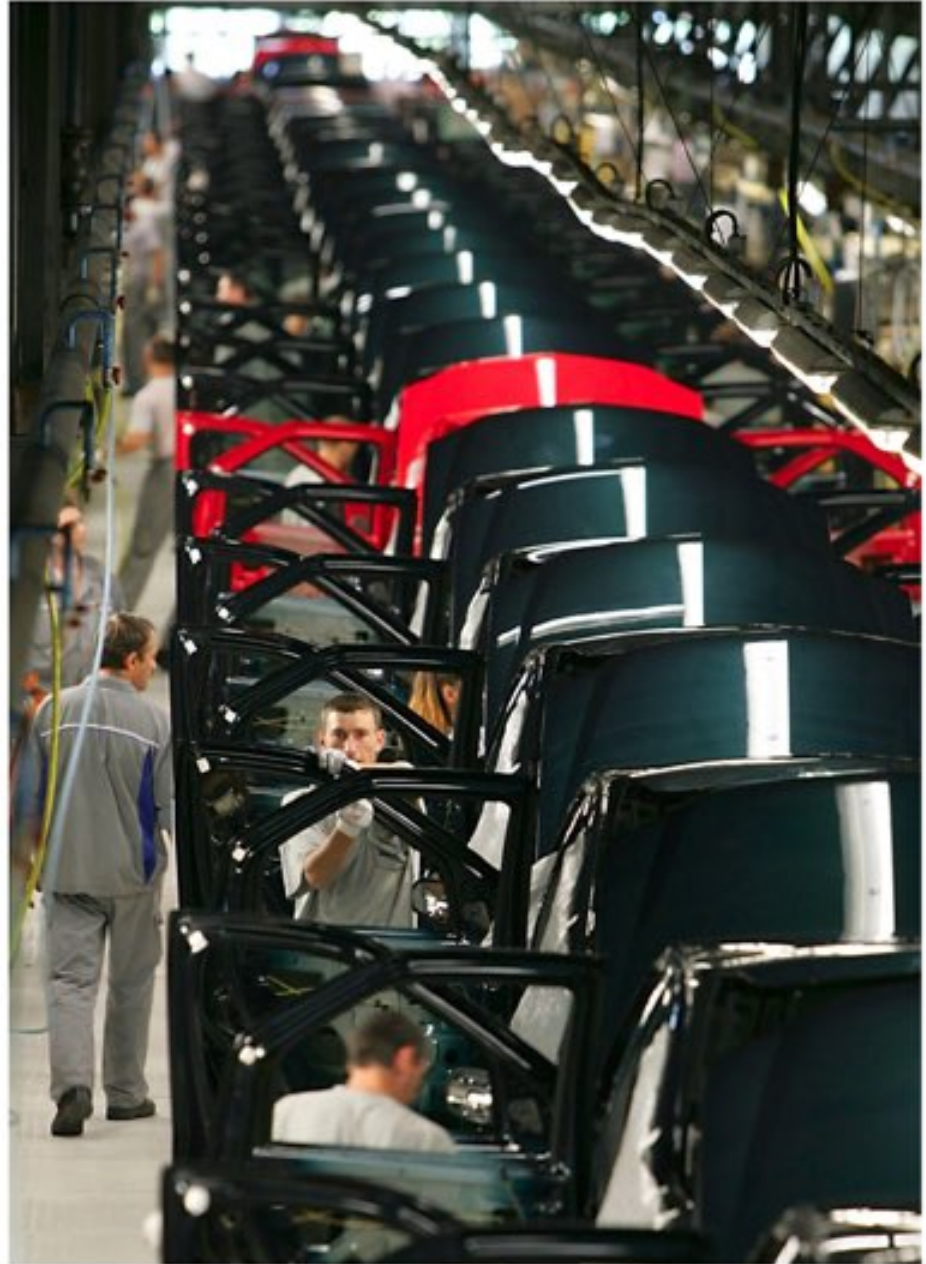


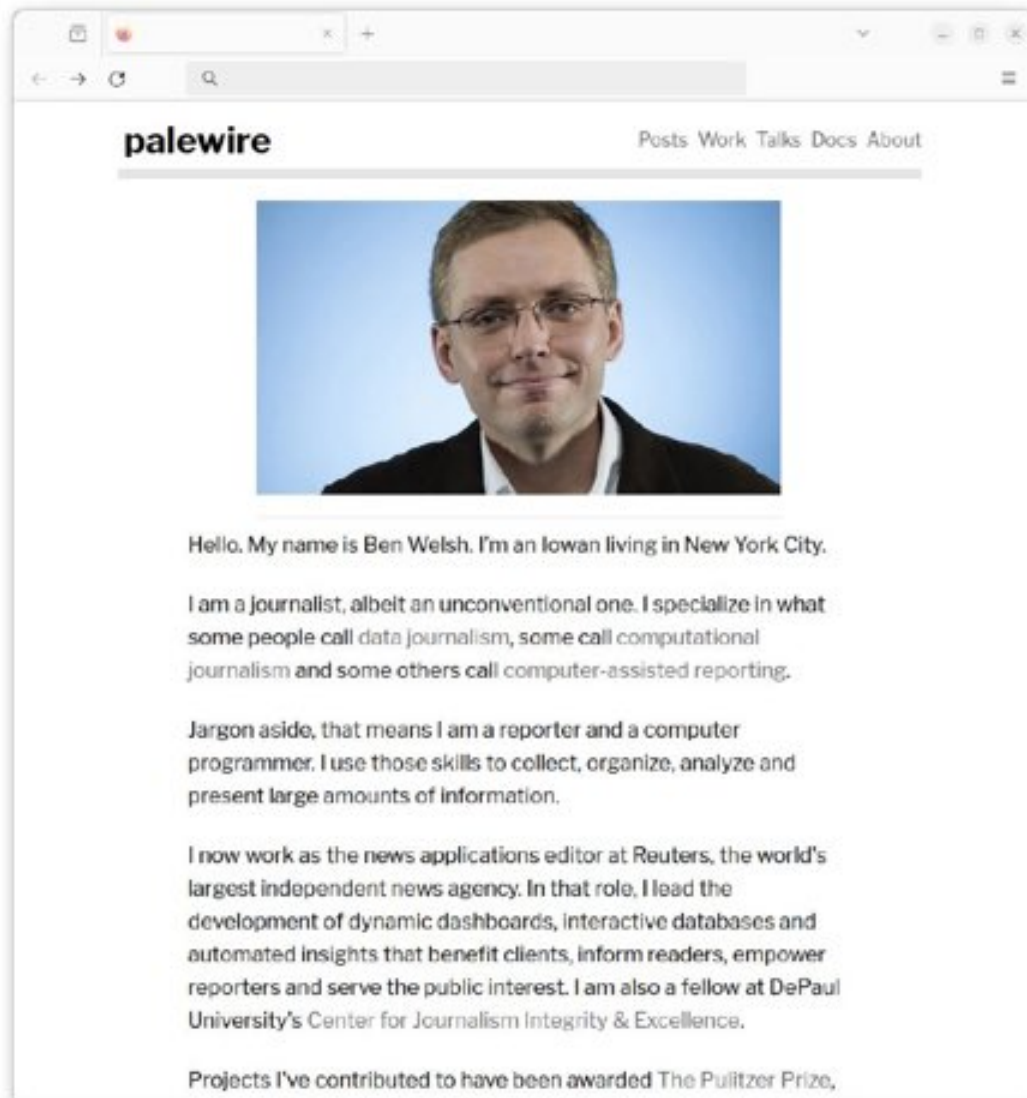
Bare Facts First

How Reuters uses Datawrapper to create, automate and disseminate hundreds of charts each week



REUTERS®





Who I am

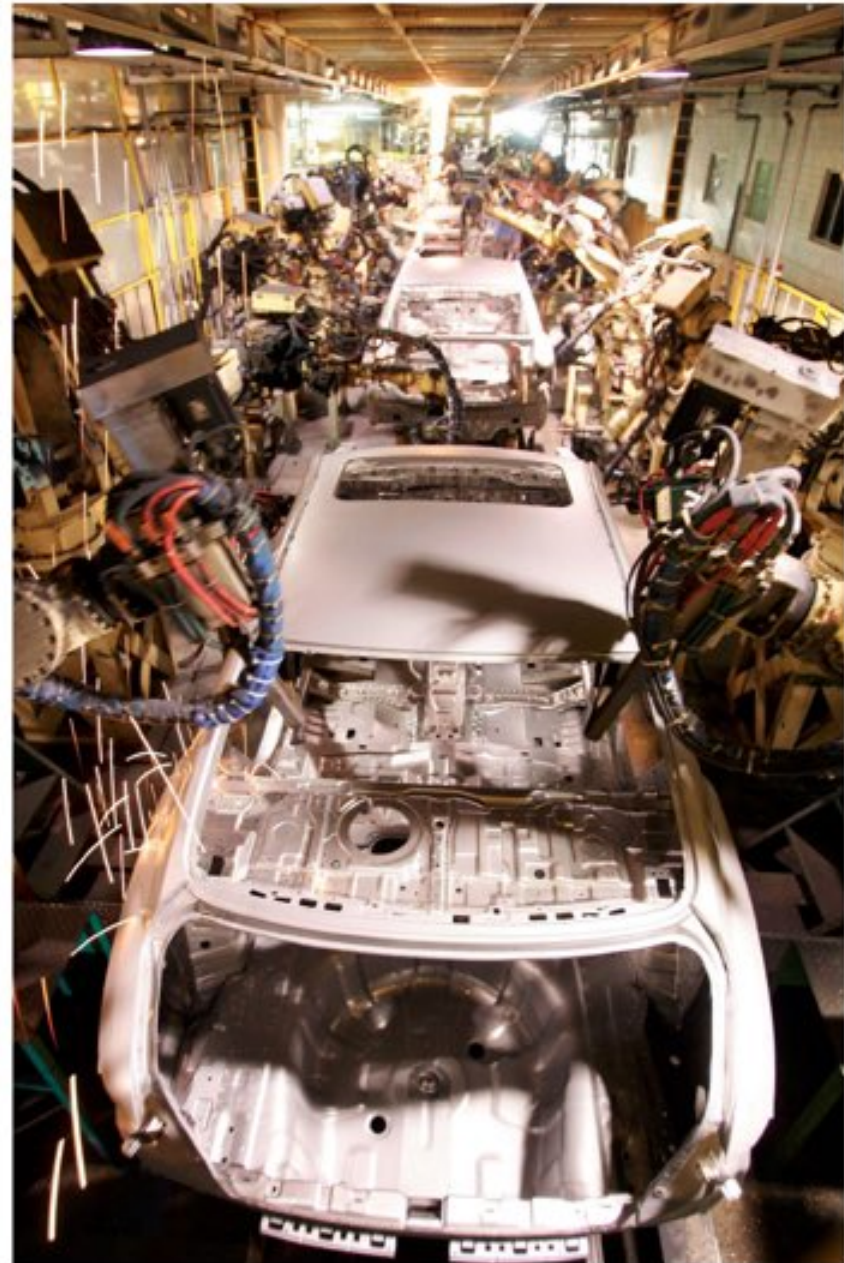
I'm Ben Welsh.

I joined Reuters *in 2023* after 15 years leading data projects at the Los Angeles Times.

I'm helping our team create more of what we call "news applications."

