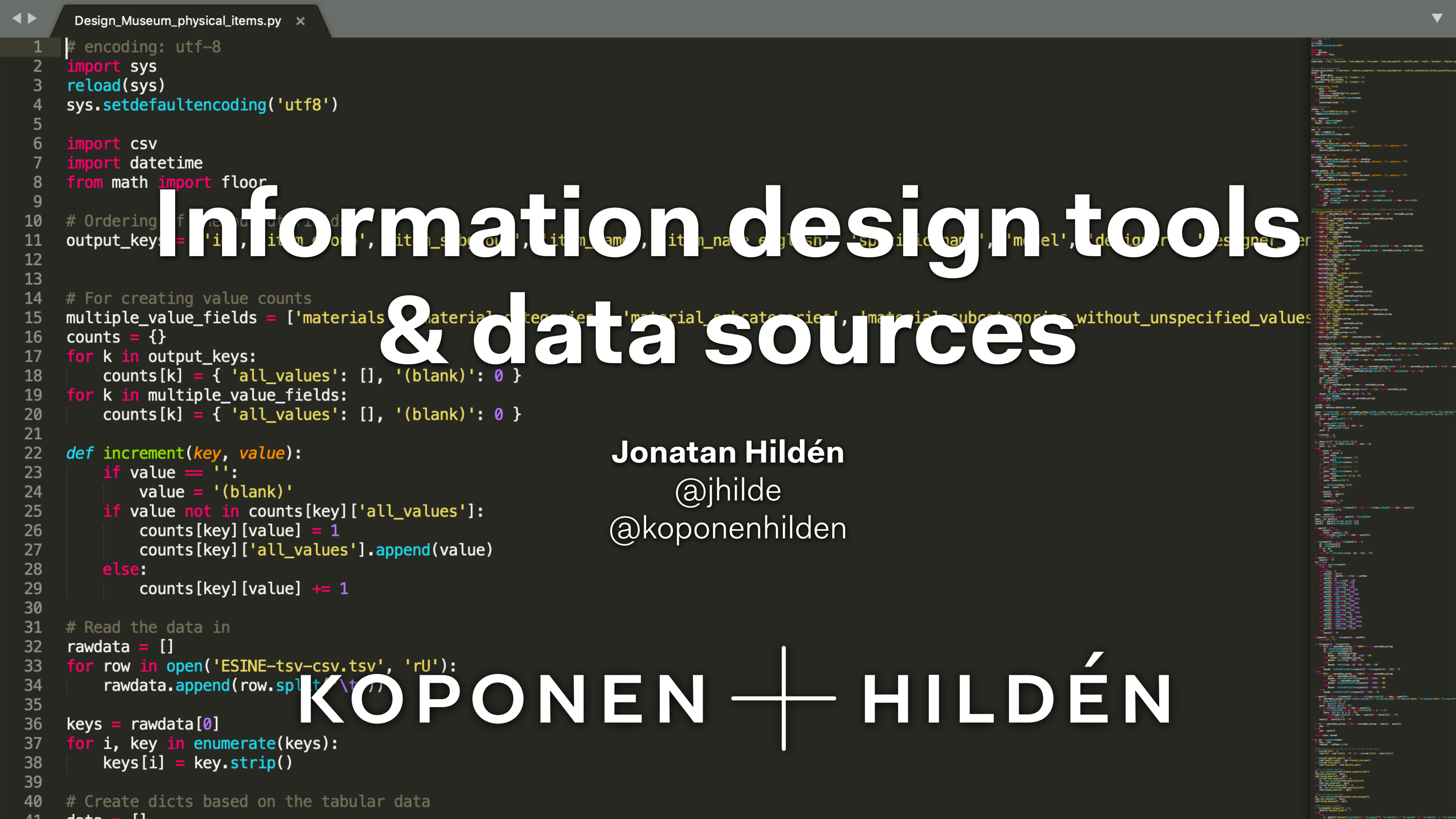
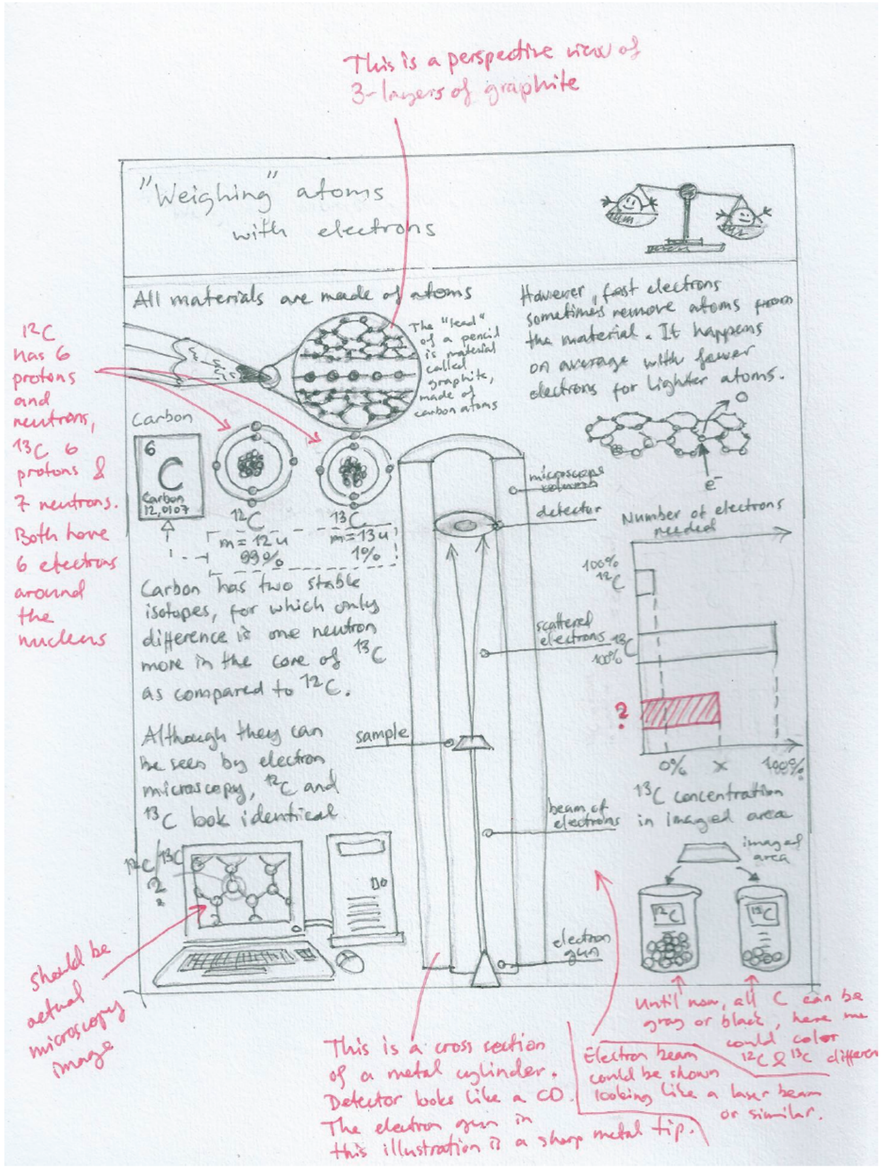
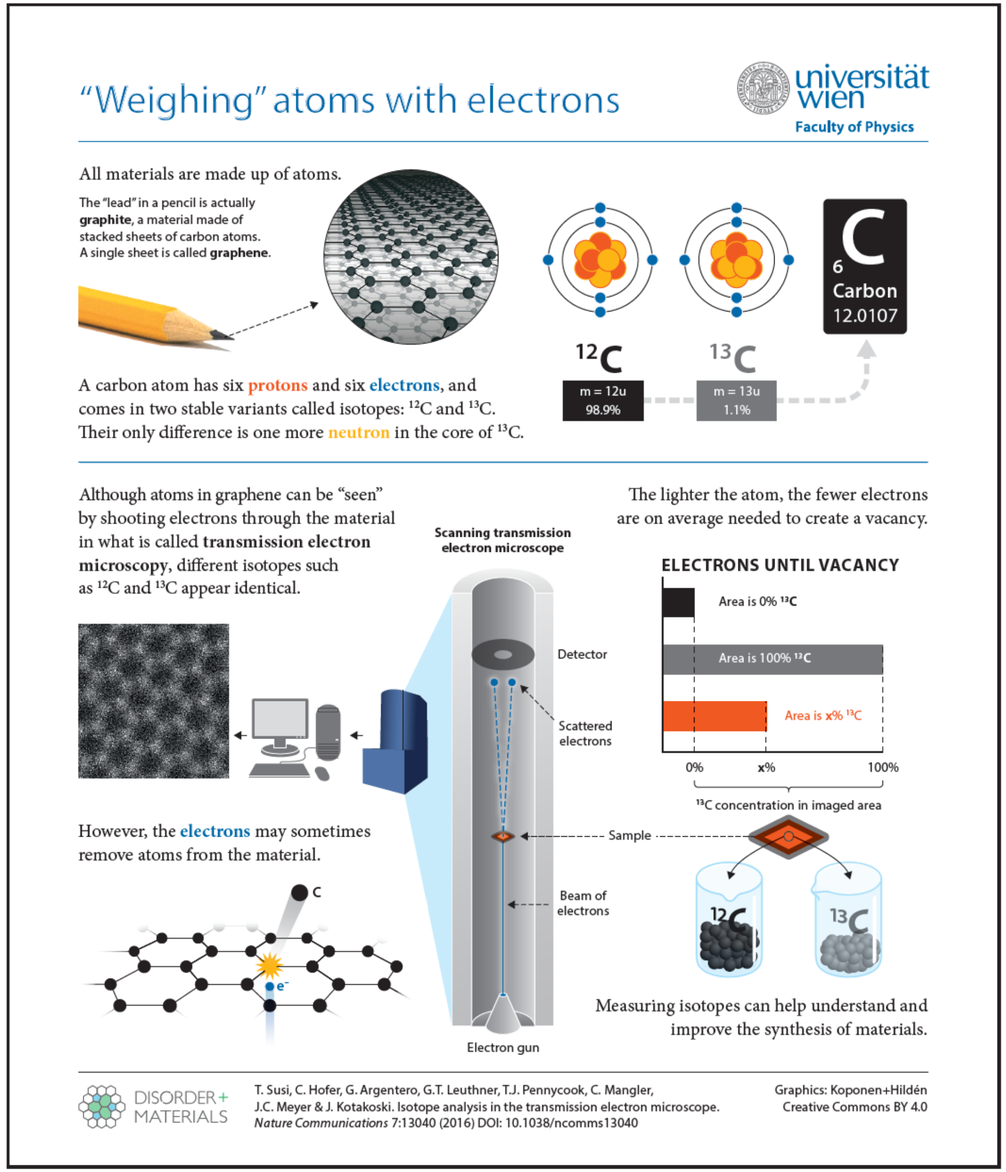

