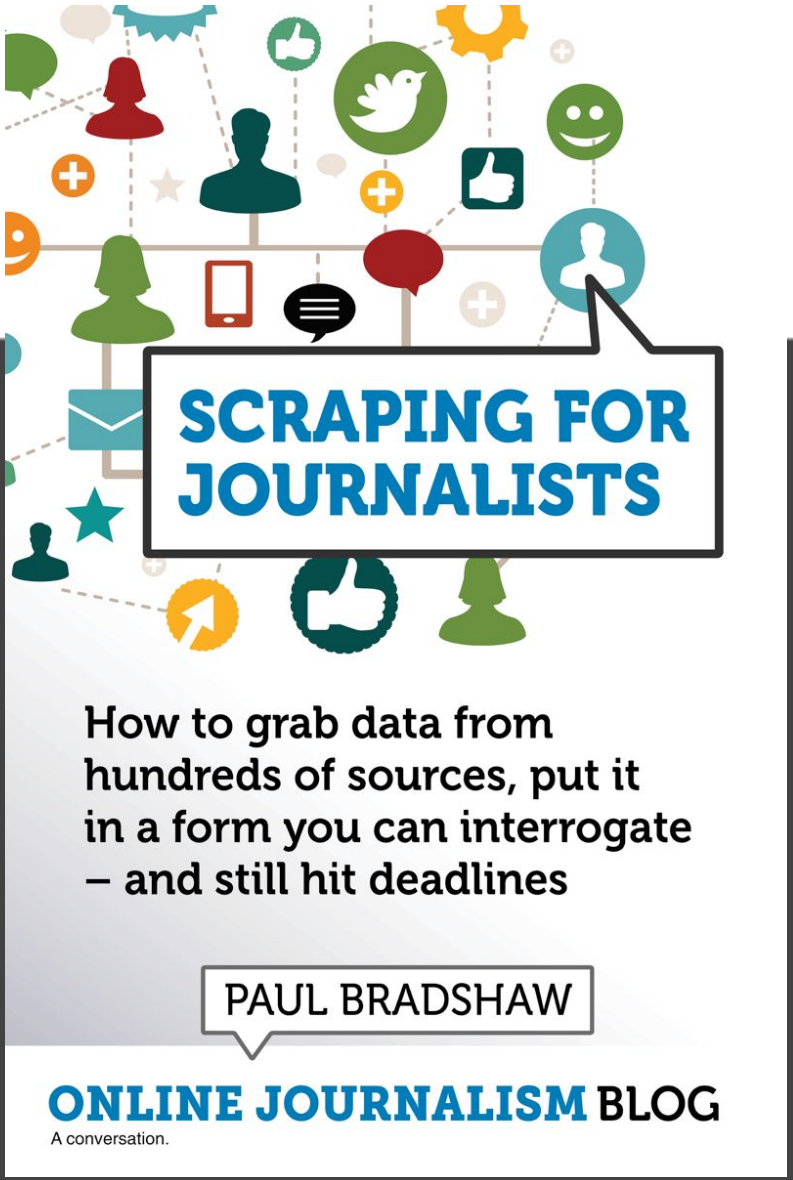
Lists redux: storing the data


SCRAPING FOR JOURNALISTS
How to grab data from hundreds of sources, put it in a form you can interrogate – and still hit deadlines
PAUL BRADSHAW
ONLINE JOURNALISM BLOG
A conversation.

Paul Bradshaw
Leanpub.com/scrapingforjournalists

What we’ll cover

- Using **lists** to extract the data you want
- Using **pandas** data frames to store it

The story so far

- We’ve extracted 50 <div> tags
- (You might have grabbed 50 dates too)
- How do we store them?

The data needs to line up

We need 50 of each, so check:

- You have the right number
- The first and last items match what you expect

If not, try:

- Change the selector to be more specific
- Add an index/slice to select the right range of items
- Select every other item
- Google solutions to your problem/ask ChatGPT

Tip: slicing a list

Slicing a list involves specifying a start and end index like so:

```
first10 = mylist[0:10]
```

If you don't specify a start or end point, it will default to the start or end of the list:

```
first10 = mylist[:10]
from10on = mylist[9:]
```

Don't forget negative indices too:

```
last10 = mylist[-10:]
```

We want to extract text

- `.select( )` grabs the tags-and-text and produces a **list** of matches
- We can also drill down further, into just the text of **each item**
- Add `.get_text()` to a single item to do just that

  ```
  item1text = mylist[0].get_text
  ```

- Create a loop to do it to each item in turn

```
#grab the first item from the list
'divswewant'

#apply the .get_text() method to it to
grab the text


divswewant[0].get_text()
```

```
#loop through the divswewant list
for i in divswewant:
   #extract the text
   casename = i.get_text()
   print(casename)
```

```
#create an empty list
casetitles = []


#loop through the divswewant list
for i in divswewant:
   casename = i.get_text()
   #add the text and link to the
previously empty lists
   casetitles.append(casename)
```

Introducing pandas!

