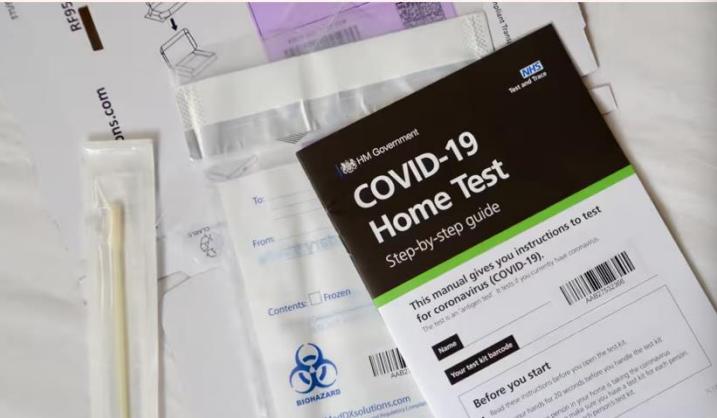
Sometimes it's easier to rewrite genetic than update Excel

By James Vincent, a senior reporter who has covered AI, robotics, and more for eight years at The Verge.

Aug 6, 2020, 9:44 PM GMT+9

0 Comments (0 New)

If you buy something from a Verge link, Vox Media may earn a commission. [See our ethics statement.](#)



row and cell limits

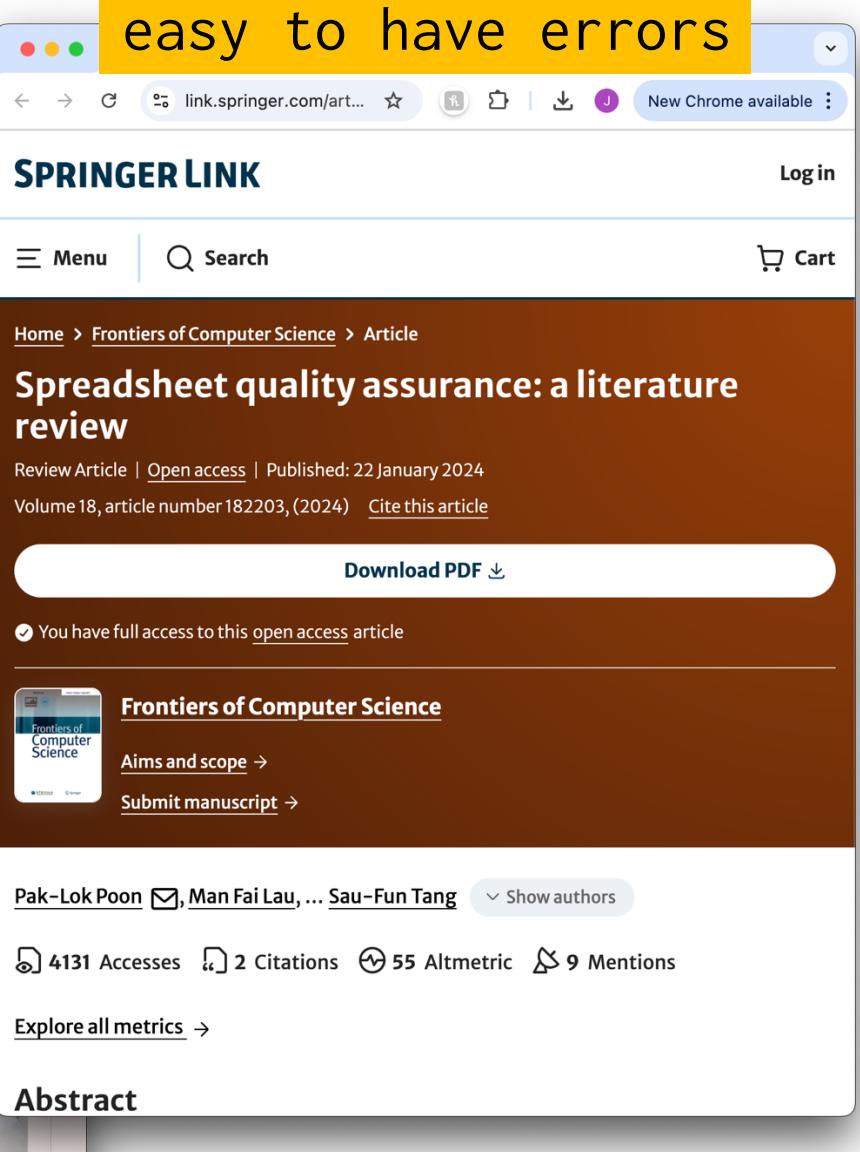
Covid: how Excel may have caused loss of 16,000 test results in England

Alex Hern  
UK technology editor

Public Health England data error blamed on limitations of Microsoft spreadsheet

- Coronavirus - latest updates
- See all our coronavirus coverage

easy to have errors



SPRINGER LINK

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## Spreadsheet quality assurance: a literature review

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### Abstract

# Excel errors

94% have faults!