Design_Museum_physical_items.py
# encoding: utf-8
import sys
reload(sys)
sys.setdefaultencoding('utf8')
import csv
import datetime
from math import floor
# For creating value counts
multiple_value_fields = ['materials', 'material_categories', 'material_subcategories', 'material_subcategories_without_unspecified_values
counts = {}
for k in output_keys:
counts[k] = { 'all_values': [], '(blank)': 0 }
for k in multiple_value_fields:
counts[k] = { 'all_values': [], '(blank)': 0 }
def increment(key, value):
if value == '':
value = '(blank)'
if value not in counts[key]['all_values']:
counts[key][value] = 1
counts[key]['all_values'].append(value)
else:
counts[key][value] += 1
# Read the data in
rawdata = []
for row in open('ESINE-tsv-csv.tsv', 'rU'):
rawdata.append(row.split('\t'))
keys = rawdata[0]
for i, key in enumerate(keys):
keys[i] = key.strip()
# Create dicts based on the tabular data
Information design tools
& data sources
Jonatan Hildén
@jhilde
@koponenhilden
KOPONEN + HILDÉN


INDIANA 2B/n°0 BIC
INDIA

“Save yourself some time: Sketch the rough visual shape to catch thinking errors. Don’t just go straight from idea to computer. If you can’t get it to work on a piece of paper, it definitely is not going to work on a computer.”

— Nadieh Bremer





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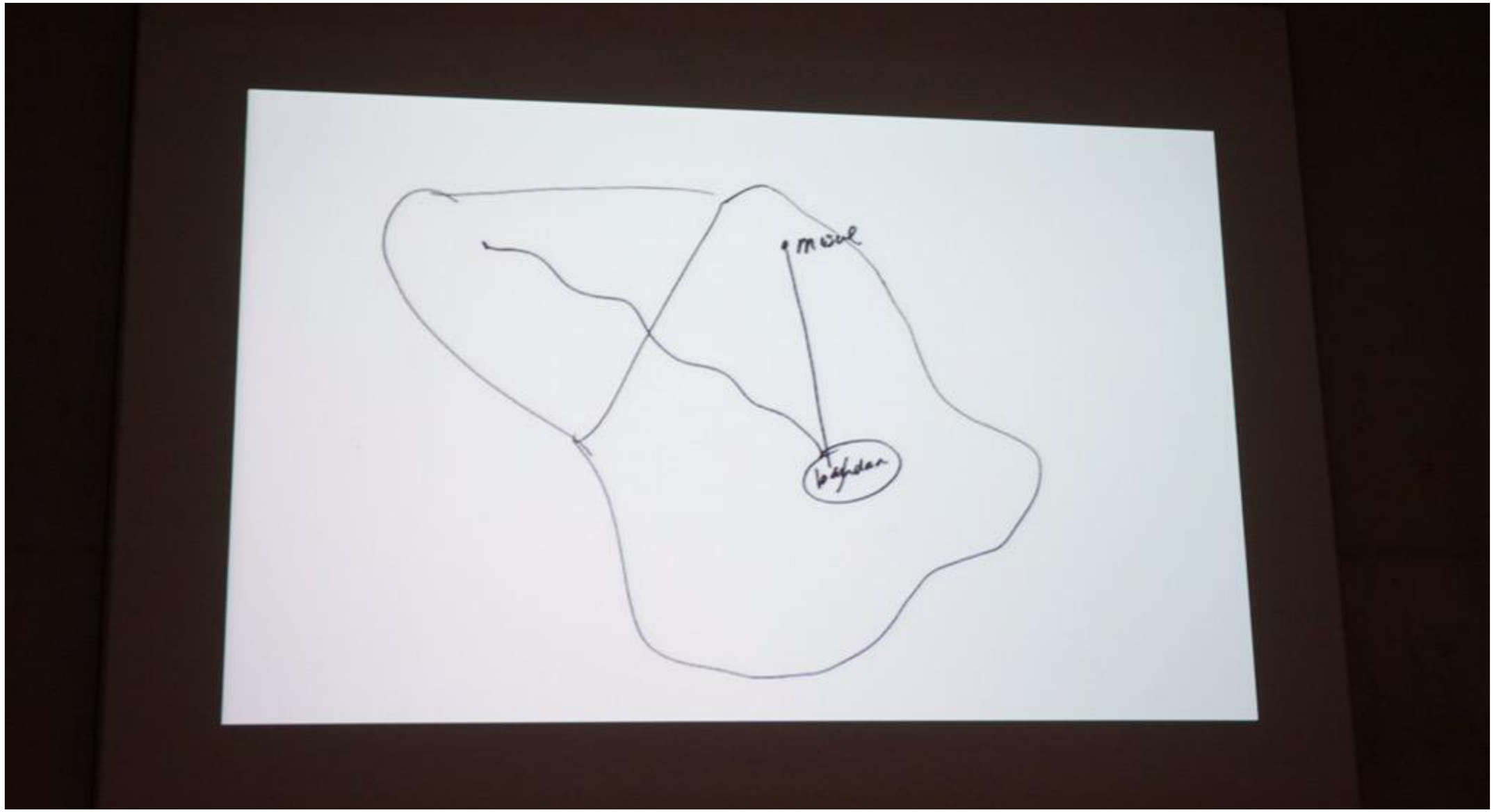
http://medienportal.univie.ac.at/presse/aktuelle-pressemeldungen/detailansicht/artikel/weighing-atoms-with-electrons/

“Everybody is capable of sketching.”

— Michael Brenner



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A Rogue State Along Two Rivers

How ISIS Came to Control Large Portions of Syria and Iraq

By JEREMY ASHKENAS, ARCHIE TSE, DEREK WATKINS and KAREN YOURISH July 3, 2014

The militant group called the Islamic State in Iraq and Syria, or ISIS, seemed to surprise many American and Iraqi officials with the recent gains it made in its violent campaign to create a new religious state. But the rapid-fire victories achieved over a few weeks in June were built on months of maneuvering along the Tigris and Euphrates Rivers.

The Euphrates

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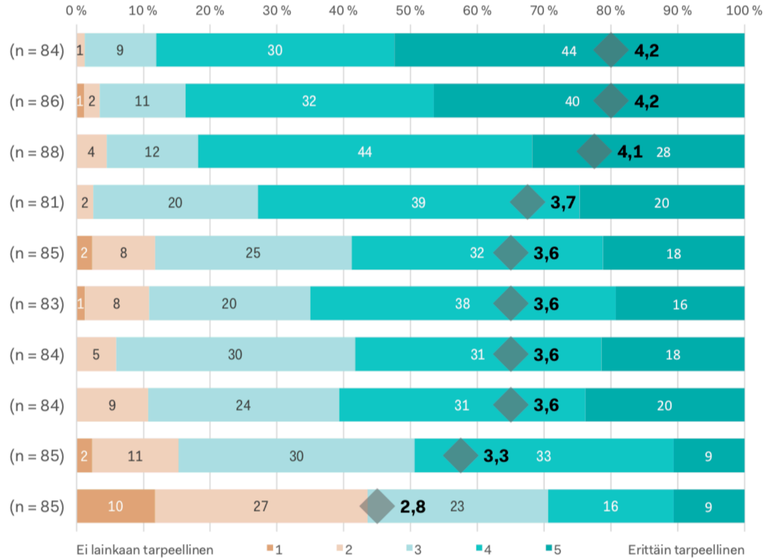
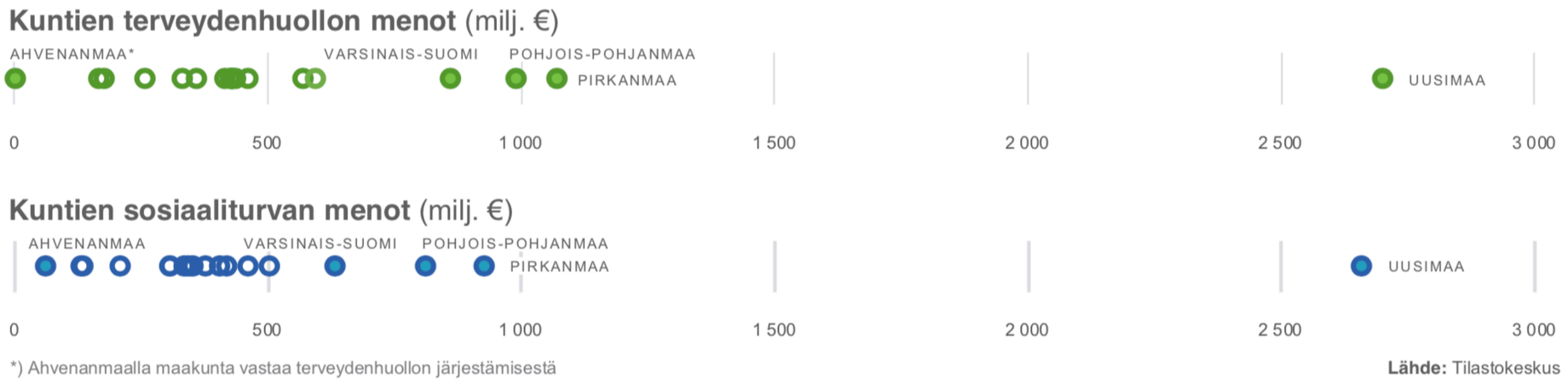
http://www.nytimes.com/interactive/2014/07/03/world/middleeast/syria-iraq-isis-rogue-state-along-two-rivers.html

Desktop tools

Excel and **Numbers:** Basic spreadsheet programs are surprisingly useful for creating basic visualizations. (Especially Excel.)