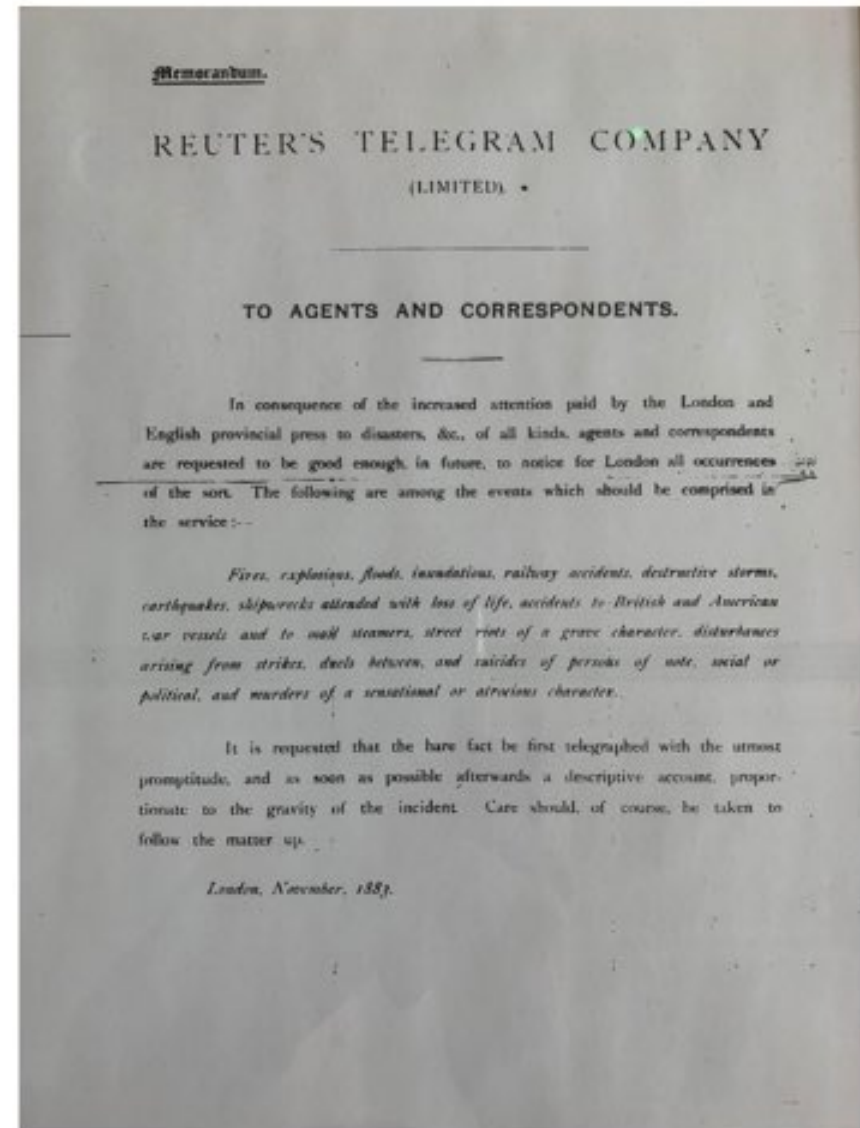
What is Reuters?

- ❖ Founded in 1851, Reuters is the world's largest international multimedia news provider.
- ❖ Each day 2,500 journalists in nearly 200 locations around the globe produce news in 16 languages.
- ❖ Financial professionals receive exclusive news and data from Reuters via the LSEG terminal.
- ❖ More than 2,000 newsrooms republish our work via a wire service.
- ❖ Breaking news, analysis and special reports are available for free on [reuters.com](https://www.reuters.com).
- ❖ A legally binding vow requires we uphold trust principles valuing independence, integrity and freedom from bias.



Our mission

- ❖ Breaking news was at the core from the beginning.
- ❖ An 1883 memo spelled out the London office's expectations for correspondents.
- ❖ At that time, stories were sent by telegram.
- ❖ The editors asked "that the bare fact be first telegraphed with the utmost promptitude."



Memorandum.

REUTER'S TELEGRAM COMPANY

(LIMITED). •

TO AGENTS AND CORRESPONDENTS.

In consequence of the increased attention paid by the London and English provincial press to disasters, &c., of all kinds, agents and correspondents are requested to be good enough, in future, to notice for London all occurrences of the sort. The following are among the events which should be comprised in the service:—

Fires, explosions, floods, inundations, railway accidents, destructive storms, earthquakes, shipwrecks attended with loss of life, accidents to British and American war vessels and to mail steamers, street riots of a grave character, disturbances arising from strikes, duels between, and suicides of persons of note, social or political, and murders of a sensational or atrocious character.

It is requested that the bare fact be first telegraphed with the utmost promptitude, and as soon as possible afterwards a descriptive account, proportionate to the gravity of the incident. Care should, of course, be taken to follow the matter up.

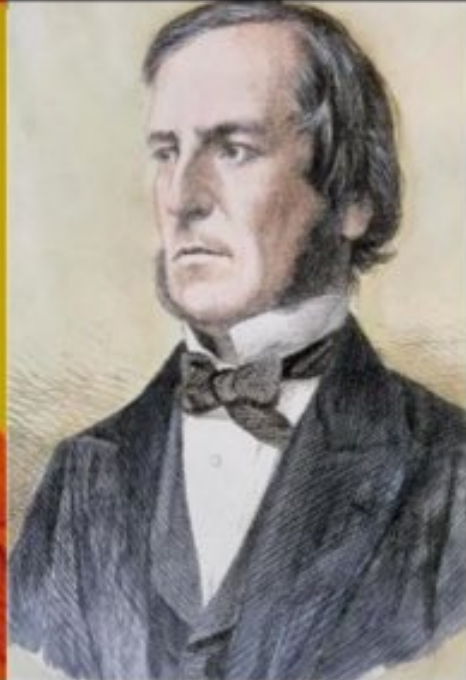
London, November, 1883.

What you're in for

- ❖ How Datawrapper charts created by Reuters staff are distributed to the world
- ❖ How we extended that system to automate routine charts
- ❖ Your questions









Before Datawrapper

- ❖ High-caliber graphics team spread thin by requests for simple charts
- ❖ Too many good charts not getting made due to backlog
- ❖ Zero-sum competition between simple stuff and ambitious enterprise
- ❖ Frustrated reporters bootlegging charts with trashy tools

The requirements in theory



Self-hosted and embeddable HTML



Raster and vector images



Editable source code



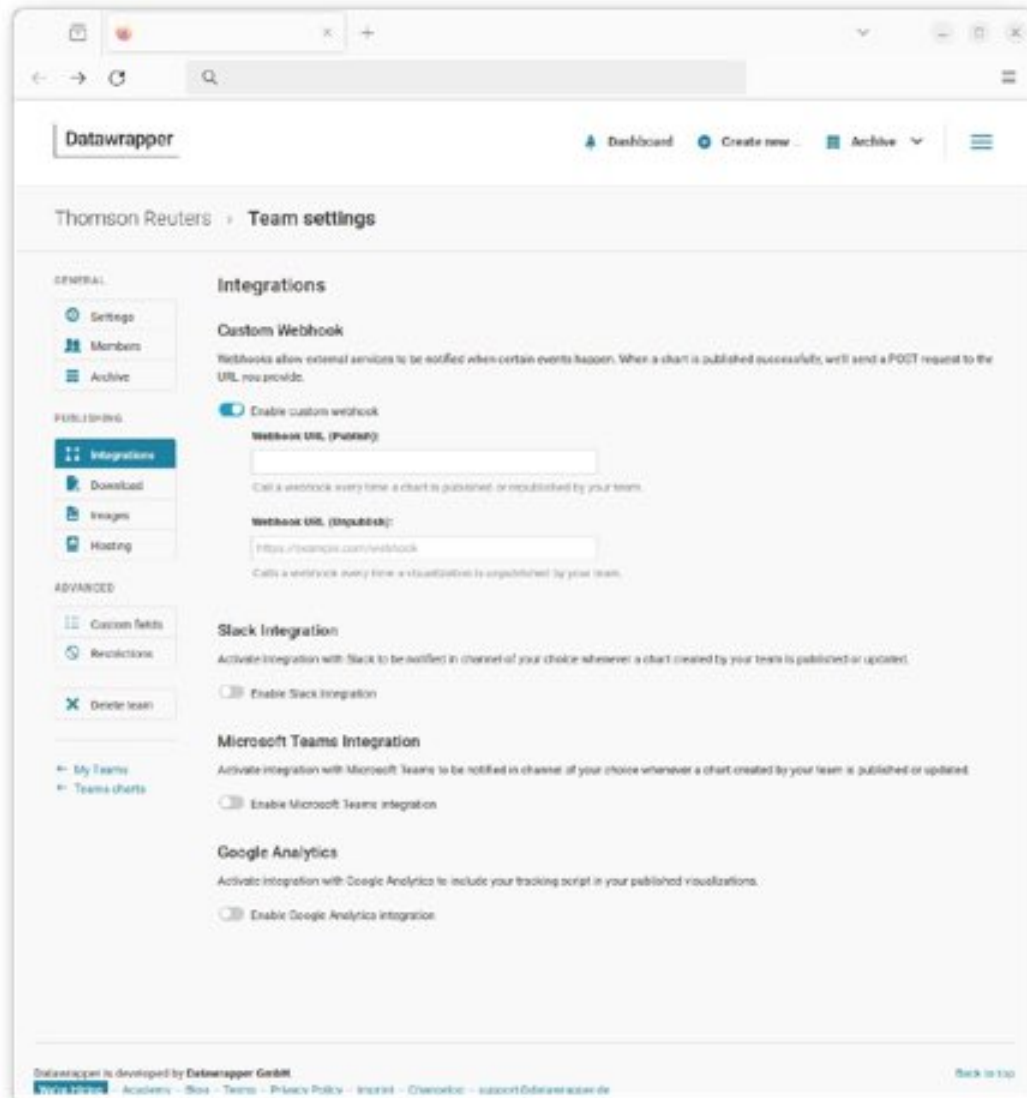
Light and dark modes



Your visualization is **not**
published.



Publish now



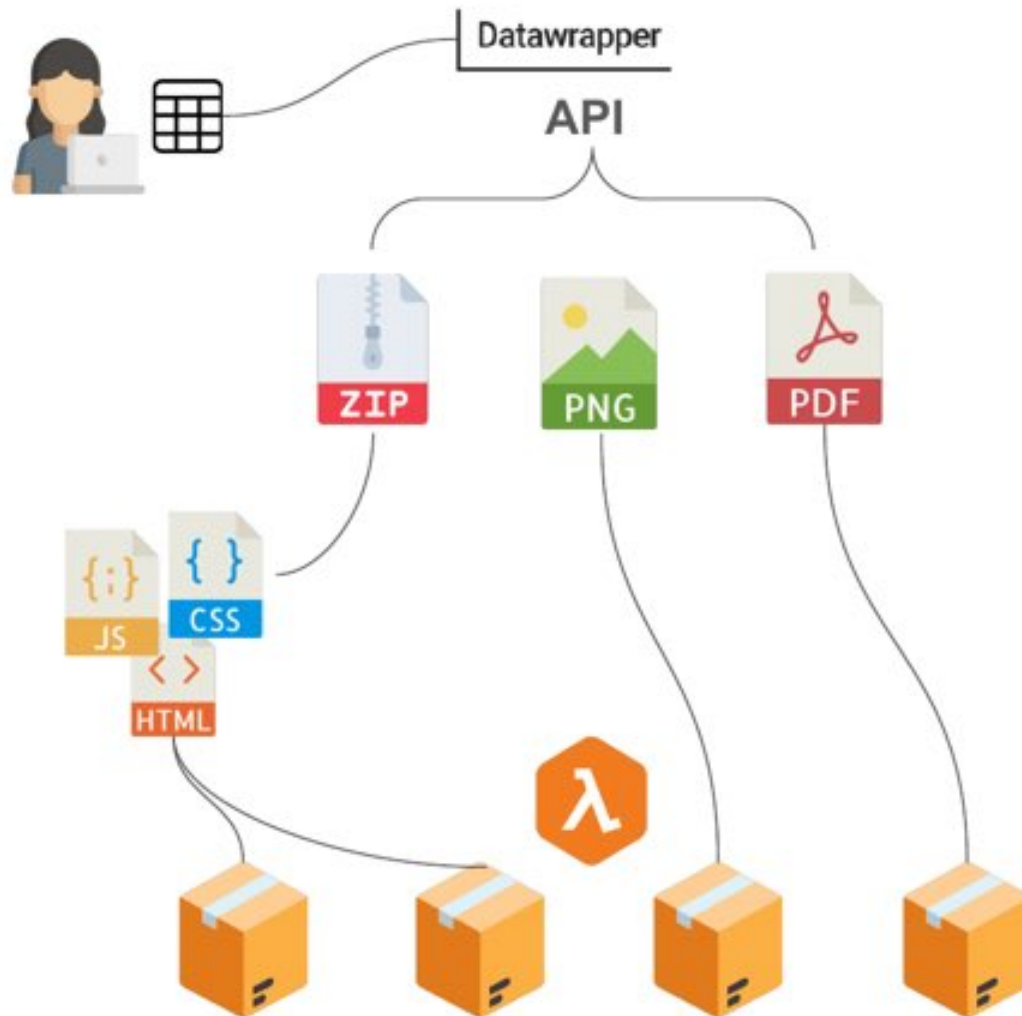
Hooking up

Datawrapper's custom webhooks will send a ping after you publish or unpublish a chart.

