ELECTRONIC PUBLISHING
AND DIGITAL STORYTELLING
Lesson 7

DATA VISUALIZATION ON THE WEB

OUTLINE

1

STRATEGIES TO VISUALIZE DATA ON THE WEB

Overview

2

HANDS-ON BOKEH

Still Jupyter notebooks

3

HANDS-ON GOOGLE CHARTS

Javascript libraries

4

HANDS-ON D3.JS

Javascript libraries

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AND DIGITAL STORYTELLING
Lesson 7

STRATEGIES TO VISUALIZE DATA ON THE WEB

A FEW WAYS

Some libraries allow to export visualizations as png/jpg/html+js. Others allow to build server-side applications

PYTHON LIBRARIES

Online and desktop tools that allow to manipulate data and export png/jpg

WYSIWYG TOOLS

Many libraries allow to query static/dynamic data and visualize on the fly.

JAVASCRIPT

FOR EXAMPLE

Bokeh, Plotly, pygal, Gleam

PYTHON LIBRARIES

Tableau, Infogram, Google charts/spreadsheet

WYSIWYG TOOLS

Google Charts, D3.js, and many others

JAVASCRIPT

A FEW DRAWBACKS

PYTHON LIBRARIES

Requires good programming skills and know-how on specific libraries for plotting/web

Bokeh, Plotly, pygal, Gleam

WYSIWYG TOOLS

Less technical skills, but more restrictions (on data manipulation, chart selection, pricing)

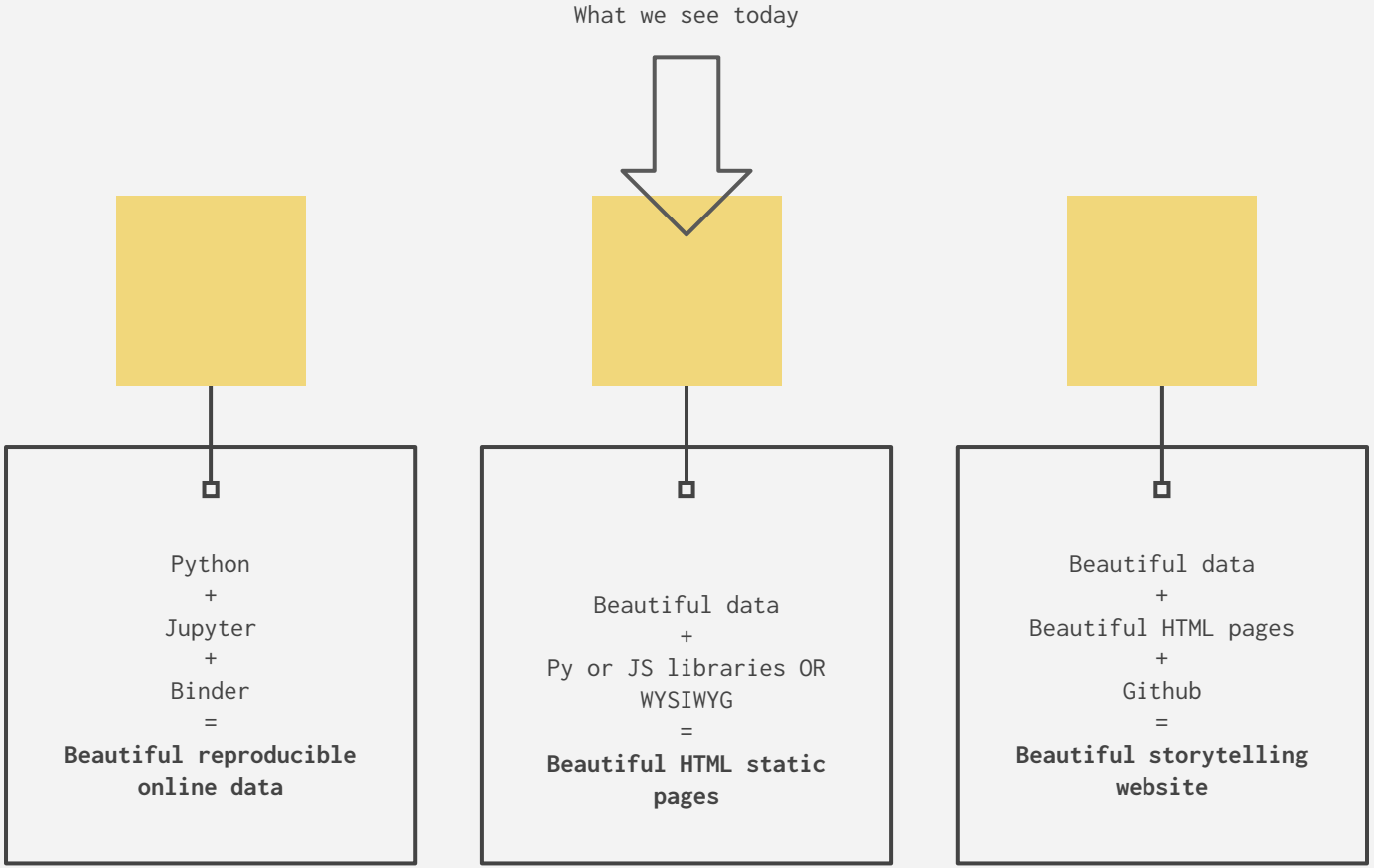
Tableau, Infogram, Google charts/spreadsheet