COMMERCIAL





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Adobe Illustrator is the de facto standard tool for visual designers—useful for finishing charts made in Excel or other programs, and for more complex custom graphics.

Affinity Designer is more affordable

COMMERCIAL

Inkscape is the open source alternative.

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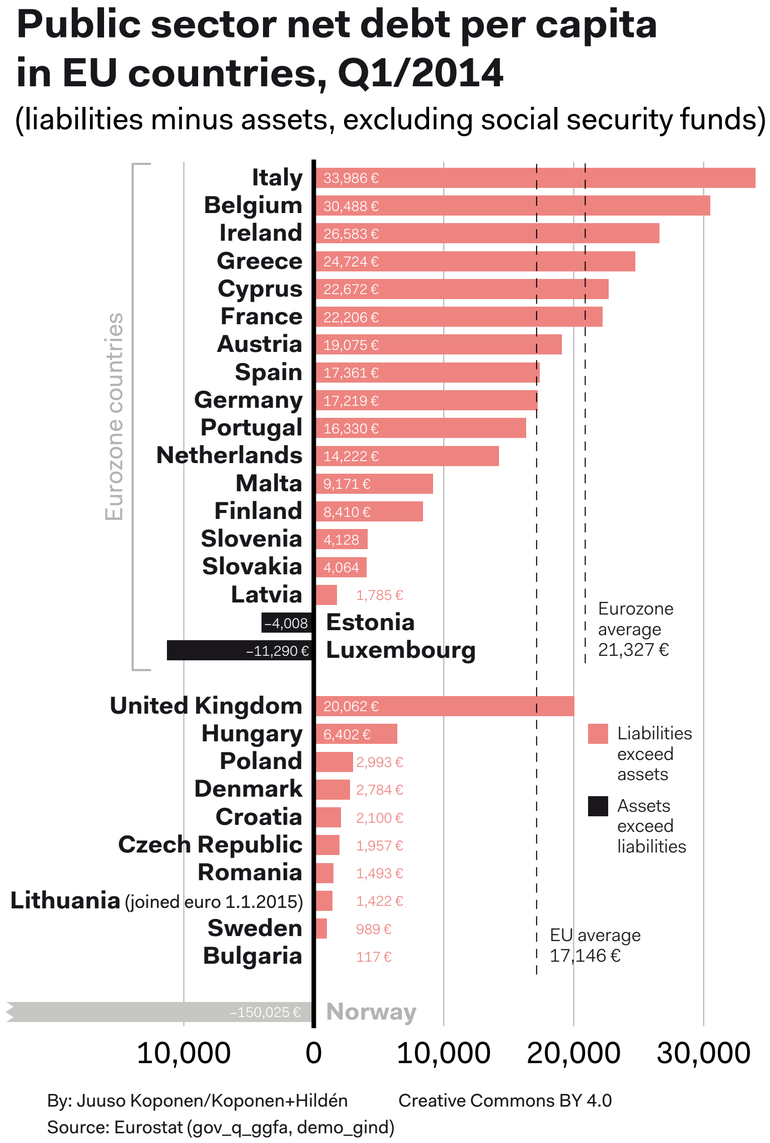
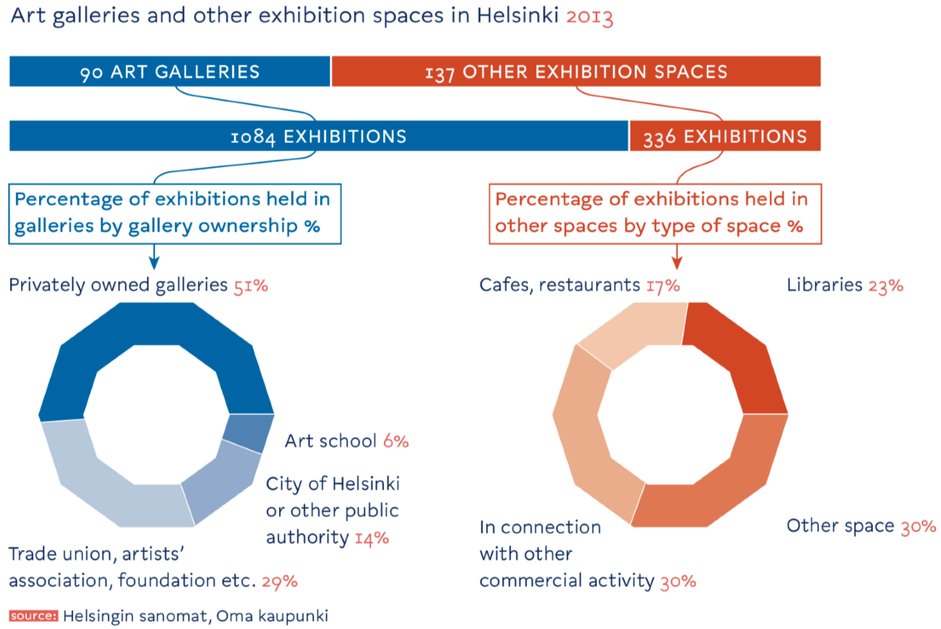
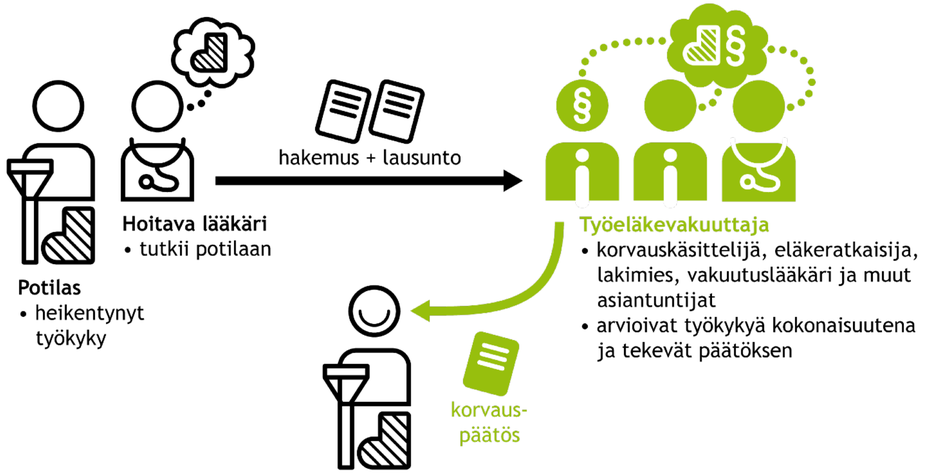






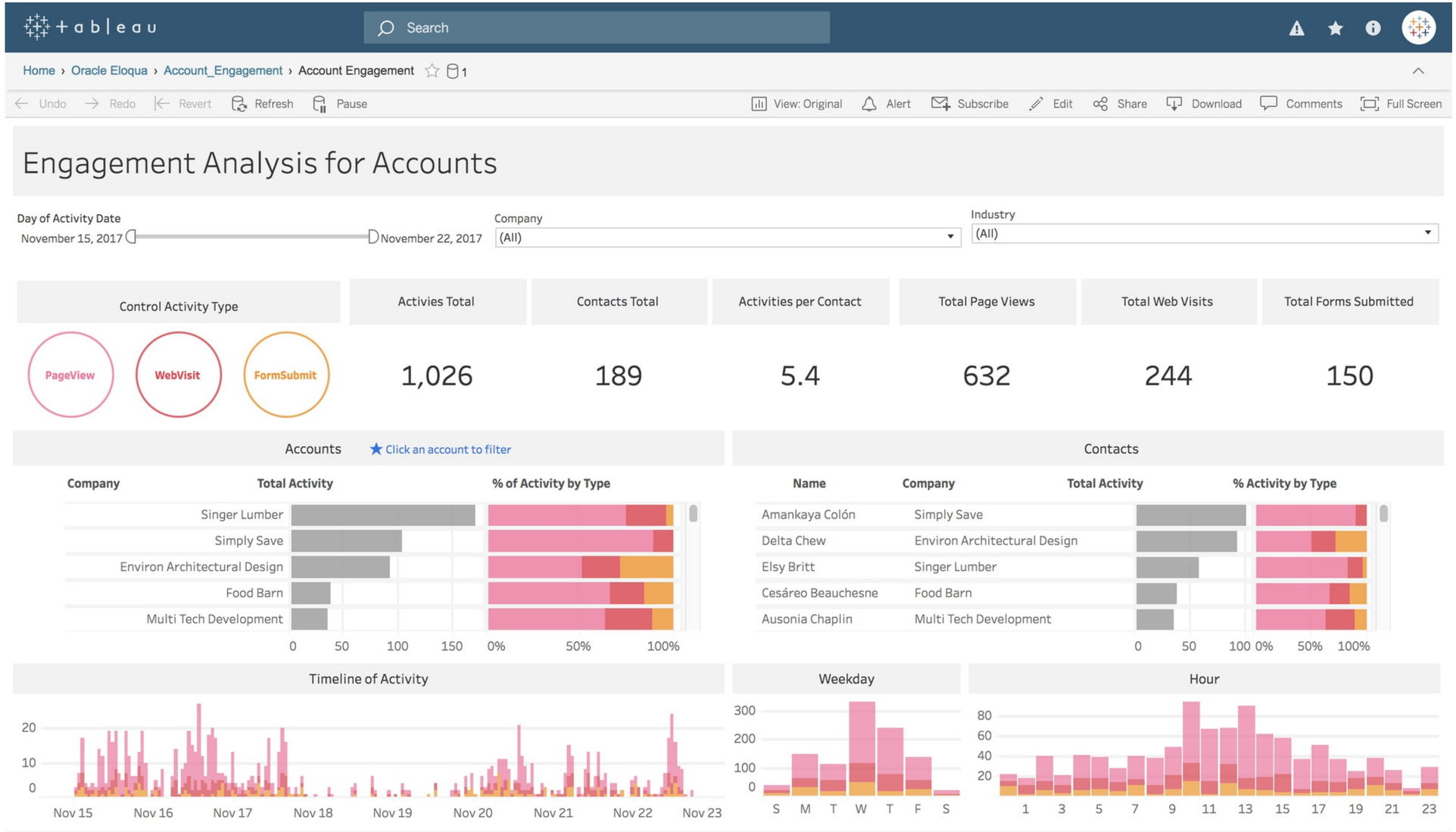
https://www.adobe.com/Creative_Cloud
https://affinity.serif.com/en-gb/ https://inkscape.org

Tableau, Qlik, Power BI + iNZight: Business intelligence software that include good visualization tools.