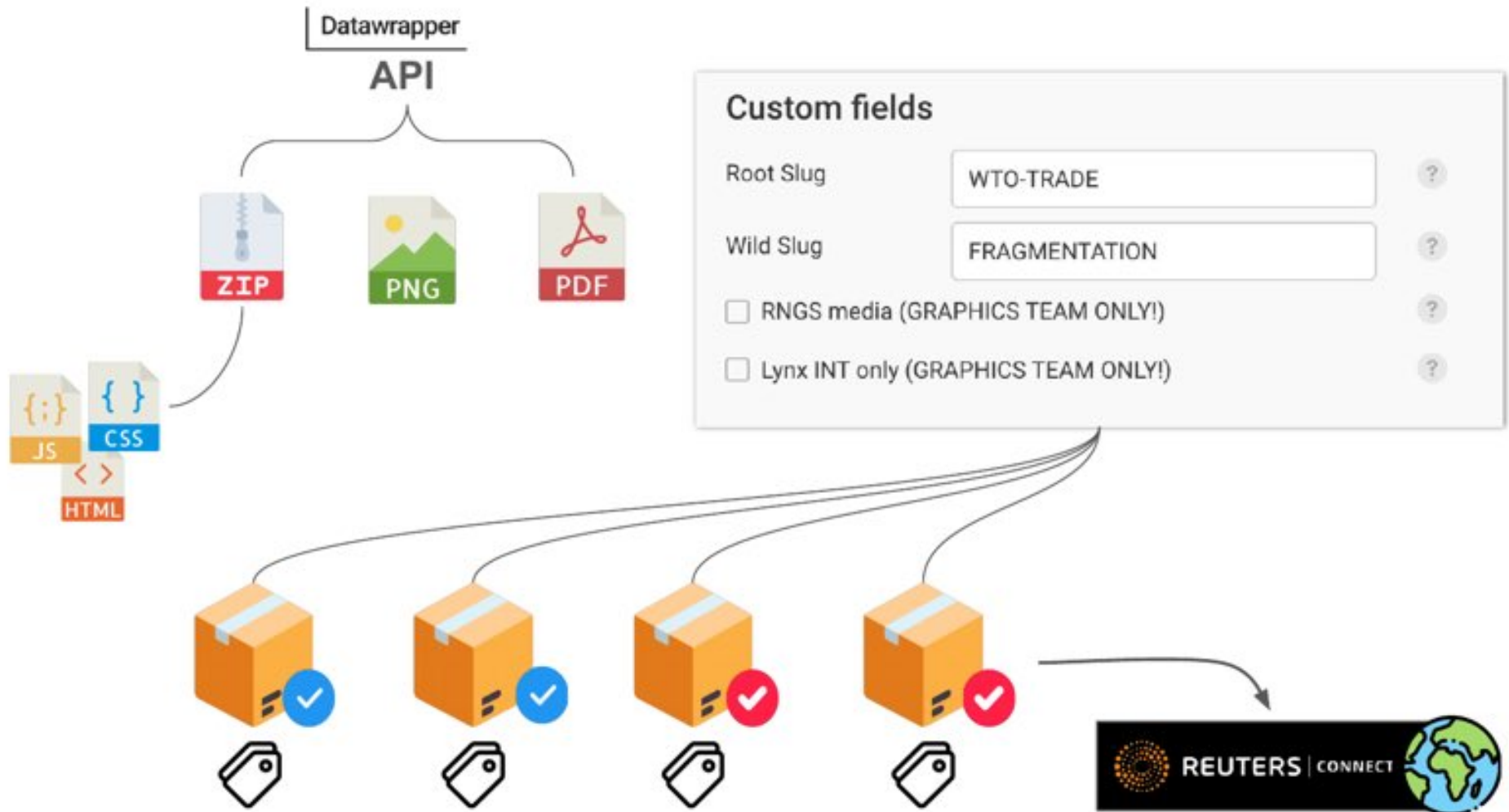
It passes along the unique identifier of the chart that's been edited.

Jon McClure wrote code that that picks up published charts and moves them into Reuters systems.

What that looks like



Custom fields come in handy



The requirements in practice

REUTERS | CONNECT Feed Planning Live Stock

EU unemployment rate

Portrait of the U.S. labor market

Participation in the U.S. labor market

Files in this pack

- Overall pack ✓
- public-en.zip ▲
- interactive ✓
Today, 13:36
EN HTML
- media-en.zip ▲
- EIKON ✓
Today, 13:36
EN IMAGE
- PDF ✓
Not Published
EN PDF
- PNG ✓
Today, 13:36
EN IMAGE
- media-interactive ✓
Not Published
EN TEXT

REUTERS World Business Markets Sustainability Legal Breakingviews Technology Investigations

SPX 5,174.40 +1.31% DAX 39,040.58 +0.75% STOXX 506.52 +1.00% FTSE 7,747.81 +1.02%

US to send \$300 million in new weapons package for Ukraine

without tags

Ukrainian soldiers of 75th Brigade take part in training, ahead of Russia's attack on Ukraine, in Donetsk region, Ukraine March 4, 2024. REUTERS/Denis Kuznetsov/Photo Photo

The United States will send a new military aid package for Ukraine worth \$300 million, President Joe Biden's administration said on Tuesday, the first such move in months as additional funds for Kyiv remain blocked by Republican leaders in Congress.

World

Congress is getting less productive. The numbers prove it.

2:45 PM GMT

World

First Gaza aid ship leaves Cyprus with Palestinians on brink of famine

21 min ago

USA-JOBS/UNEMPLOYMENT

USA-JOBS-UNEMPLOYMENT PARTICIPATION me interactive

REUTERS ✓

Teams too

✓ Published a new chart

Status Published chart
Title US inflation hangs out above 3%
Slugs BRV-BRV/BRV-BRV
Author Oliver.Taslic@thomsonreuters.com
Data source Source: LSEG | O. Taslic | Breakingviews | Feb. 10, 2024
Link <https://www.reuters.com/graphics/BRV-BRV/BRV/fgvdsnqlavo/>
Image <https://www.reuters.com/graphics/BRV-BRV/BRV/zjpqwdelpx/chart.png>

Share price performance for **larger** and **smaller** gaming g



On Jan. 1, 2019
Source: LSEG | O. Taslic | Breakingviews | Feb. 10, 2024

Edit this chart

Graphics Portal

RNGS

McClure, Jon (Reuters) 12/02 21:44

That's a clever use of colours in the title, Taslic, Oliver. Fwiw, you can use a closing `</span>` tag to wrap the specific parts in the colour you want. Like:

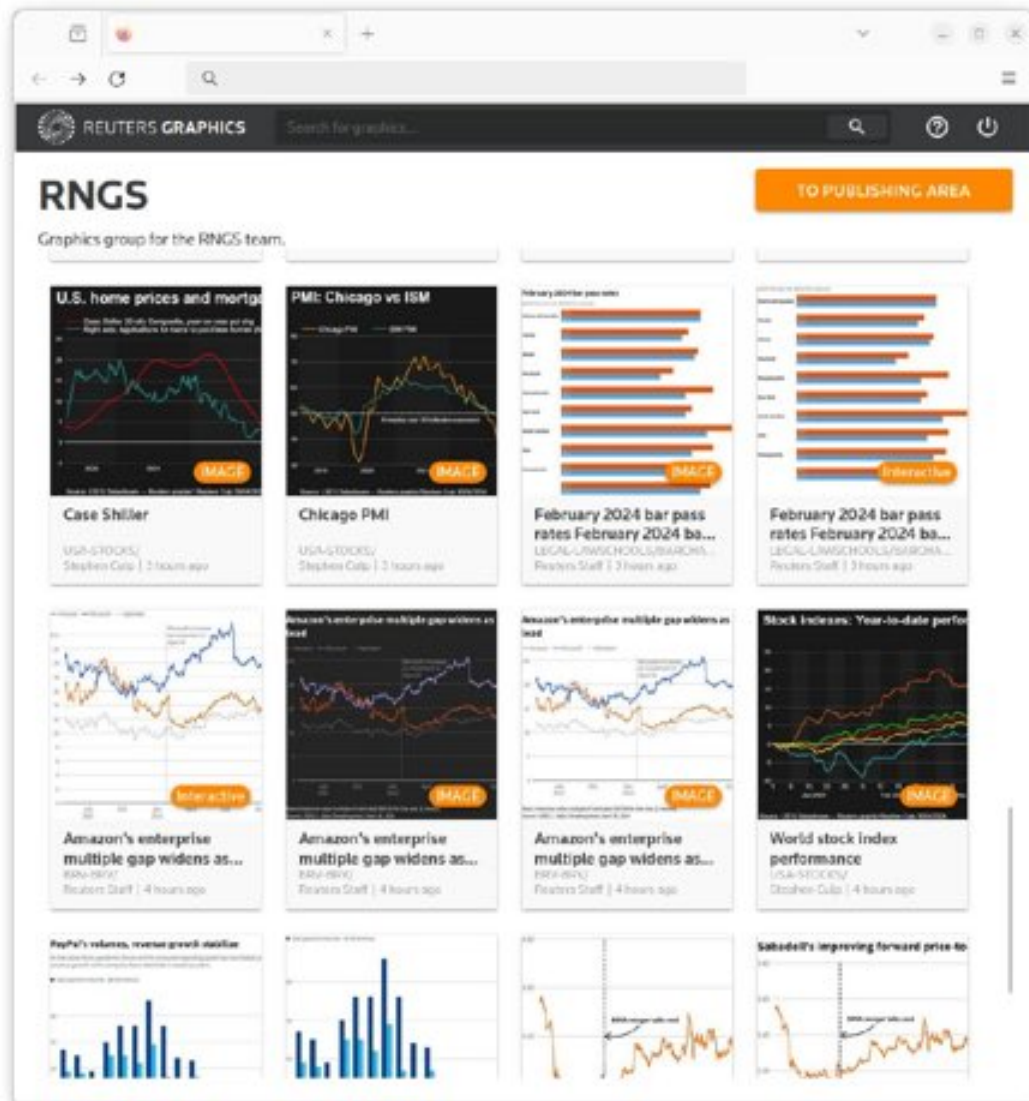
```
Share price performance for <span style="color:#fa6400">larger</span> and <span style="color:#CCCCCC">smaller</span> gaming groups
```

Taslic, Oliver (Reuters) 12/02 21:46

thank you! will try this, looks a lot cleaner. coincidentally another colleague just pointed this out to me, only just getting to grips with `</b>` and `</span>` etc...

✨ **Bonus:** Need a Teams klaxon? Ours is free!
reuters-graphics.github.io/teams-klaxon/

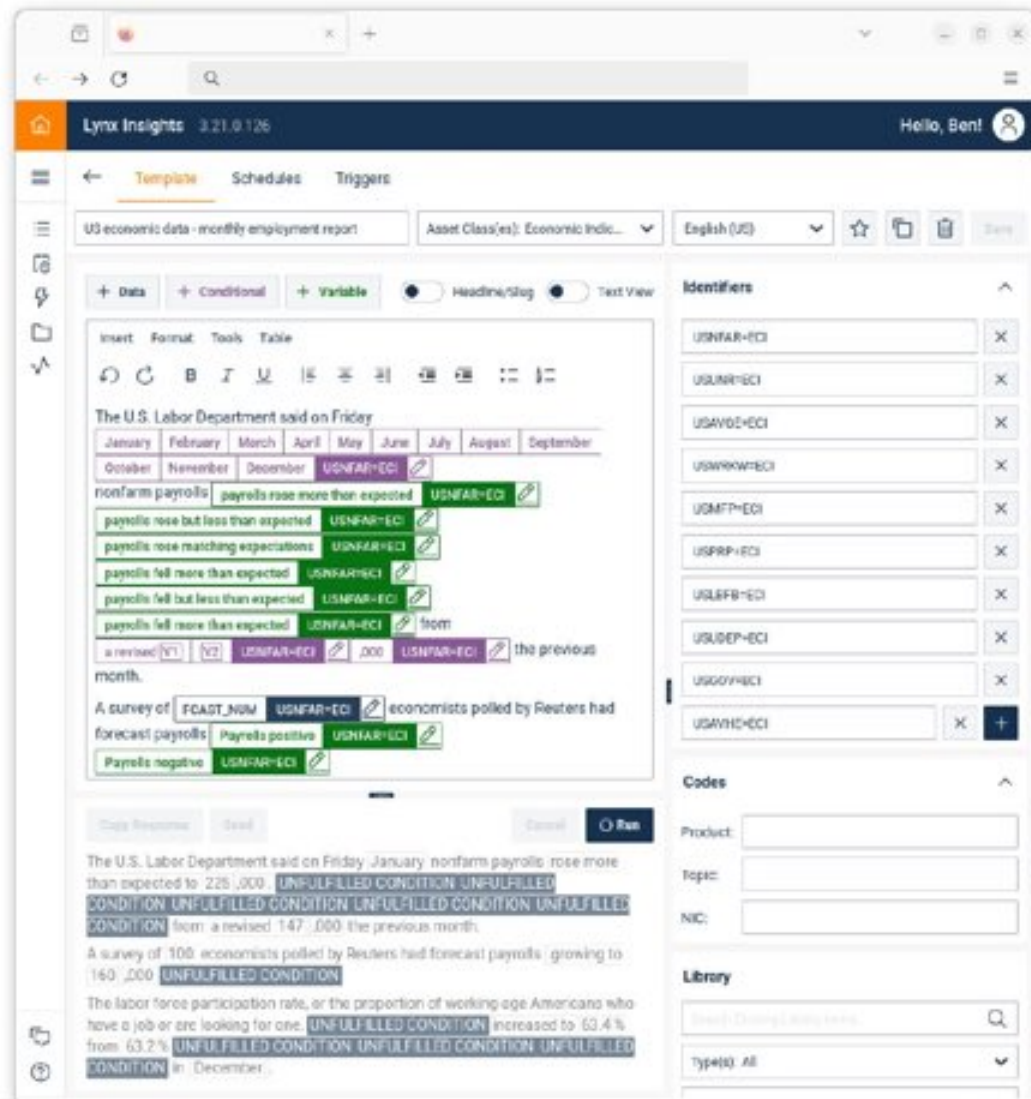




After Datawrapper

- ❖ We have an end-to-end pipeline to deliver any Datawrapper chart
- ❖ McClure's team has trained 800+ reporters and editors
- ❖ Reporters can publish charts on their "patch"
- ❖ Graphics staff fielding far fewer requests