Along with the high popularity of spreadsheet applications [10], it was found that about 94% of the spreadsheets in use contained faults [11,12]. A major reason for a high number of faulty spreadsheets is the accelerating trend in end-user computing (or end-user programming) over the last few decades [13–15]. Spreadsheet development, now a prominent example of end-user computing [16,17], has shifted from being often done by well-trained IT professionals to something millions of non-technical departmental end users or *end-user programmers* are now responsible to do. As most end-user programmers are not well trained in software development and testing [18], it is not surprising that many spreadsheets they developed are poorly coded and inadequately tested [19]. Consequently, these spreadsheets are likely to contain faults that are not properly detected and removed before release for daily operational use.

From “Spreadsheet quality assurance: A literature review”

# You can read Python

What is happening?

In [27]:

```
df['pct_15-64'] = df['pop_15-64'] / df['total']
df['pct_65-over'] = df['pop_65-over'] / df['total']
df.head()
```

Out[27]:

	YEAR	AREA	/ITEMS	pop_15-64	pop_65-over	total	pct_15-64	pct_65-over
141	2019	Hokkaido	NaN	1012000	1673000	4685000	0.642903	0.357097
142	2019	Iwate-ken	NaN	699000	415000	1114000	0.627469	0.372531
143	2019	Miyagi-ken	NaN	684000	406000	1090000	0.627523	0.372477
144	2019	Akita-ken	NaN	1382000	652000	2034000	0.679449	0.320551

Easy to read

A1030	A	B	C	D	E
869	長野県 富士見町	203629	1,053	1,105	1,311
870	長野県 原村	203637	1,29	1,273	1,173
871	長野県 辰野町	203823	1,151	1,223	1,424
		203831	1,083	1,165	1,366
					1,269
					1,451
					1,223
					1,399
					1,268

# Character encoding

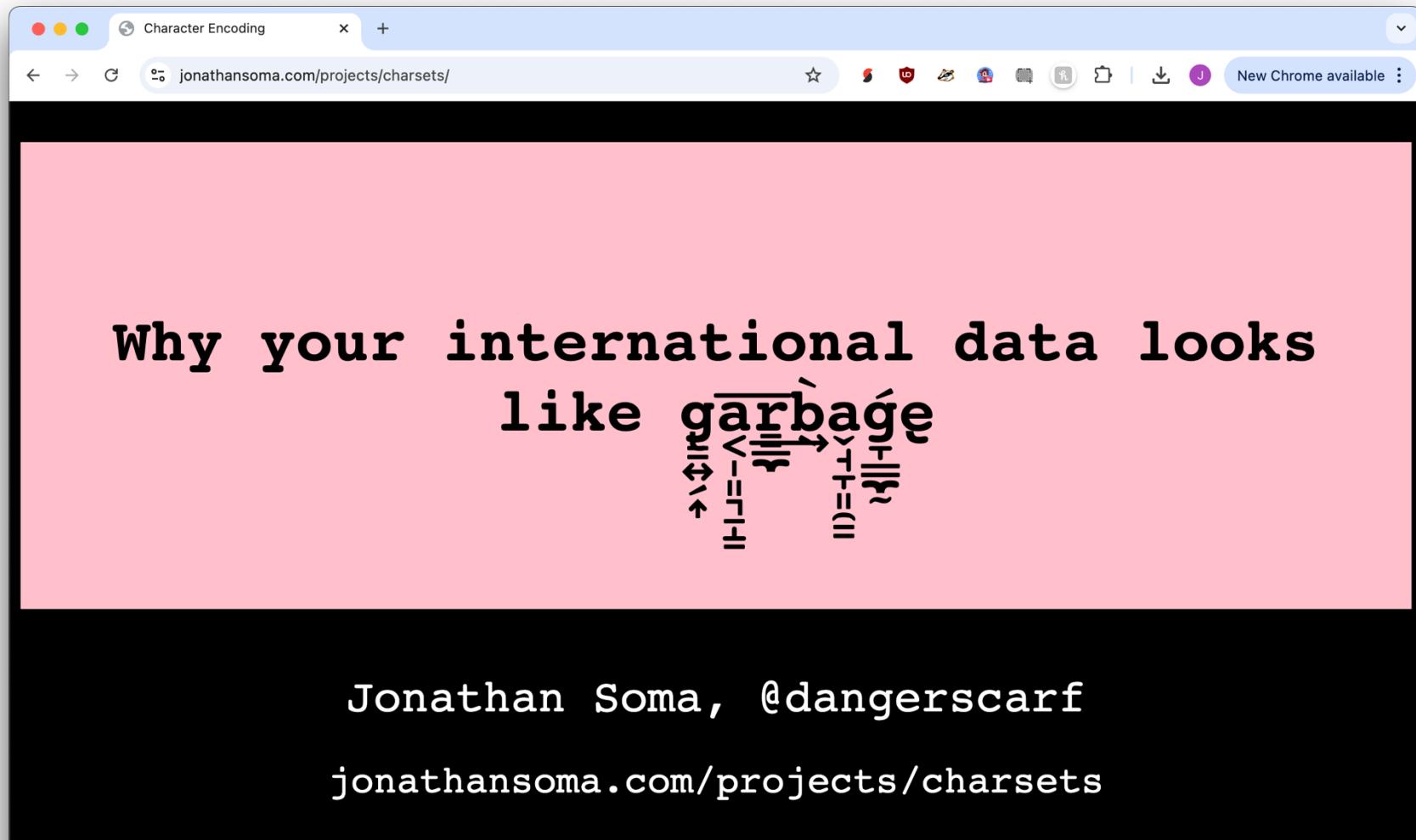
Features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format.