JAVASCRIPT

Requires know-how of dedicated libraries and acquaintance with how the web works

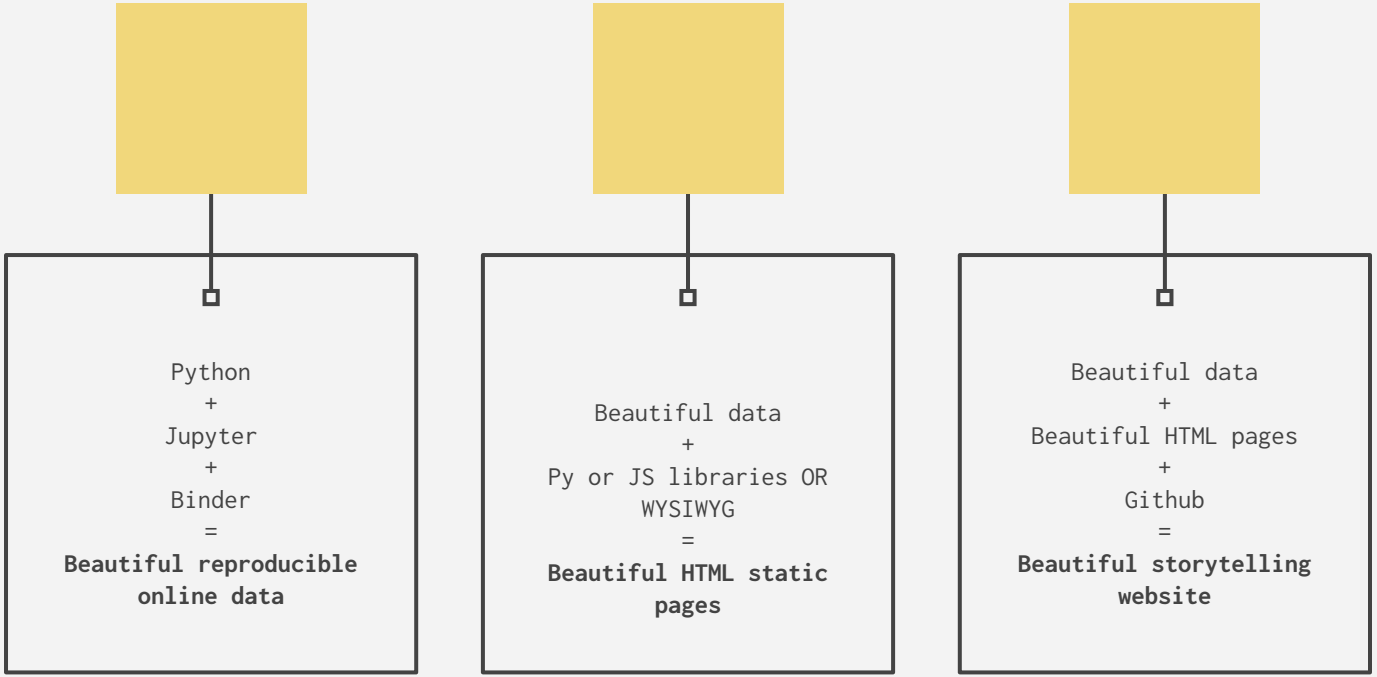
Google Charts, D3.js, and many others

OUR WAY


What we see today
Python
+
Jupyter
+
Binder
=
Beautiful reproducible online data
Beautiful data
+
Py or JS libraries OR WYSIWYG
=
Beautiful HTML static pages
Beautiful data
+
Beautiful HTML pages
+
Github
=
Beautiful storytelling website

OUR WAY

Separate data filtering and analysis from the visualization. **Drawback**: data are static (if data change in the original source you need to recompute everything)



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Lesson 7

HANDS-ON BOKEH

Reference documentation:
https://docs.bokeh.org/en/latest/

INSTALL THE PYTHON LIBRARIES AND MOVE TO THE TUTORIAL

Bokeh
pip install bokeh

Open the repository of tutorials
and open the file **web_data_viz.ipynb**
in the browser

HANDS-ON GOOGLE CHARTS

Reference documentation:
https://developers.google.com/chart/interactive/docs/quick_start

PREPARE THE ENVIRONMENT

Open the repository of tutorials, and download the files

- **google_charts_tutorial.html**
- **periods_dates_sample.csv**
- **jquery-1.10.1.min.js**
- **jquery.csv-0.71.min.js**
- **loader.js**

in the folder with the tutorials.

PREPARE THE ENVIRONMENT

Disable CORS Cross-origin restrictions

To work on HTML+CSV files in a browser you need to have either Safari browser or to create a local web server (so that you can access csv from the html file in other browsers like Chrome or Firefox)

If you have safari:
open Safari browser
go to the menu **Develop**
select **Disable cross-origin restrictions**
and open the HTML file in the browser.

INSTALL PYTHON LIBRARIES

If you don’t have Safari install the following python library in the shell

pip install simple-http-server

In the shell open the folder where you downloaded the html+csv files (use the command **cd /path/to/folder**)

Run the local server
python -m http.server 8000

Go to the browser (any) and type the address
localhost:8000

Select from the list the HTML file

HANDS-ON d3.js

Reference documentation:
https://d3js.org/
Tutorials:
https://www.d3-graph-gallery.com/

PREPARE THE ENVIRONMENT

Open the repository of tutorials, and download the files

- **d3_tutorial.html**

in the folder with the tutorials.

Open it in the browser.

HOMEWORK

No homework!