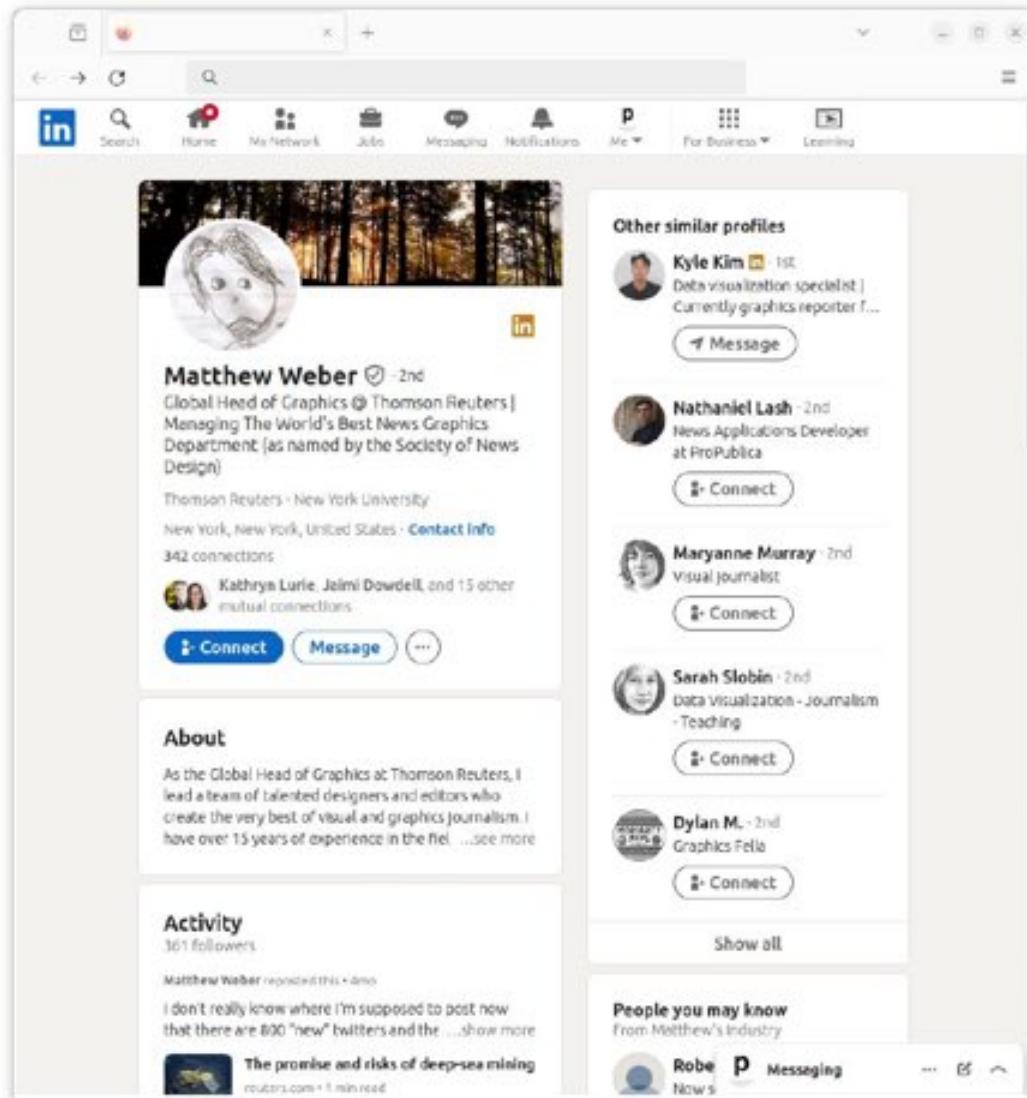


Text is automated

When Ben arrived at Reuters, he learned it already had a text automation system.

It's called Lynx Insight. It fits data to pre-defined templates using carefully tailored logic.

This story is filed immediately after new US employment numbers are released each month.



Why not graphics?

The graphics department head, Matt Weber, long wanted to automate graphics too.

As with Lynx Insight, it could boost speed, increase volume and allow highly-skilled talent to focus on higher-skill work.

So Ben set out to try.



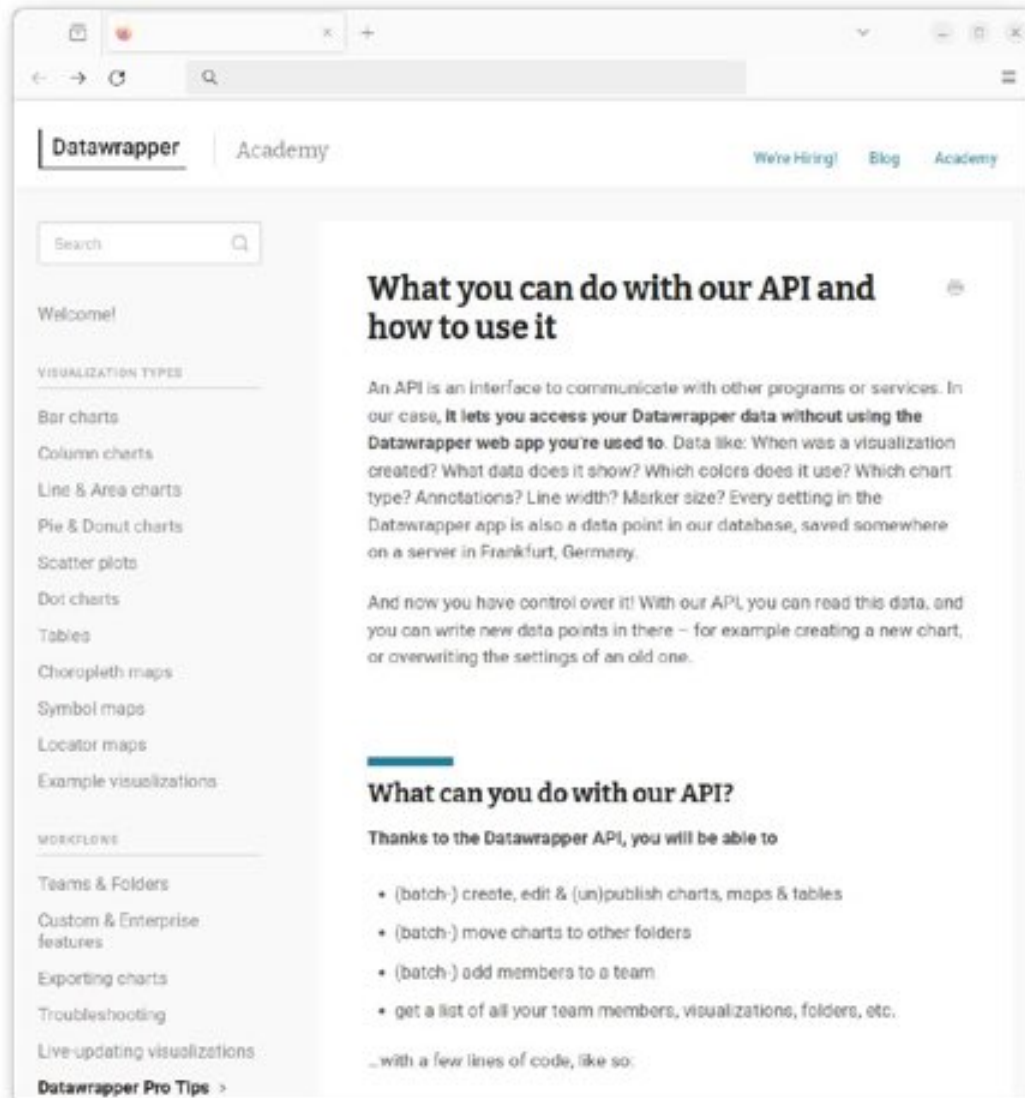
Feeding the funnel

Ben learned how Jon's distribution tools work.

His life flashed before his eyes.

Jon's ingestion system for Datawrapper was, in the metaphorical parlance of Ben's [tronic overlords](#), a funnel.

Ben just needed to figure out how to feed it.

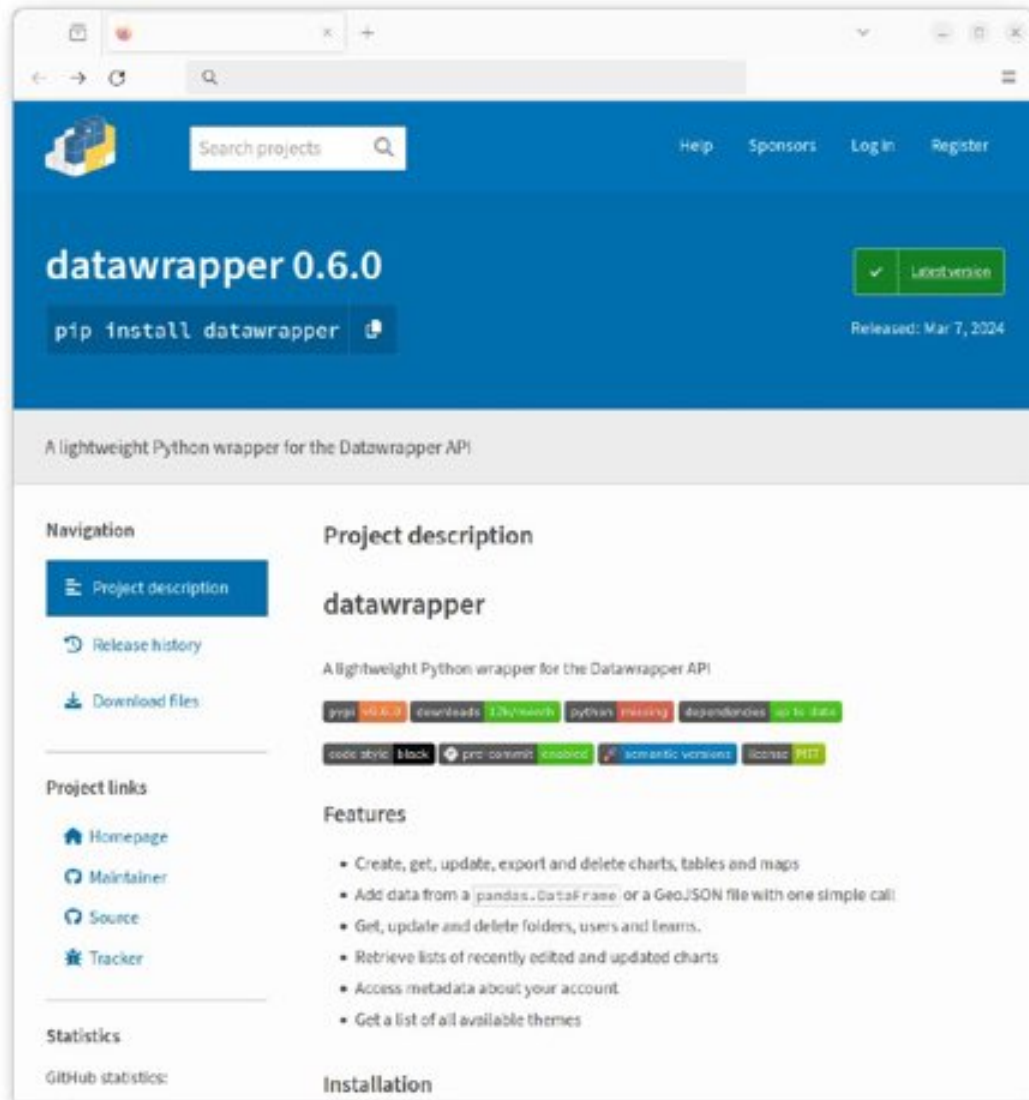


Enter the API

APIs allow programmers to access online services with code.