Save As...

	A	B	C	D	E	F	G
1	name	price	tax	image_url	tags		
2	CORN	298	•298×8%tax	https://www. PERISHABLE	PERISHABLE	ÜSËÎµ	
3	YUZU CITRON	358	•358×8%tax	https://www. PERISHABLE	PERISHABLE	ÜSËÎµ	
4	BROCCOLI	398	•398×8%tax	https://www. PERISHABLE	PERISHABLE	ÜSËÎµ	
5	CUCUMBER 1PC	128	•128×8%tax	https://www. PERISHABLE	PERISHABLE	ÜSËÎµ	
6	CUCUMBERS 4PCS	498	•498×8%tax	https://www. PERISHABLE	PERISHABLE	ÜSËÎµ	
		138	•138×8%tax	https://www. PERISHABLE	PERISHABLE	ÜSËÎµ	
		398	•398×8%tax	https://www. PERISHABLE	PERISHABLE	ÜSËÎµ	ORGANIC

**X** **?** products\_output.csv

name	price	tax	image_url	tags
CORN	298	¥298 (8%tax)	<a href="https://www.national-azabu.net/upload/save_image/0607133157_629ed4bd3cb1b.jpeg">https://www.national-azabu.net/upload/save_image/0607133157_629ed4bd3cb1b.jpeg</a>	PERISHABLE 冷藏
YUZU CITRON	358	¥358 (8%tax)	<a href="https://www.national-azabu.net/upload/save_image/1227165628_5fe83e2c165a4.jpeg">https://www.national-azabu.net/upload/save_image/1227165628_5fe83e2c165a4.jpeg</a>	PERISHABLE 冷藏
BROCCOLI	398	¥398 (8%tax)	<a href="https://www.national-azabu.net/upload/save_image/18_s.jpg">https://www.national-azabu.net/upload/save_image/18_s.jpg</a>	PERISHABLE 冷藏
CUCUMBER 1PC	128	¥128 (8%tax)	<a href="https://www.national-azabu.net/upload/save_image/230051000000_s.jpg">https://www.national-azabu.net/upload/save_image/230051000000_s.jpg</a>	PERISHABLE 冷藏
CUCUMBERS 4PCS	498	¥498 (8%tax)	<a href="https://www.national-azabu.net/upload/save_image/230034000000_s.jpg">https://www.national-azabu.net/upload/save_image/230034000000_s.jpg</a>	PERISHABLE 冷藏
CARROT 1PC	138	¥138 (8%tax)	<a href="https://www.national-azabu.net/upload/save_image/2_s.jpg">https://www.national-azabu.net/upload/save_image/2_s.jpg</a>	PERISHABLE 冷藏
CARROTS 3PCS	398	¥398 (8%tax)	<a href="https://www.national-azabu.net/upload/save_image/16_s.jpg">https://www.national-azabu.net/upload/save_image/16_s.jpg</a>	PERISHABLE 冷藏
ORGANIC CARROTS BIG PACK 1KG	398	¥398 (8%tax)	<a href="https://www.national-azabu.net/upload/save_image/15_s.jpg">https://www.national-azabu.net/upload/save_image/15_s.jpg</a>	PERISHABLE 冷藏