Tableau: COMMERCIAL, FREE FOR ACADEMIC USERS

Qlik & Power BI: COMMERCIAL

iNZight: OPEN SOURCE



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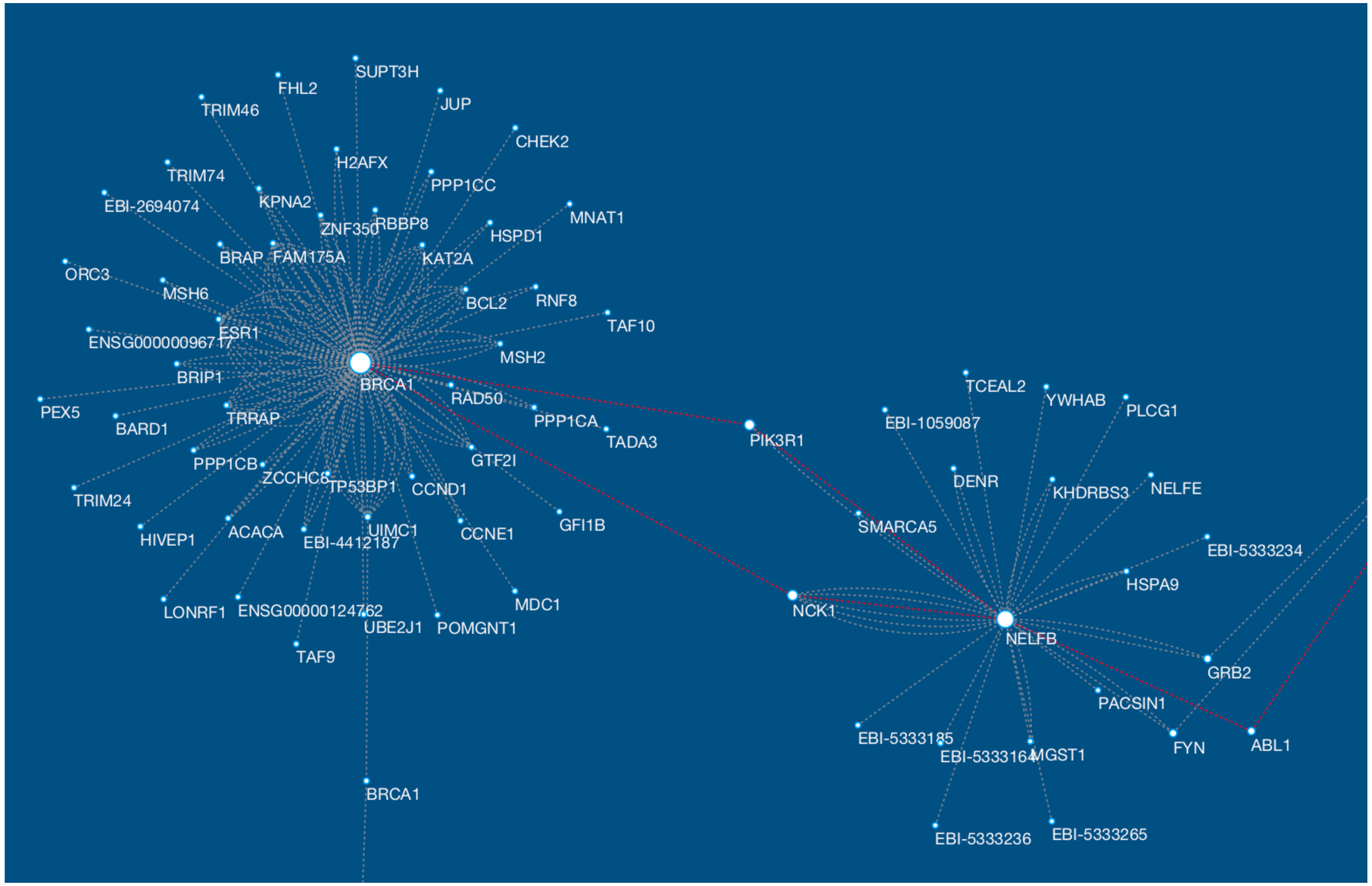
https://www.tableau.com
https://powerbi.microsoft.com/

https://www.qlik.com
https://www.stat.auckland.ac.nz/~wild/iNZight/

Cytoscape and **Gephi:** For network visualization.

OPEN SOURCE



https://cytoscape.org
https://gephi.org

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THE CHARTMAKER DIRECTORY

ABOUT

dot plot

Reference Type: ○ Example ● Solution | Chart Families: ● Categorical ● Hierarchical ● Relational ● Temporal ● Spatial

	Kibana	Mapbox	Matplotlib	Microsoft Excel	Microsoft Power BI	Microsoft PowerPoint	Microstrategy	Panc
Connected dot plot								
Dot plot								

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https://chartmaker.visualisingdata.com

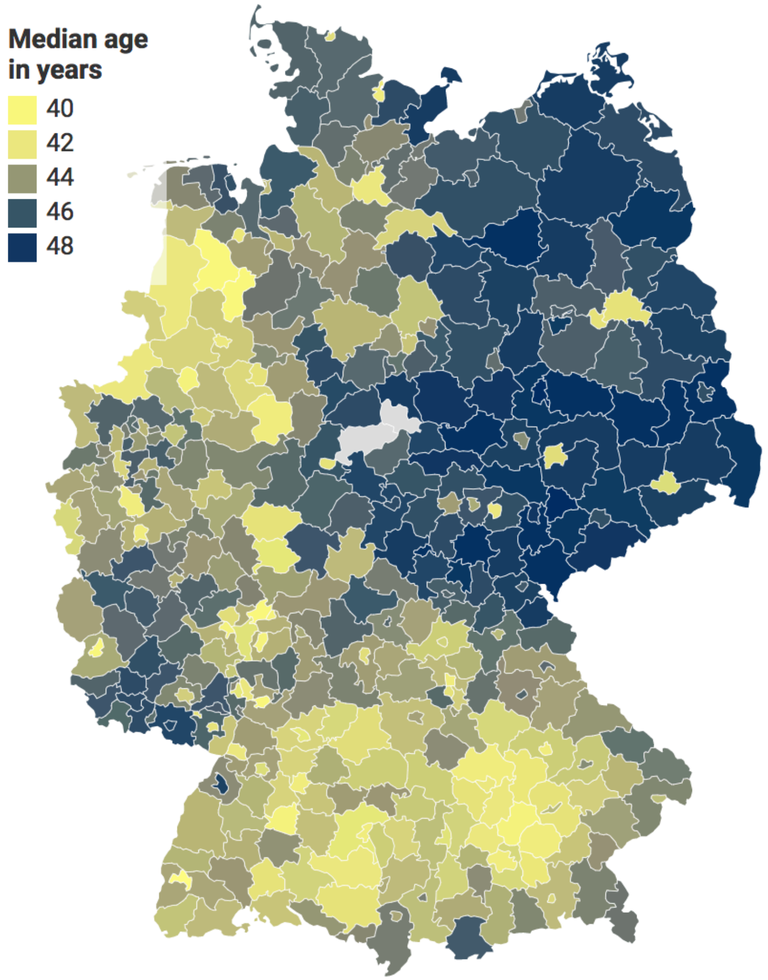
Browser-based tools

Datawrapper: An easy-to-use cloud-based tool for creating charts and maps.

COMMERCIAL, FREE FOR PUBLIC USE

Young Germans live in the West and in cities

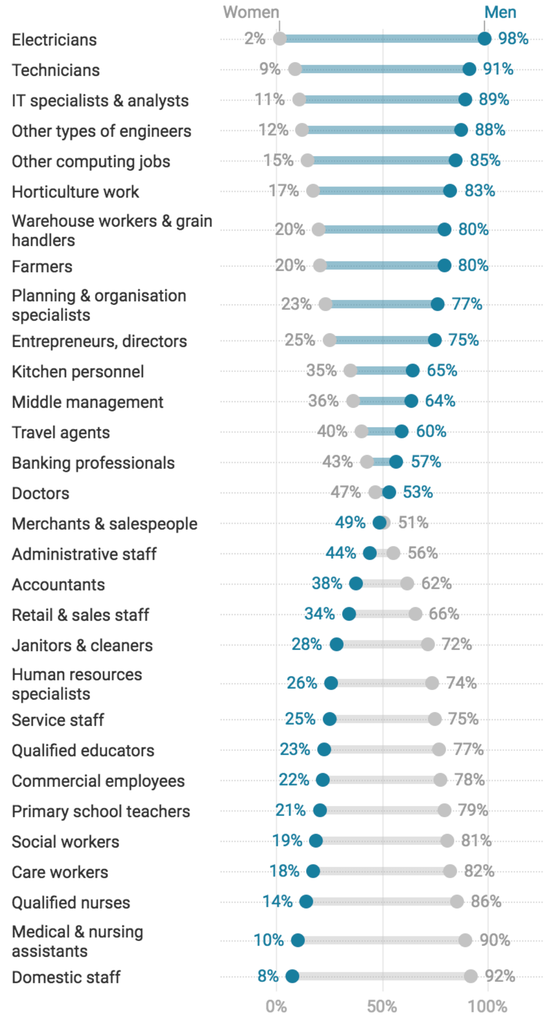
Median age in all German districts, 2015