Datawrapper's API allows users to automatically generate charts and maps.

All Ben had to do was send instructions over the web with a special access token.

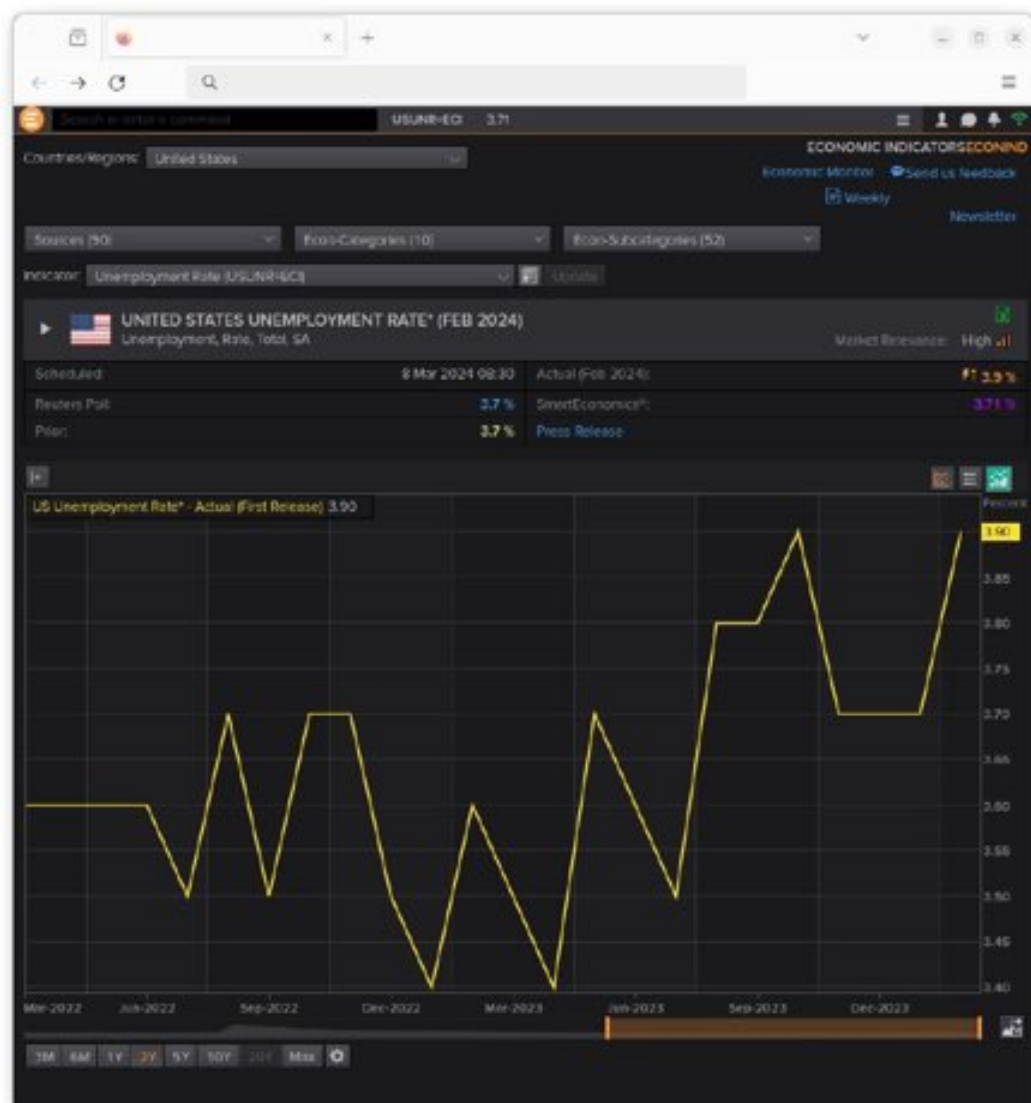


Python is cool

Sergio Sánchez Zavala created an open-source package that lets you access the API using the Python programming language.

If you know Python, it's easy to use.

Ben knew Python.



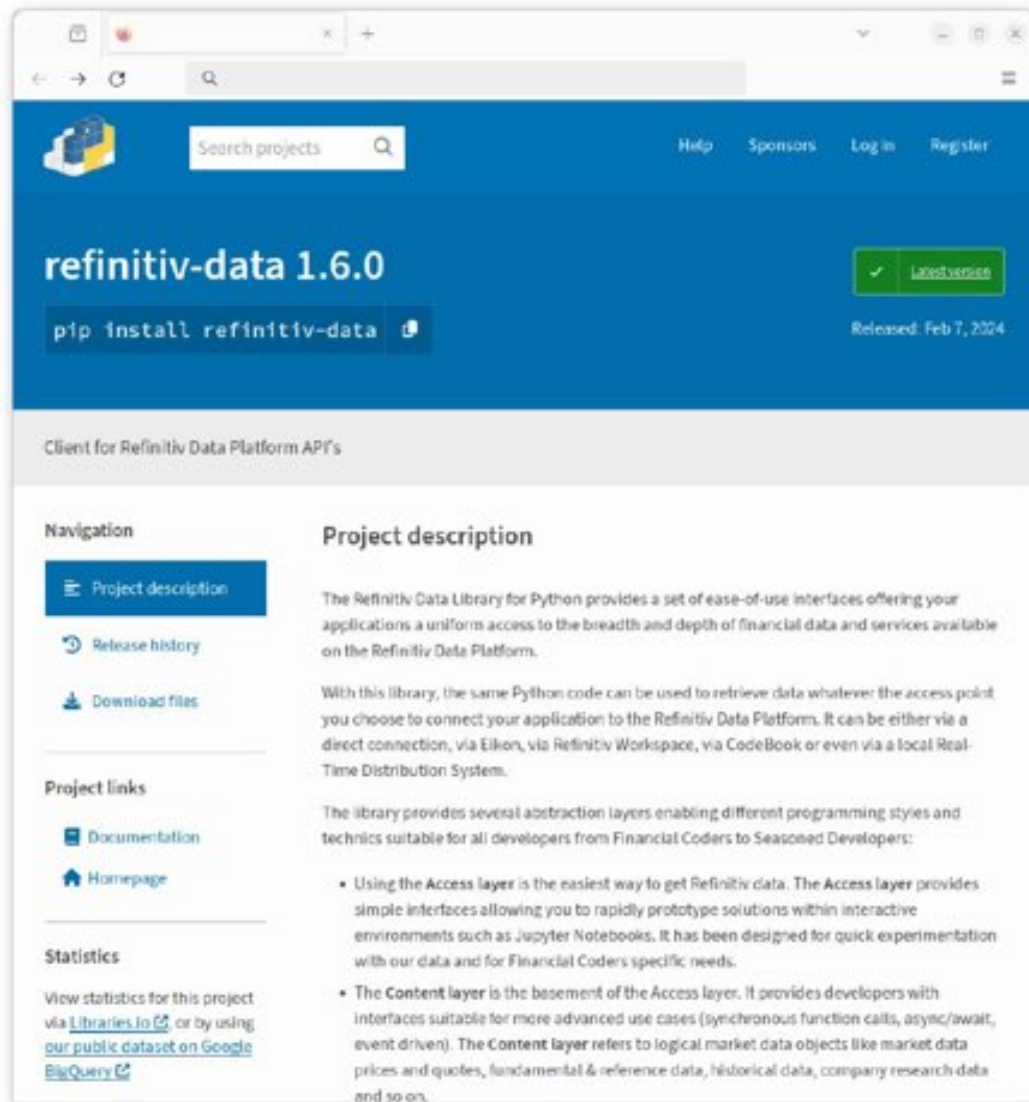
Our advantage

Reuters is the exclusive news provider for LSEG, a financial service that competes with the infamous Bloomberg Terminal.

That means we have access to a high-quality, rapidly updating feed of newsmaking numbers.

It's the top source for Reuters graphics, but reporters have to claw out data files and paste them into Datawrapper.

That's slow.



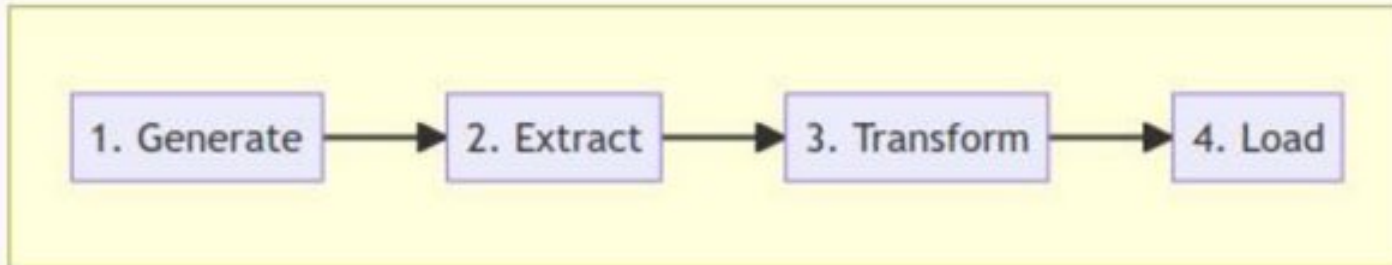
Another API

Ben learned that the LSEG system also offers an API.

He found its open-source Python package.

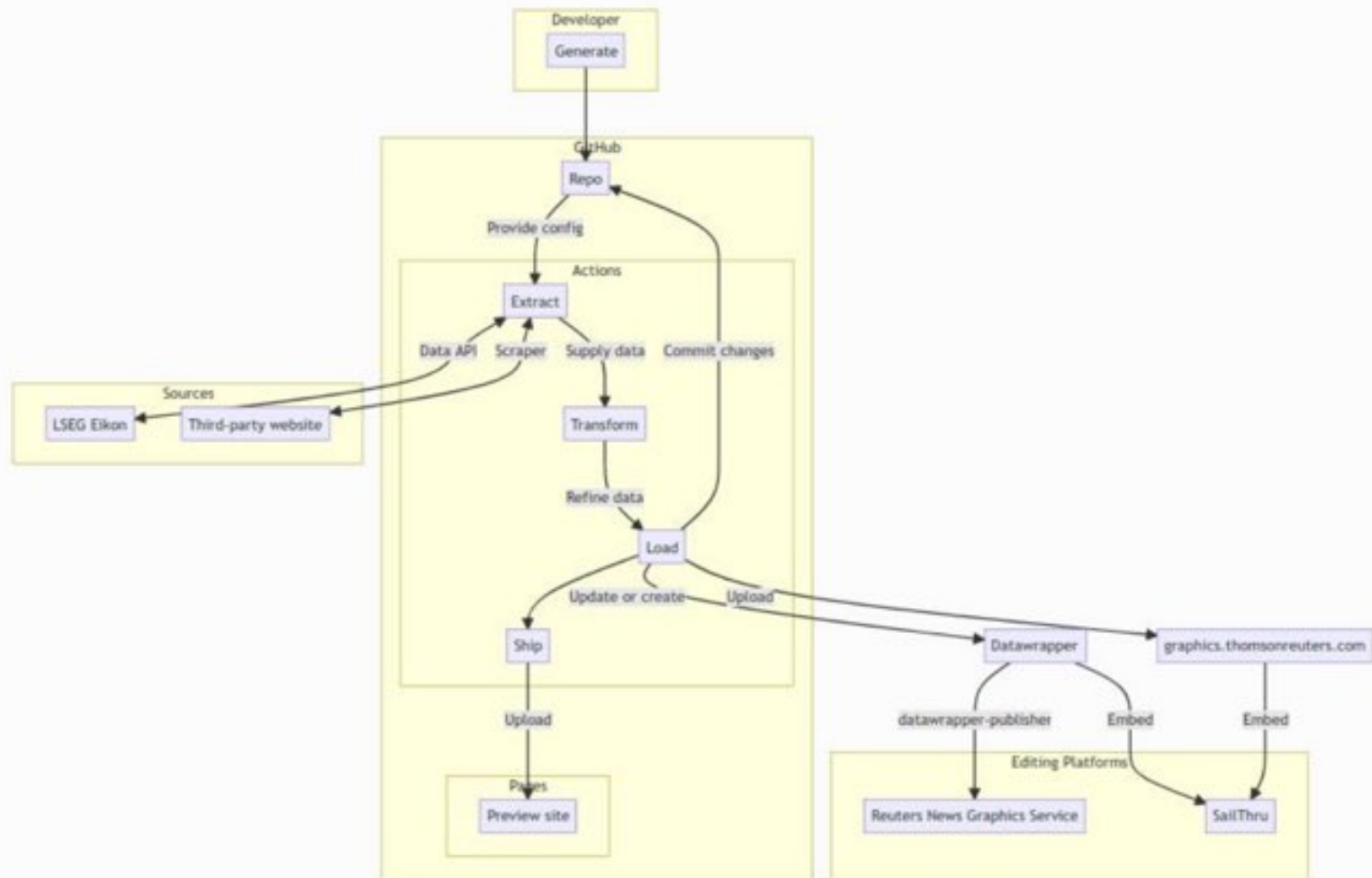
He got excited.