We need to store the data

The pandas library has functions to create a data frame (table) and add to it

- The **`pandas.DataFrame()`** function creates a data frame with specified columns
- If you imported `pandas as pd`, then it's **`pd.DataFrame()`**
- Lists can be used as columns.

```
#create a dataframe which uses
two lists as its two columns
casedataframe = pd.DataFrame(
{"case name" : casetitles, "date"
: datelist} )
```

Introducing dictionaries!

The dictionary variable

- Uses **curly brackets**
- Contains a list of **pairs**, separated by a colon
- **`{“name” : “Paul”, “age” : 21}`**
- The first part of the pair is the **key**
- The second part is the **value**
- ...So they’re called **key-value pairs**
- The key is always a string; the value can be a string, number, True/False, or anything else
- Multiple dictionaries can be used to create rows in a table, e.g. row 2 might be:
  `{“name” : “Xian”, “age” : 31}`

Creating a dictionary

```
#create a dictionary
#with 2 key-value pairs
mydictionary = {“name” : “Paul”,
“age” : 21}
```

Expanding a dictionary

- `#create an empty dictionary`
  `mydictionary = {}`
- `#create a key and store a value`
  `mydictionary[‘name’] = “Paul”`
  `mydictionary[‘age’] = 21`
- `#print the dictionary`
  `print(mydictionary)`

```
#create a dataframe which uses
two lists as its two columns

casedataframe = pd.DataFrame(
{"case name" : casetitles, "date"
: datelist} )
```

Curly brackets = the dictionary

We need to export the data

The pandas library has functions to import and export data to and from CSV

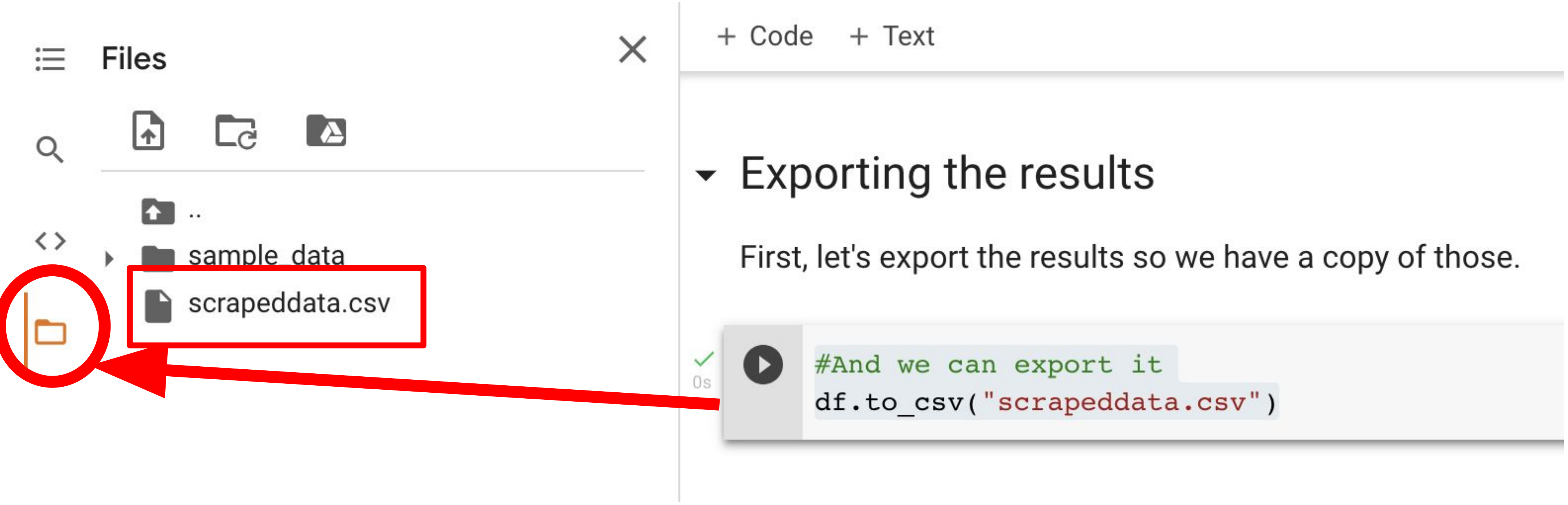
- The `.to_csv()` function creates a CSV with a specified name, using the data frame it's attached to
  ```
  mydataframe.to_csv("mycsv.csv")
  ```

- The CSV file will be in the Files area in the left hand navigation in Colab

```
casedataframe.to_csv(“scrapeddata
.csv”)
```

Get it out!

```
#export it
df.to_csv("scrapeddata.csv")
```



Exporting the results

First, let's export the results so we have a copy of those.

```
#And we can export it
df.to_csv("scrapeddata.csv")
```

Try it now:

- In your notebook scrape the page and extract the contents of:
  - <li> tags
  - <time> tags

- Loop through those tags and append the results of **`.get_text()`** to a new list
- Store the two lists in a dataframe
- Export the dataframe as a CSV

Recap

- Use loops and **.append( )** to create new lists based on old lists (e.g. getting the text of each item)