Based on Lisa Charlotte Rost, Datawrapper • Source: BBSR study, 2015 • Map data: © GeoBasis-DE / BKG 2013 • Get the data • Created with Datawrapper

Occupations by gender

The 30 most common jobs in Switzerland in 2016 and proportion of men and women in each



Based on on • Source: Federal Statistical Office • Get the data • Created with Datawrapper

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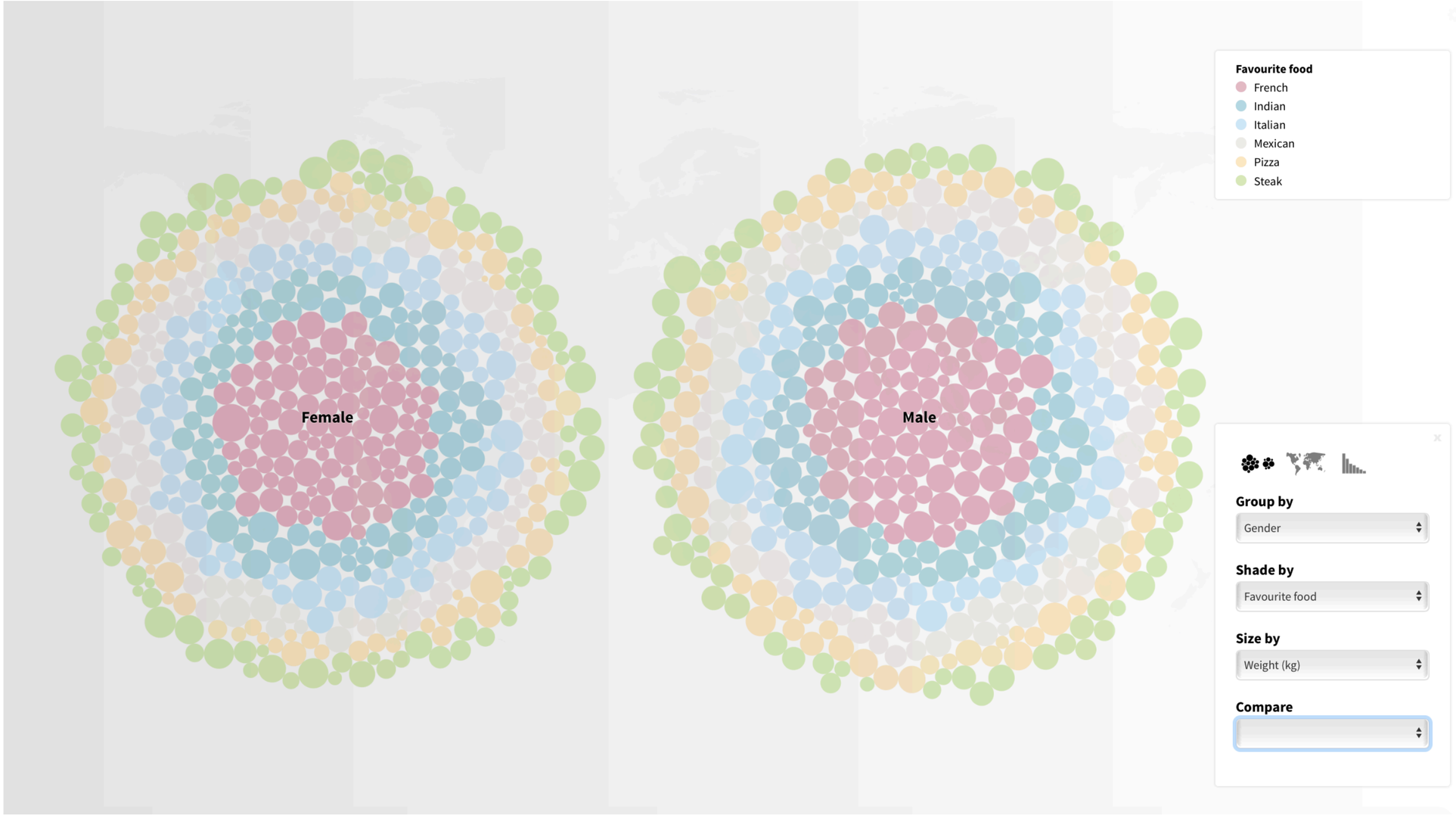
https://app.datawrapper.de/

Flourish: A promising WYSIWYG tool for creating visualizations.

COMMERCIAL, FREE FOR PUBLIC USE, STUDENTS AND JOURNALISTS



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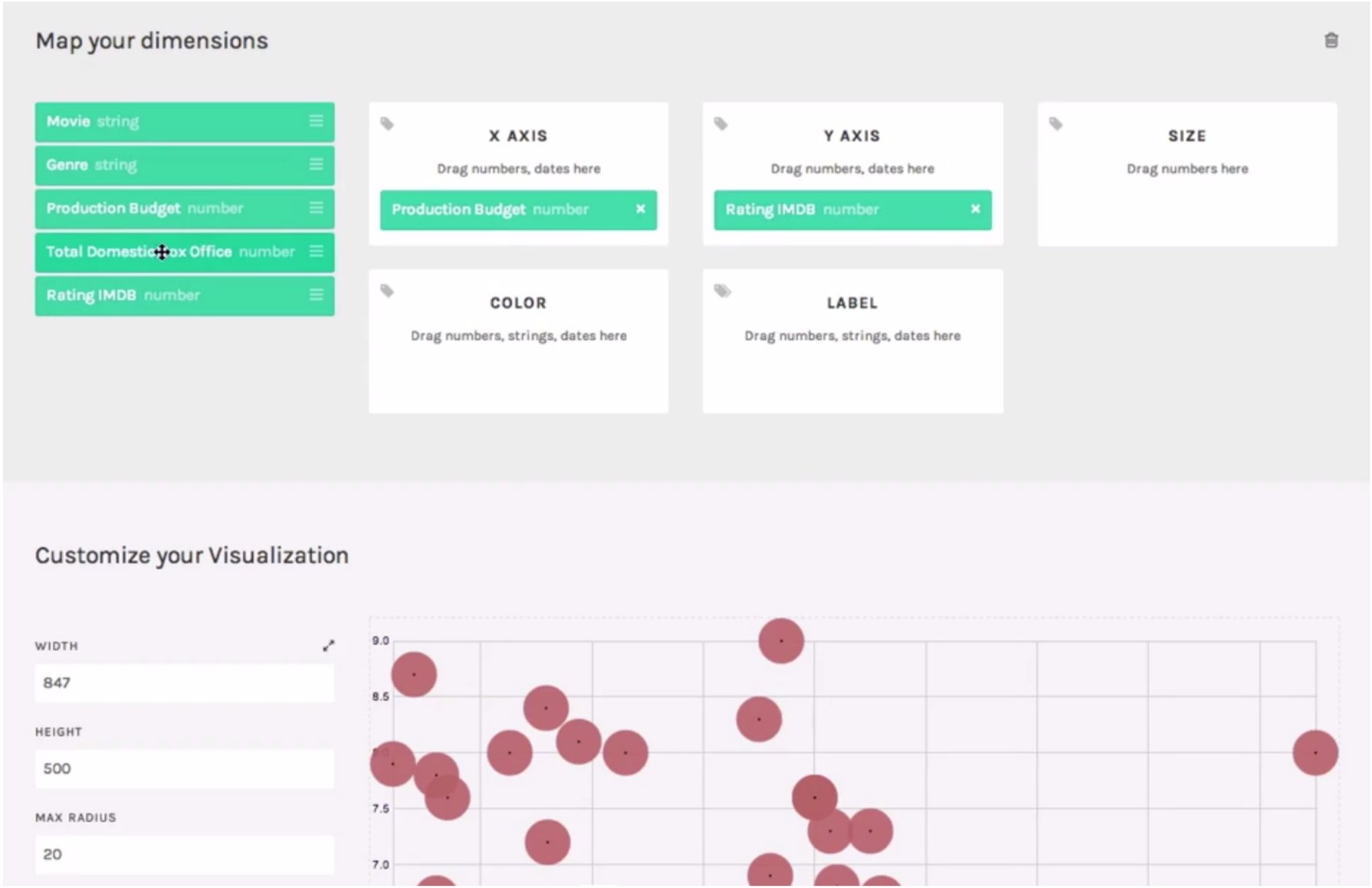
https://flourish.studio/

Raw: A browser based tool for quick prototyping and data exploration.