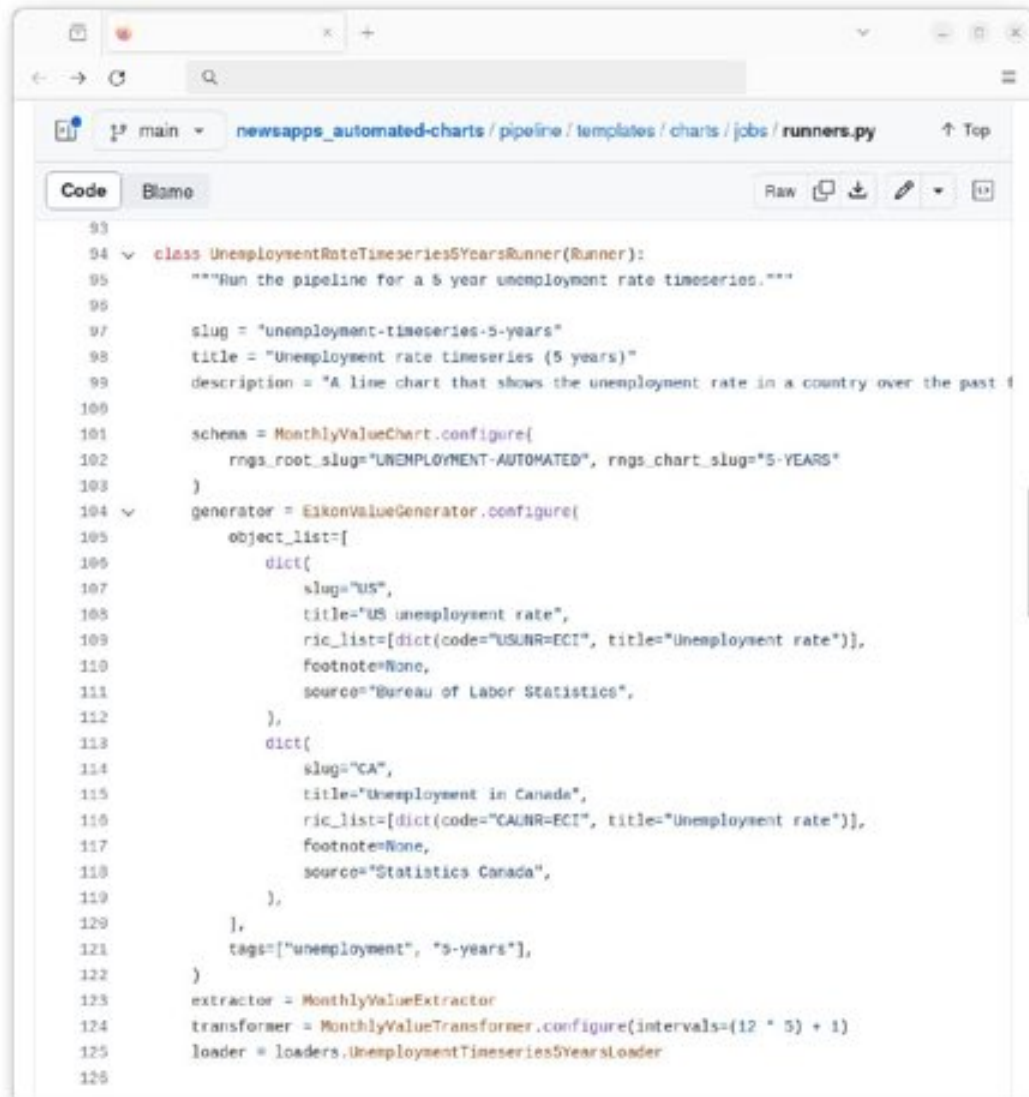
The pipeline in theory



1. Generate: Create or update configuration files that define the objects that will be rendered by the template
2. Extract: Fetch the data needed to generate each template object
3. Transform: Filter, refine and enrich the source data so that it's ready for publication
4. Load: Evaluate the transformed data and, if new information is available, publish an object

The pipeline in reality



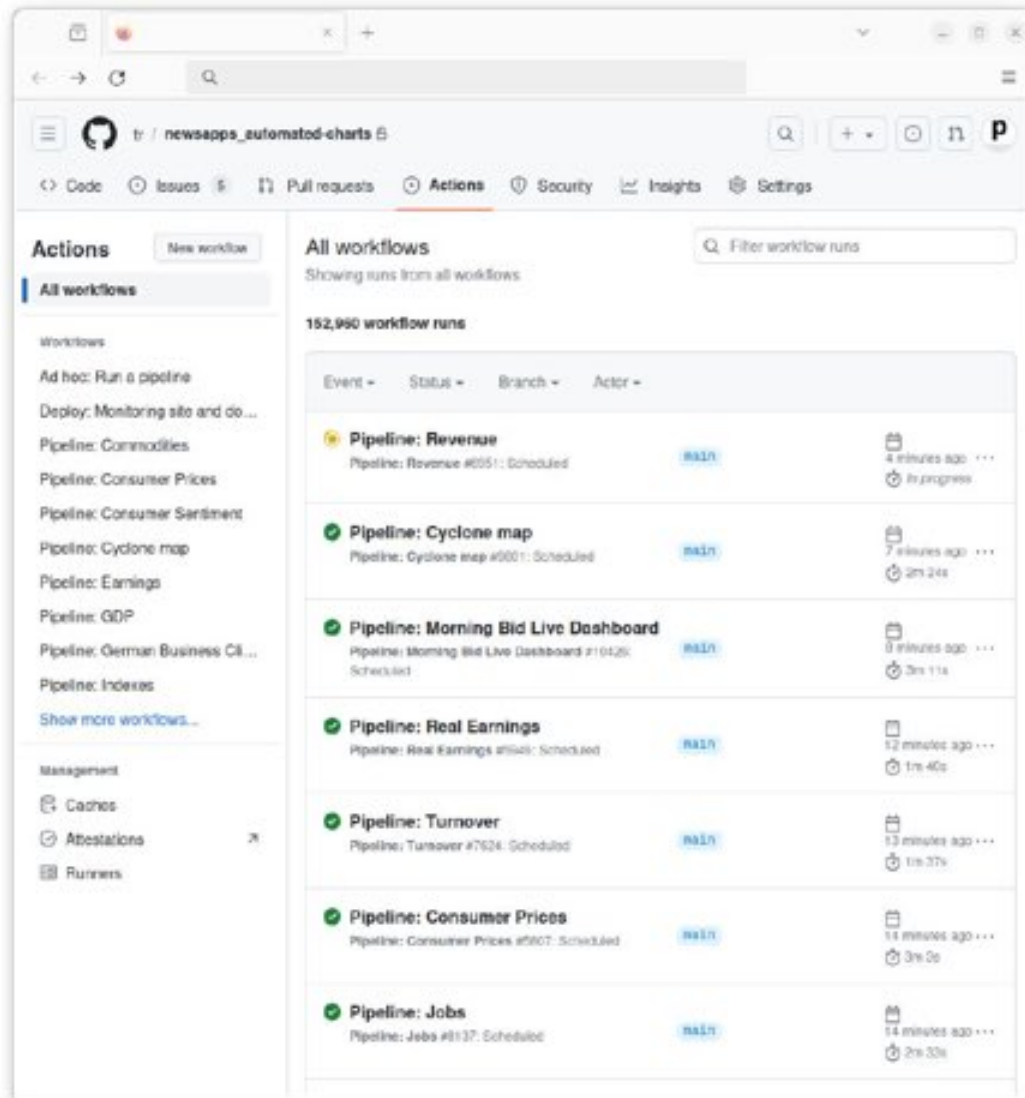


```
93
94 class UnemploymentRateTimeseries5YearsRunner(Runner):
95     """Run the pipeline for a 5 year unemployment rate timeseries."""
96
97     slug = "unemployment-timeseries-5-years"
98     title = "Unemployment rate timeseries (5 years)"
99     description = "A line chart that shows the unemployment rate in a country over the past 5 years"
100
101     schema = MonthlyValueChart.configure(
102         rns_root_slug="UNEMPLOYMENT-AUTOMATED", rns_chart_slug="5-YEARS"
103     )
104     generator = EikonValueGenerator.configure(
105         object_list=[
106             dict(
107                 slug="US",
108                 title="US unemployment rate",
109                 ric_list=[dict(code="USUNR=ECI", title="Unemployment rate")],
110                 footnote=None,
111                 source="Bureau of Labor Statistics",
112             ),
113             dict(
114                 slug="CA",
115                 title="Unemployment in Canada",
116                 ric_list=[dict(code="CAUNR=ECI", title="Unemployment rate")],
117                 footnote=None,
118                 source="Statistics Canada",
119             ),
120         ],
121         tags=["unemployment", "5-years"],
122     )
123     extractor = MonthlyValueExtractor
124     transformer = MonthlyValueTransformer.configure(intervals=(12 * 5) + 1)
125     loader = loaders.UnemploymentTimeseries5YearsLoader
126
```

For example

Here is Python code that – using a set of custom ETL helpers – creates a line chart of the unemployment rate.

It's just one small snippet within a large system, but it shows the basic bits needed for each chart template.



Actions as platform

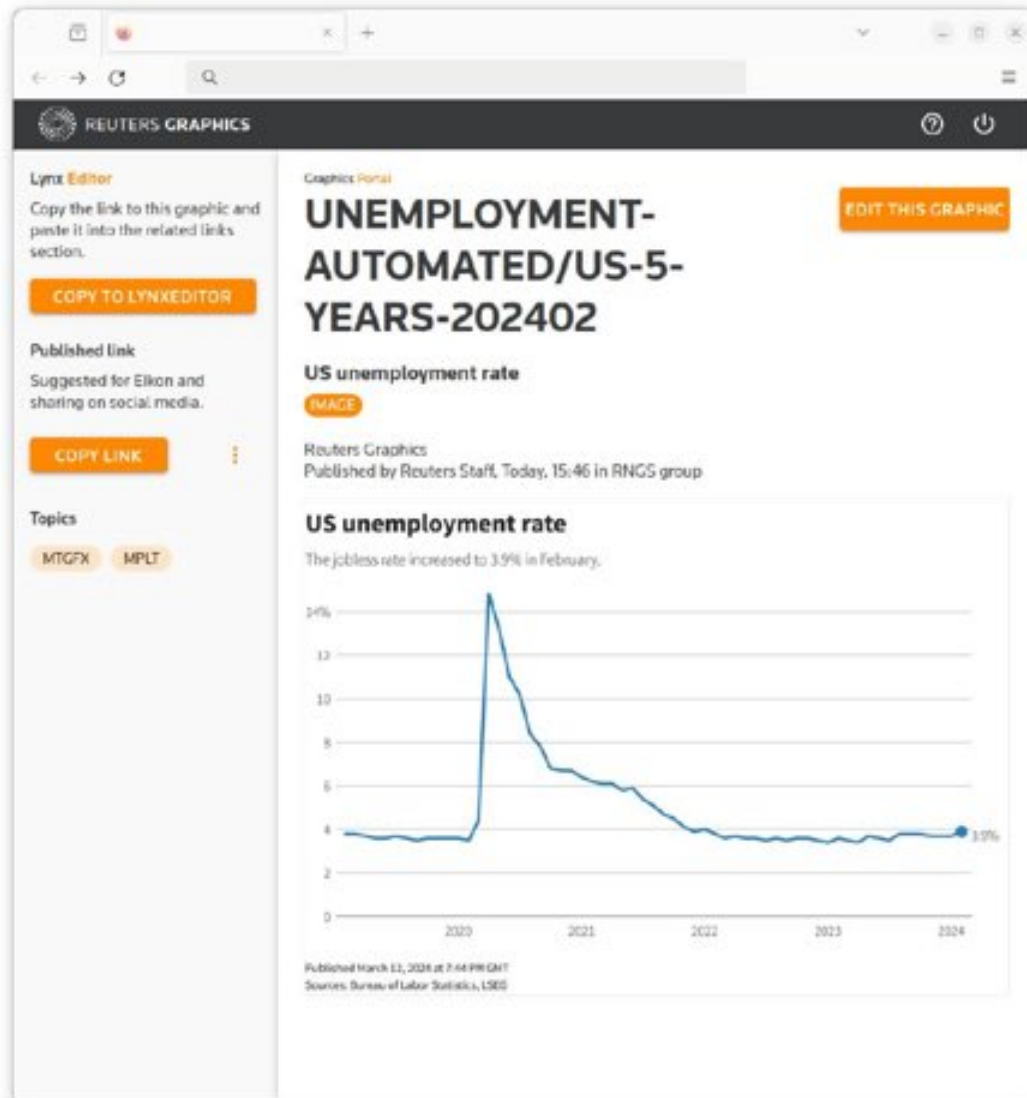
The system is run via Actions, the powerful task runner included with GitHub.