<https://jonathansoma.com/projects/charsets/>

# Python basics

I hope it is review, but if  
not: that's okay!

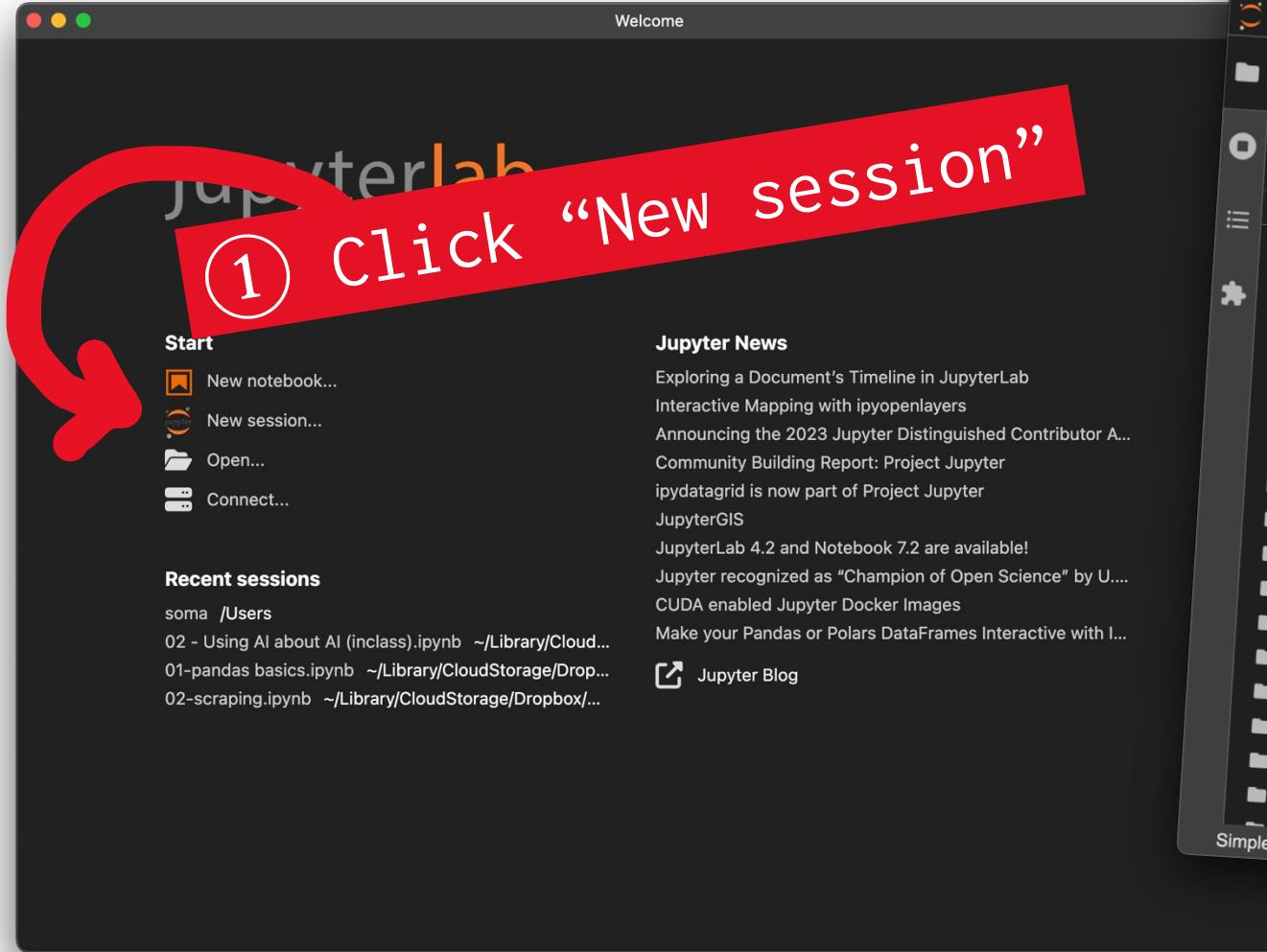
# A tiny Python quiz

Don't run the  
code, just think  