FREE



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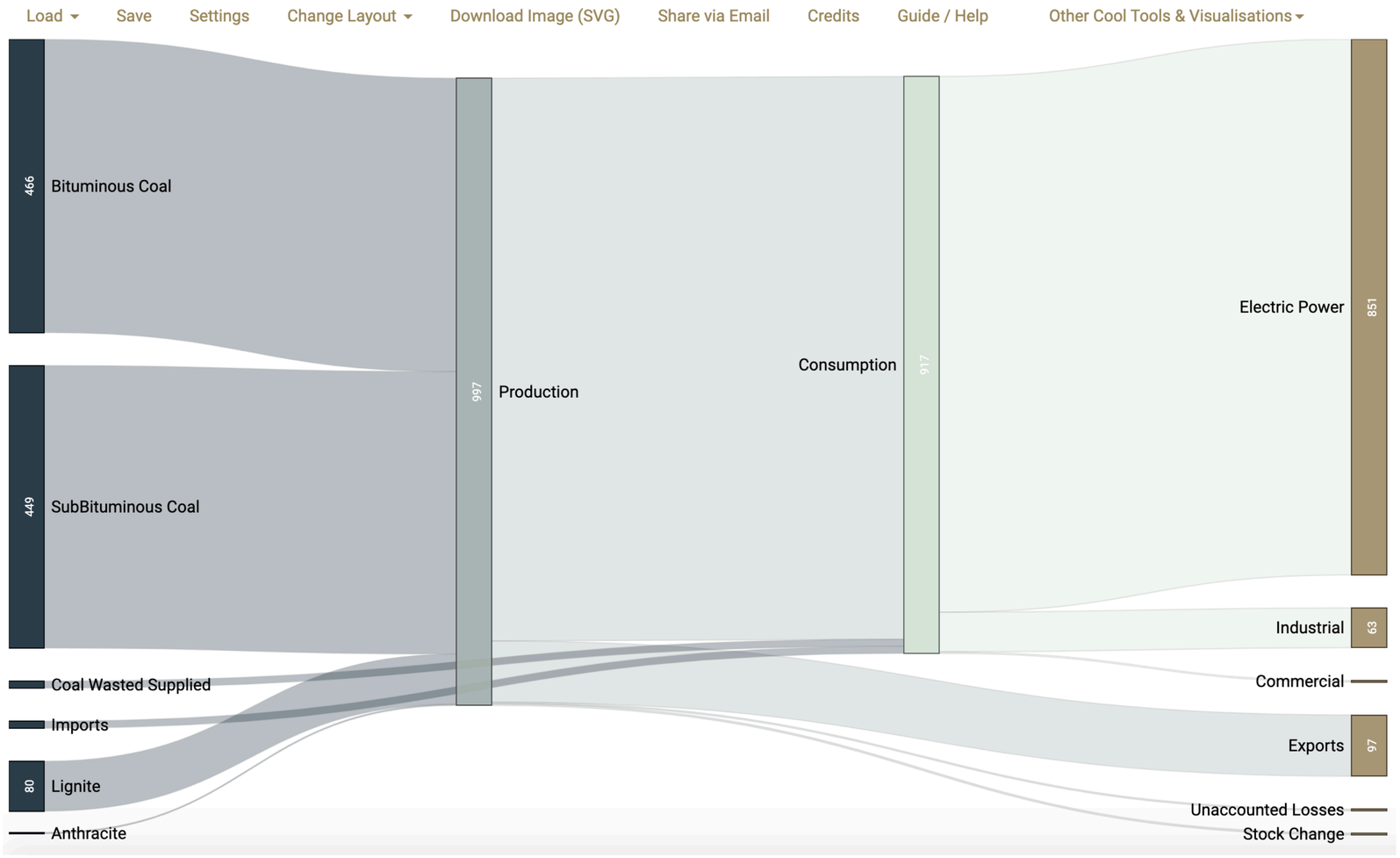
https://rawgraphs.io

The Sankey Diagram Generator, SankeyMATIC

Simple browser-based tools for creating sankey diagrams.

FREE



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http://sankey-diagram-generator.acquireprocure.com/
http://sankeymatic.com

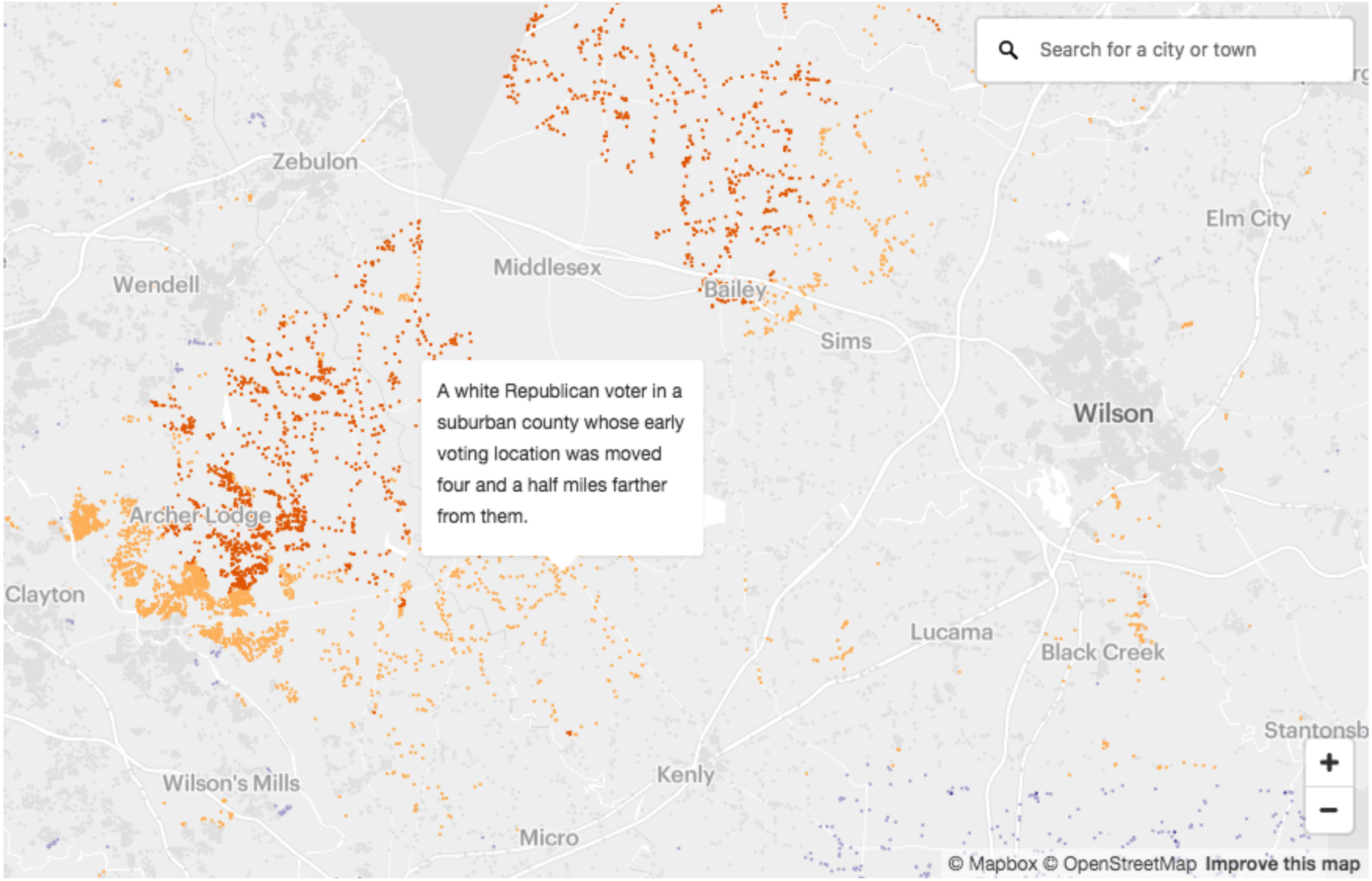
Mapping

Leaflet and **Mapbox**: For online mapping.

Leaflet: OPEN SOURCE

Mapbox: COMMERCIAL, FREE VERSION AVAILABLE

Google Maps also has extensive customization options nowadays: mapstyle.withgoogle.com



https://www.mapbox.com
https://leafletjs.com

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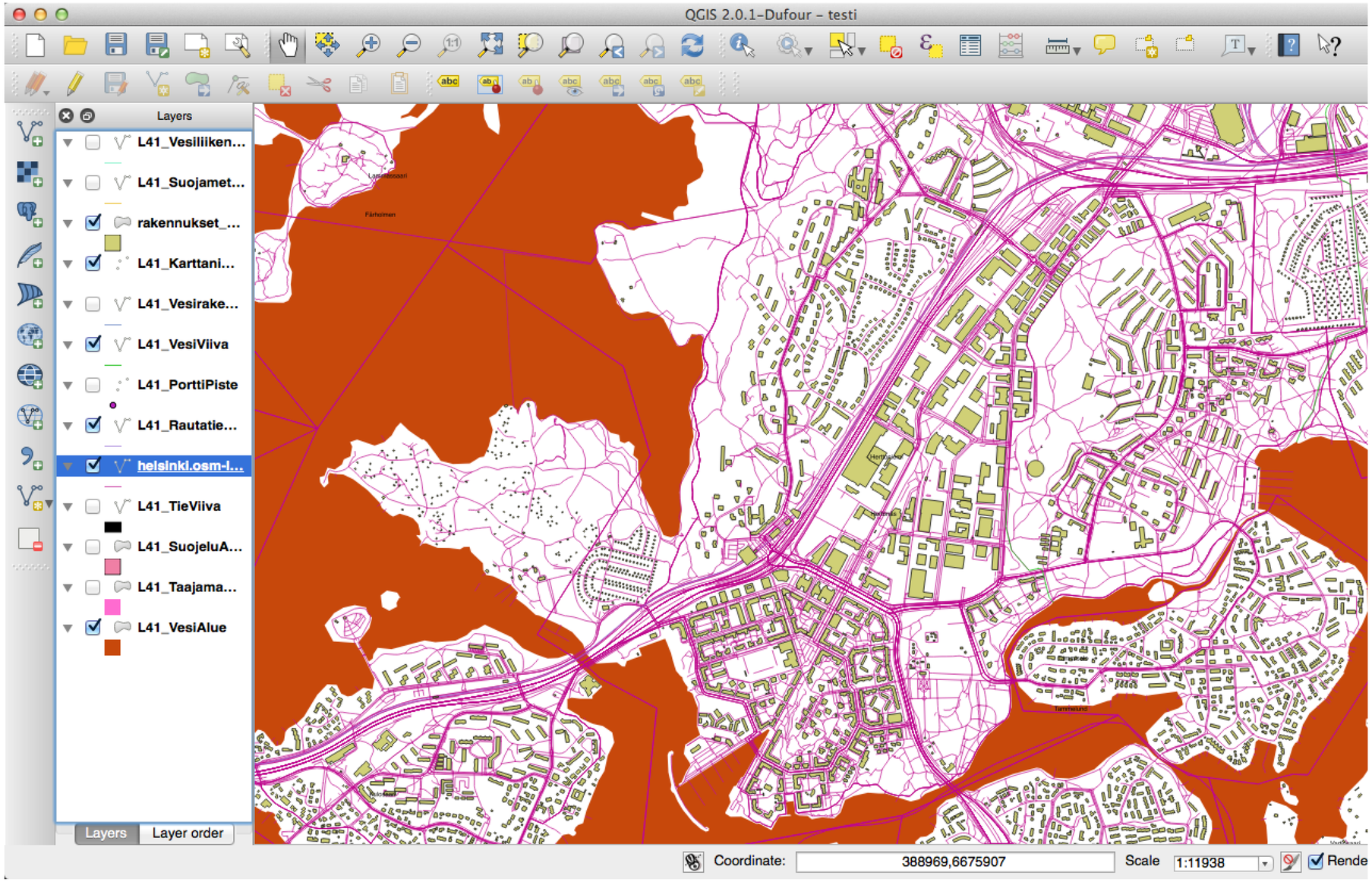
QGIS: Open-source GIS and spatial analysis/ visualization software. Steep(ish) learning curve, but many features and plug-ins.