Yes, Actions is the production environment.

Yes, it works.

Yes, it's virtually free.

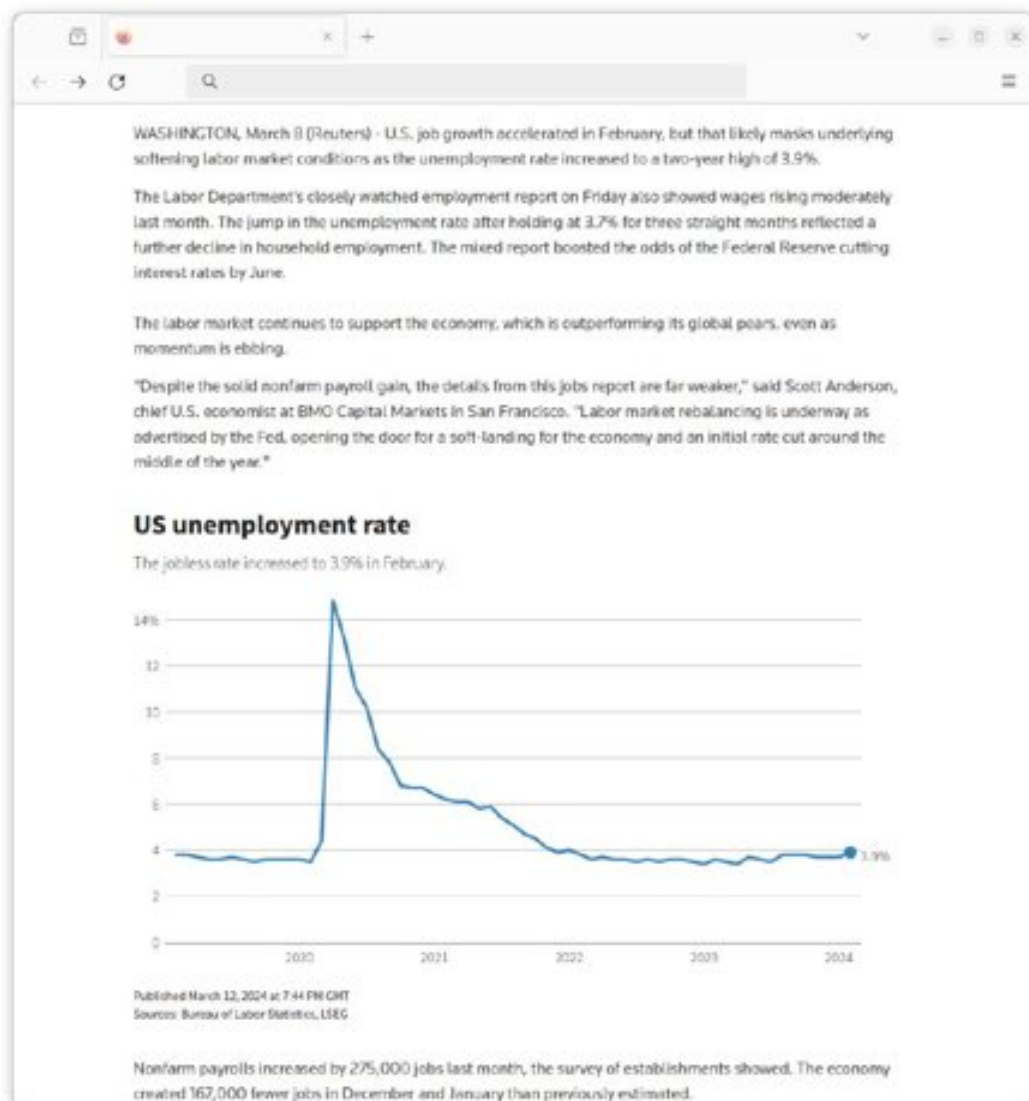
Yes, you should do this.



Down the funnel

After an Action makes a new chart via the Datawrapper API, Jon's system picks it up and does the rest.

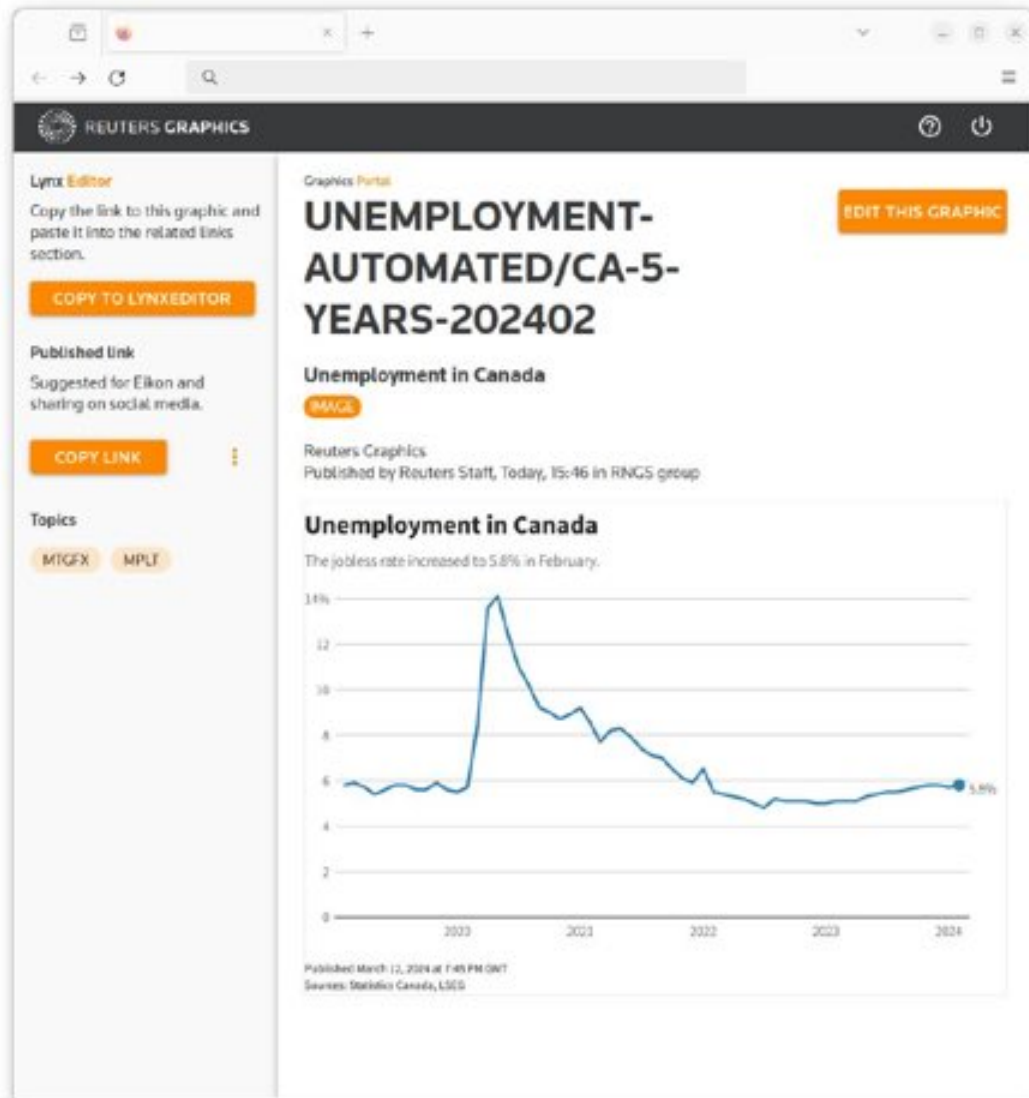
The templated charts drop into our graphics pool, just like the custom charts made by our staff.



Speed wins

The result is that when a newsmaking number hits LSEG, an automated chart can be ready in minutes.

We're seeing our charts land even faster than our text stories.



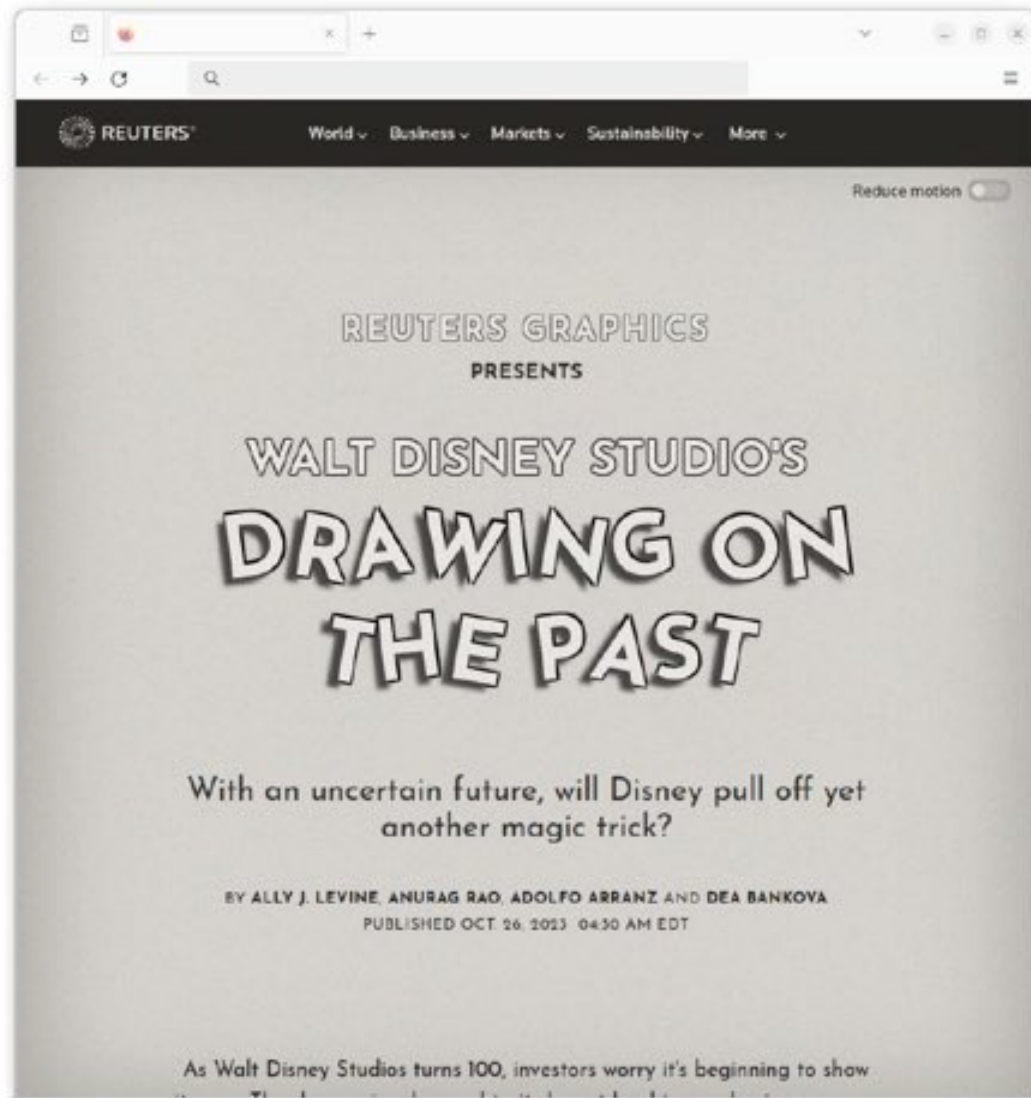
Scary scale

The templates can easily be extended to sibling data series.

This allows our system to scale far beyond what any human could do.

A powerful example is our bar chart template for corporate earnings reports.

It can instantly make a chart for each of the thousands of stocks tracked by LSEG.

