



APIs

Goal: connect to a (twitter) API and retrieve data

Why?

...are we talking about APIs — today, and at all?

- APIs are the data source for the data pipeline we are building this week.
- In general, APIs are a great data source.

What?

...are APIs?

- From the course materials:

An API, short for Application Programming Interface, is a concept used to describe –essentially – a piece of intermediary software (the interface) that facilitates communication between 2 other pieces of software (the applications).

- This is a very general definition. When we talk about APIs, we mostly refer to *Web APIs*.
- API = website providing data in a format more machine-readable than HTML.
 - We still submit an HTTP request though, e.g. with the `requests` library.
- REST / RESTful APIs:
 - REST = representational state transfer.
 - They conform to particular architectural standards — software developers creating them, had to pay attention to certain things, and design them in certain way; it's a way of standardizing APIs some. "Best practices" for designing APIs.

When?

...should you use APIs, over e.g. data scraping?

- Whenever you can!
- APIs give us structured data (these days mostly JSON, previously also XML), rather than unstructured HTML.
- API use is above the board and we know we are operating within our rights.
 - Data providers choose what data they give you, and on what terms (rate-limits, what personal data they require of you, etc).
- For larger data providers, or those who monetize data access (e.g. twitter), you'll often have a dedicated helper library which you can use to access the data through the API (e.g. `tweepy` this week).

Other cool APIs

- RKI:
 - <https://api.corona-zahlen.org/docs/>
- NASA:
 - <https://api.nasa.gov/>
- Spotify:
 - <https://developer.spotify.com/documentation/web-api/>,
<https://developer.spotify.com/discover/>
- Shopify:
 - <https://shopify.dev/api/admin/rest/reference>
- Open Government:
 - <https://www.govdata.de/>
- Public transit APIs:
 - <https://transport.rest>
 - <https://www.vbb.de/vbb-services/api-open-data/api/>

- icanhazdadjoke:
 - <https://icanhazdadjoke.com/api>
- API directory on Programmable Web:
 - <https://www.programmableweb.com/category/all/apis>

Useful list of things to think about when choosing an API from the course materials:

- which authentication is needed (no: easiest, username/password: easy, OAuth: more complex)
- is it free / is there a rate-limit
- is it well-documented
- what data format it returns

In week 4: we sent an HTTP request, and got back HTML. 🤖

Now: we sent an HTTP request, get back JSON. 🙌