OPEN SOURCE



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http://www.qgis.org/

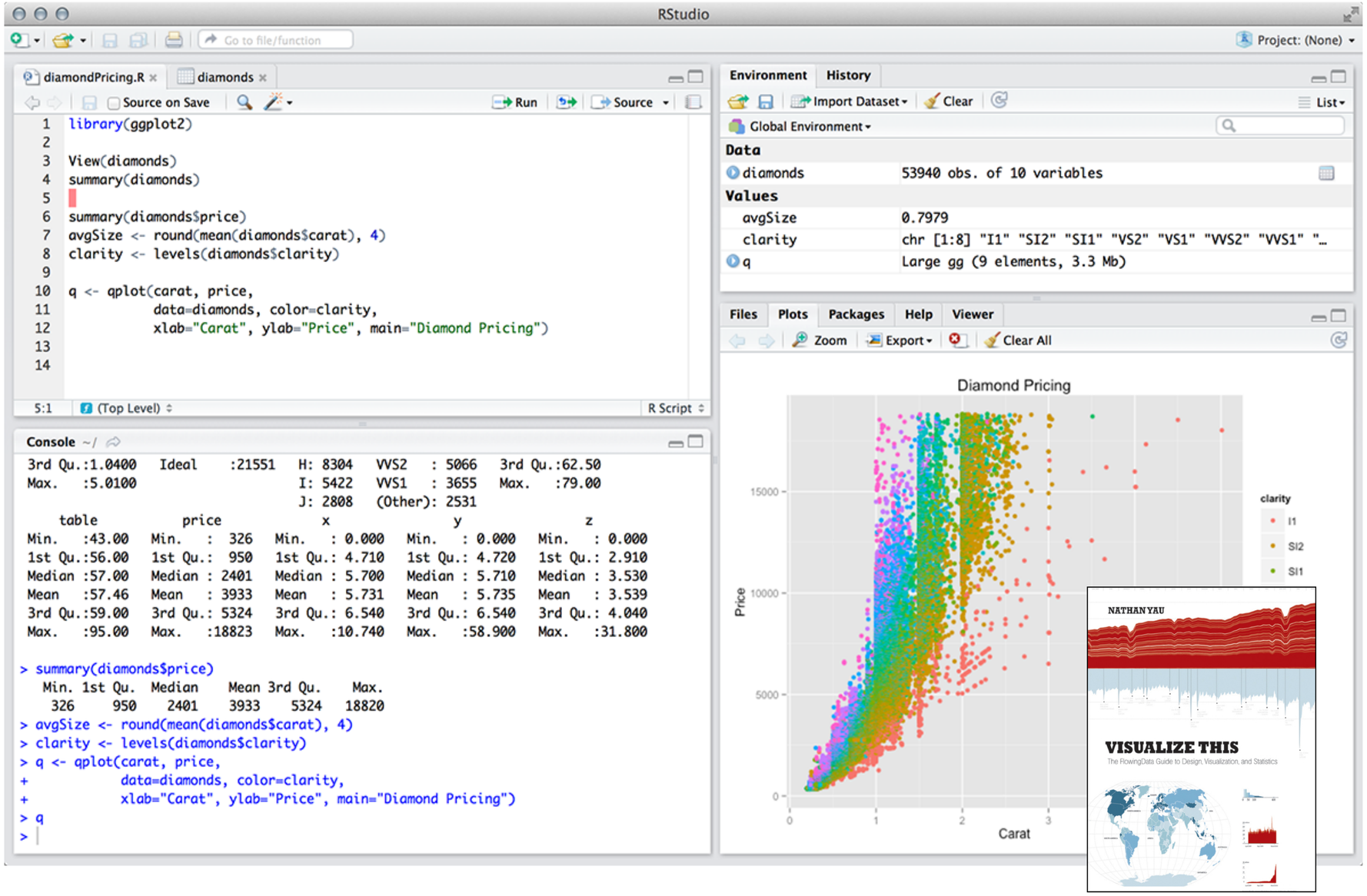
Code-based tools

R: A statistical analysis & visualization enviroment.

RStudio: an integrated developing environment for R.

R: OPEN SOURCE

RStudio: COMMERCIAL, FREE VERSION AVAILABLE



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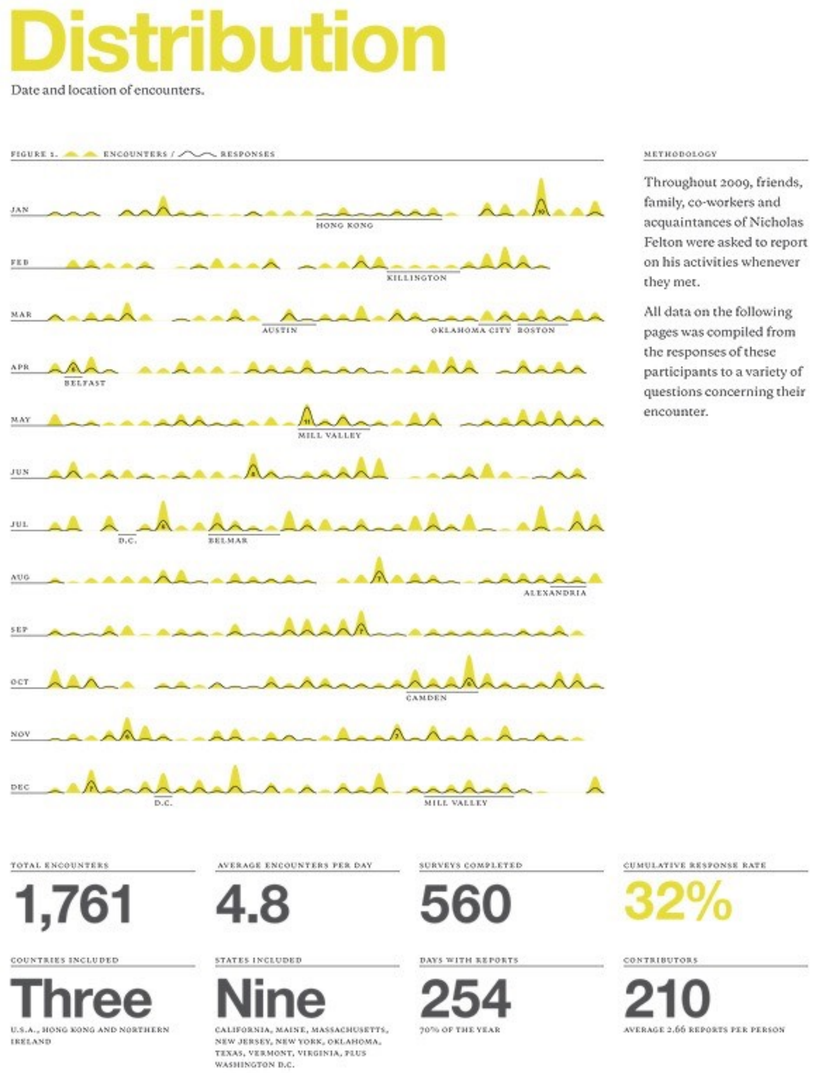
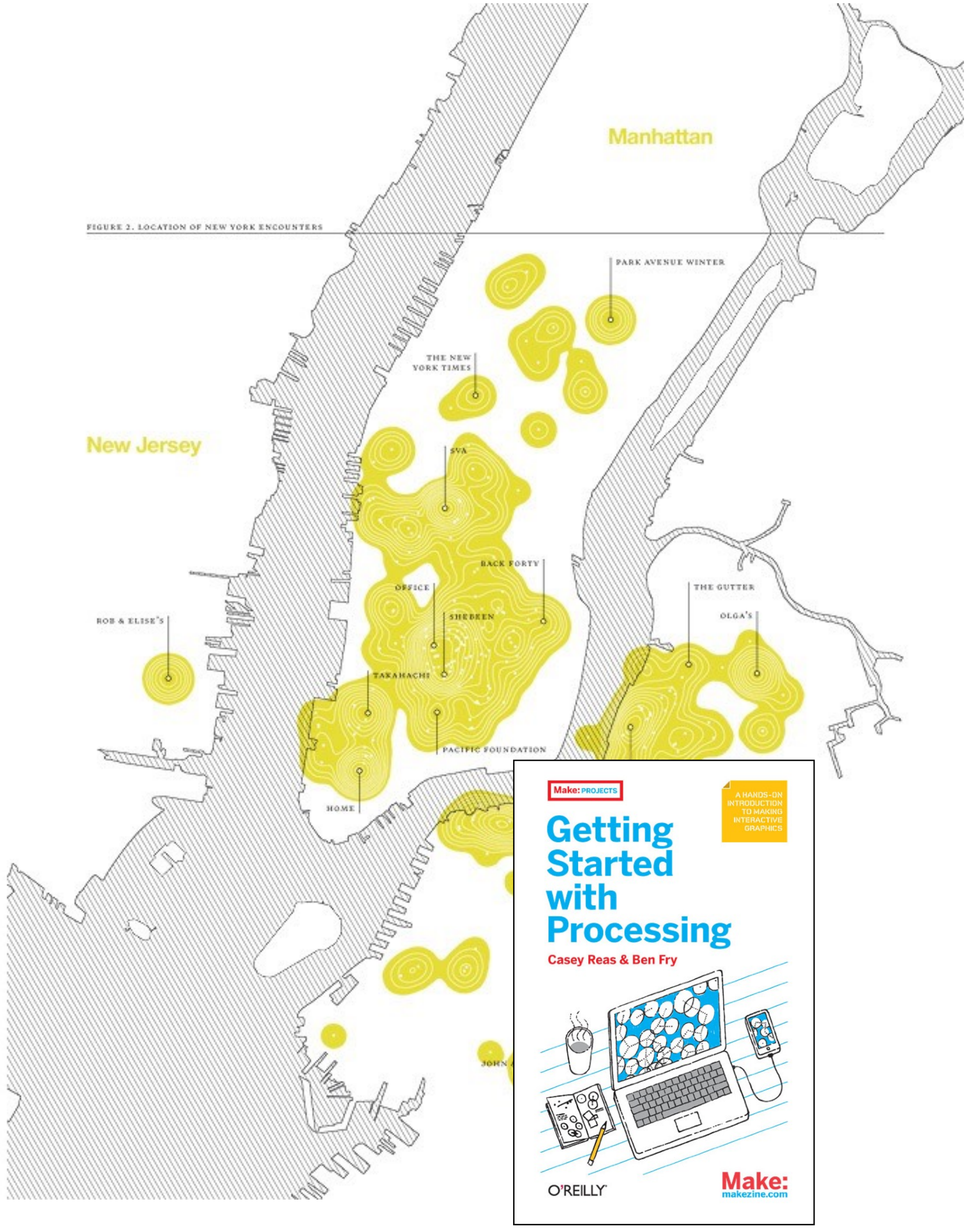
http://www.r-project.org http://www.rstudio.com/