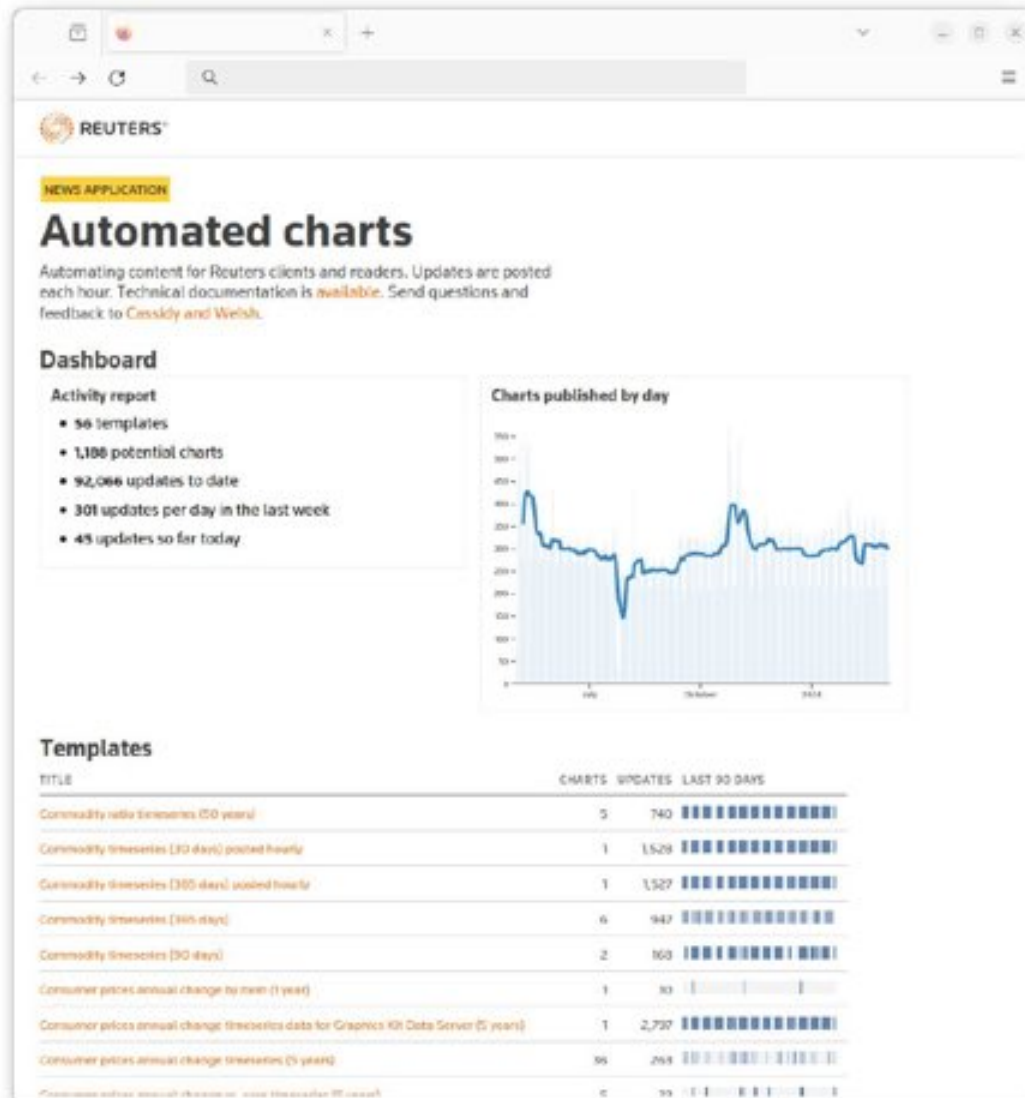


Freedom rings

Ally Levine had to log on early on Fridays to manually make that unemployment rate chart.

Now the robot does the work.

Ally gets to sleep in and do things like this instead.

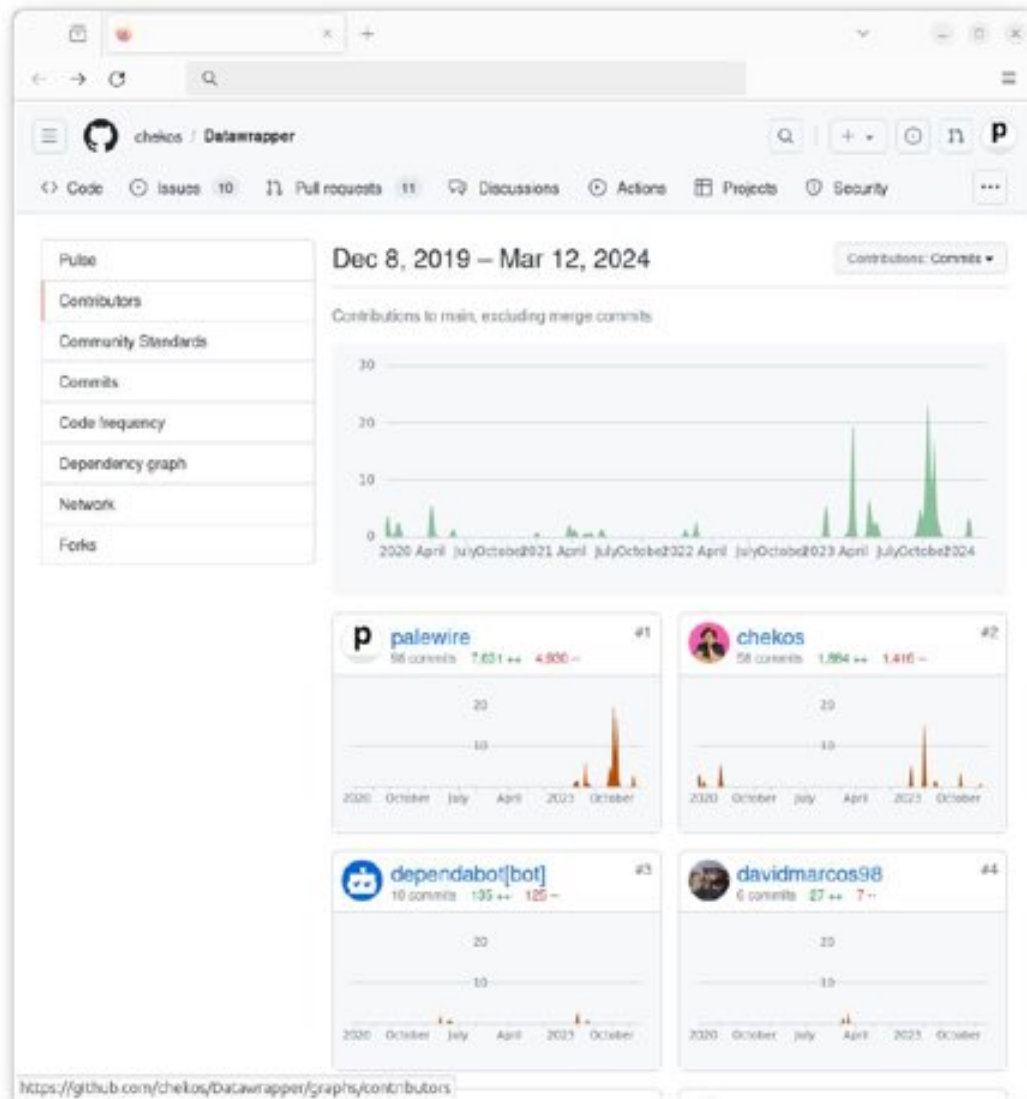


Putting up numbers

We've been up and running for a little more than six months.

Thus far, we have nearly 60 templates, including a few that branch out beyond LSEG and Datawrapper.

All told we've pushed through roughly 25,000 charts.



Merging back

Ben teamed up with Sergio to expand and improve the Datawrapper package for Python.

It now covers 100% of API features.

Python API code in reality

 reality.py

Raw

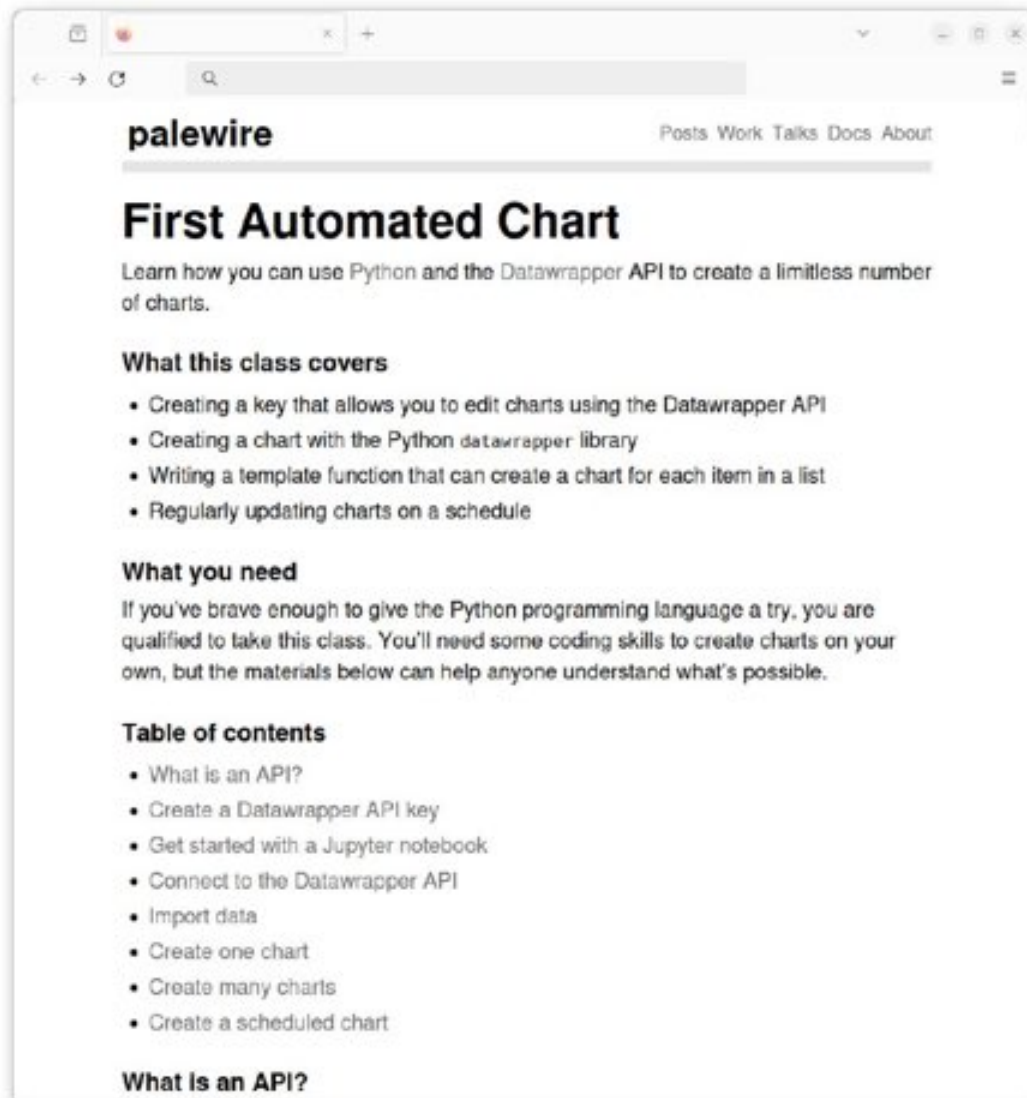
```
1 dw.create_chart(  
2     title="Arrests in Baltimore",  
3     chart_type="column-chart",  
4     data=data,  
5     metadata={  
6         "visualize": {  
7             "base-color": "#bf7836"  
8         },  
9         "describe": {  
10            "source-name": "OpenBaltimore",  
11            "source-url": "https://data.baltimorecity.gov/datasets/baltimore::bpd-arrests/about",  
12            "byline": "First Automated Chart"  
13        }  
14    }  
15 )
```

Python API code in theory

 theory.py

Raw

```
1 from datawrapper import ColumnChart
2
3 ColumnChart(
4     title="Arrests in Baltimore",
5     data=data,
6     base_color="#bf7836",
7     source_name="OpenBaltimore",
8     source_url="https://data.baltimorecity.gov/datasets/baltimore::bpd-arrests/about",
9     byline="First Automated Chart"
10 ).create()
```



You must learn

Ben and Sergio created a tutorial that shows newbies how to use the Datawrapper API with Python.

It was a standing-room only event at the recent NICAR conference in Baltimore.

It's fully scripted and free to all on Ben's website.

Thank you!

Slides available at bit.ly/bff-dvs