and try to answer  
the questions



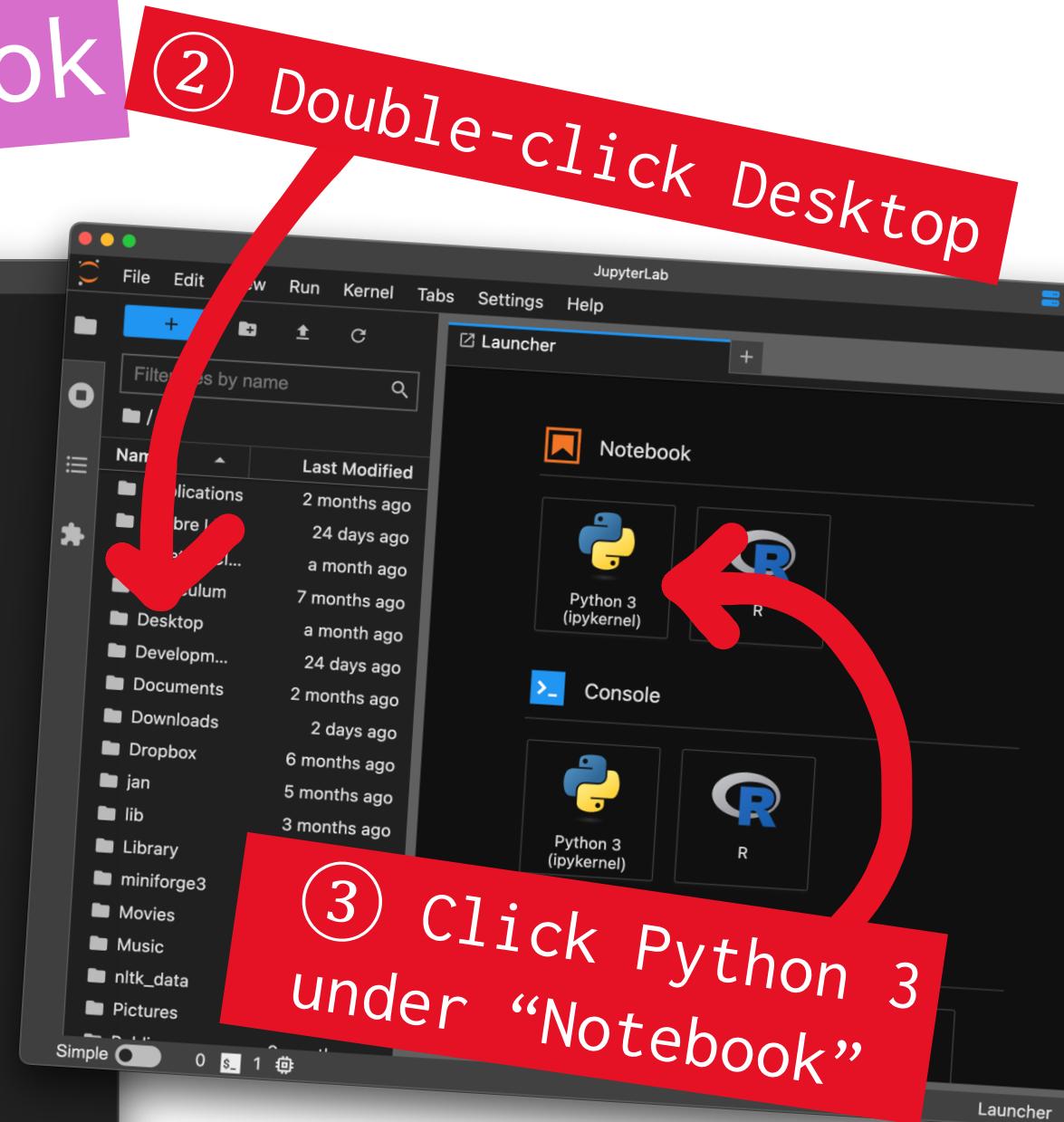
<https://bit.ly/ds-dojo-python-quiz>

# Create a new notebook



①

click “New session”



②

Double-click Desktop

③

Click Python 3  
under “Notebook”