- Use pandas to create a data frame to store data

We want to extract attributes

- `.select( )` grabs the tags-and-text and produces a **list** of matches
- We can also drill down further, into attributes of **each item**
- Add `[‘href’]` to a single item to grab the href="" attribute
  `item1text = mylist[0][‘href’]`

- Create a loop to do it to each item in turn

Going into child tags

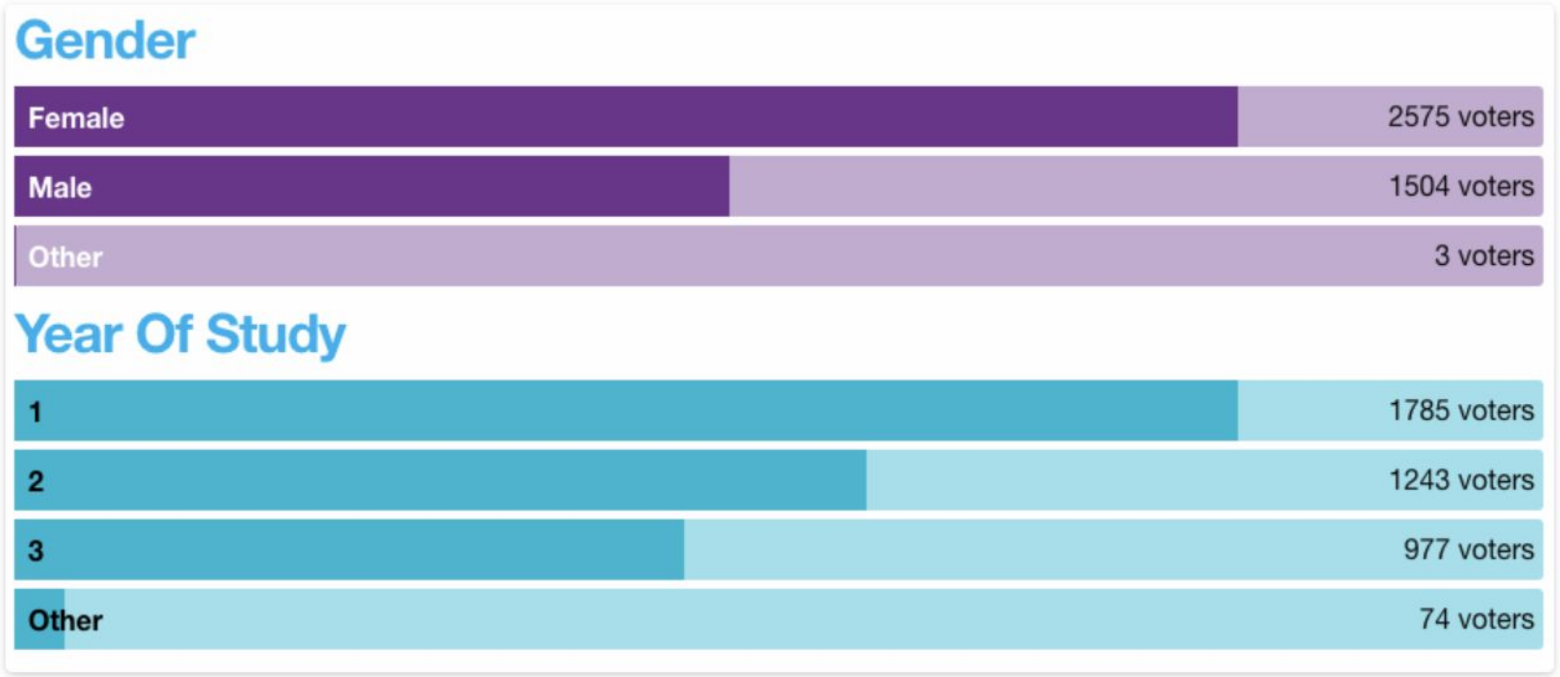
- `.select( )` grabs the tags-and-text and produces a **list** of matches
- We can also drill down further, into tags within **each item**
- Add `.select( )` again, to a single item to grab a specified tag
  ```
  item1text = mylist[0].select(‘a’)
  ```
- Remember this will create another list, so you’ll need to drill down to a specific item
  ```
  item1text =
  mylist[0].select(‘a’)[0]
  ```

Next time:

- Make a copy of the two Colab notebooks shared with you this week
- Work through them, running the code - try adapting it and see what happens
- Try to use the knowledge from this week to adapt some code suggested by ChatGPT/Bard
- Try to apply it to a webpage that interests you - what errors do you get? What new challenges do you face? Share your notebook with Paul!

How to: find the data behind an interactive chart or map using the inspector

5 Replies



This interactive chart is generated from some data you can grab

Increasingly you might come across an interesting set of interactive charts from a public body, or an interactive map, and you want to grab the data behind it in order to ask further questions. In many cases you don't need to do any scraping — you just need to know where to look. In this post I explain how to work out where the data is being fetched from…

https://onlinejournalismblog.com/2017/05/10/how-to-find-data-behind-chart-map-using-inspector