Tutorials: http://flowingdata.com/category/tutorials/

Processing and **P5.js:** Environments for artistic/design programming. Large community and lots of learning resources. P5.js is the web version of Processing, based on Javascript.

OPEN SOURCE





https://processing.org http://p5js.org/

Tools for data visualization: http://www.gicentre.net/utils

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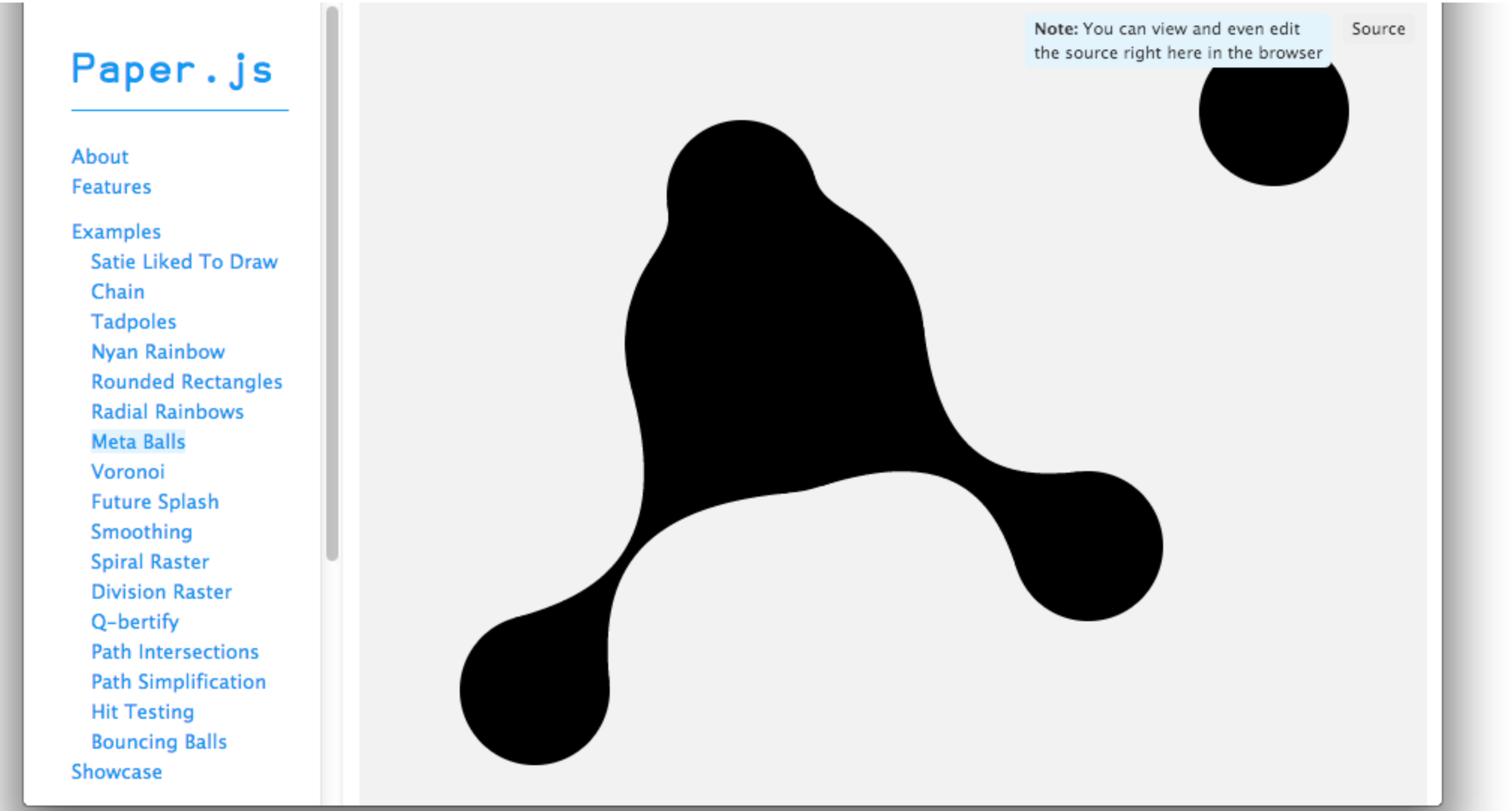
Paper.js: Besides P5.js, another good starting point for learning Javascript is Paper.js.

OPEN SOURCE

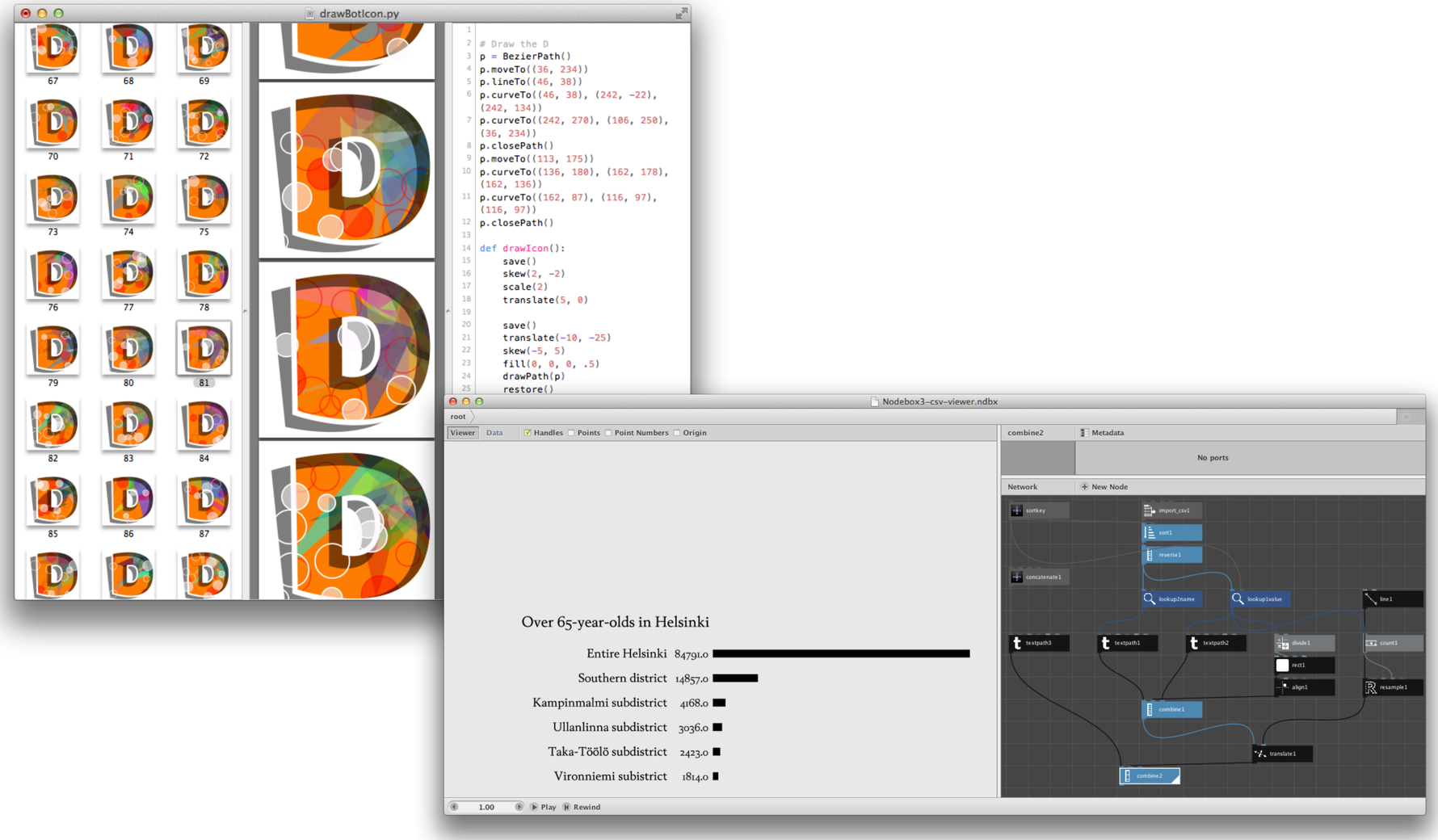


http://paperjs.org

Drawbot and **Nodebox 1/ Nodebox OpenGL:** Similar to Processing, but built on Python.

Nodebox 3: Uses node-based visual programming instead of directly manipulating code.

OPEN SOURCE



https://www.drawbot.com/
https://www.nodebox.net

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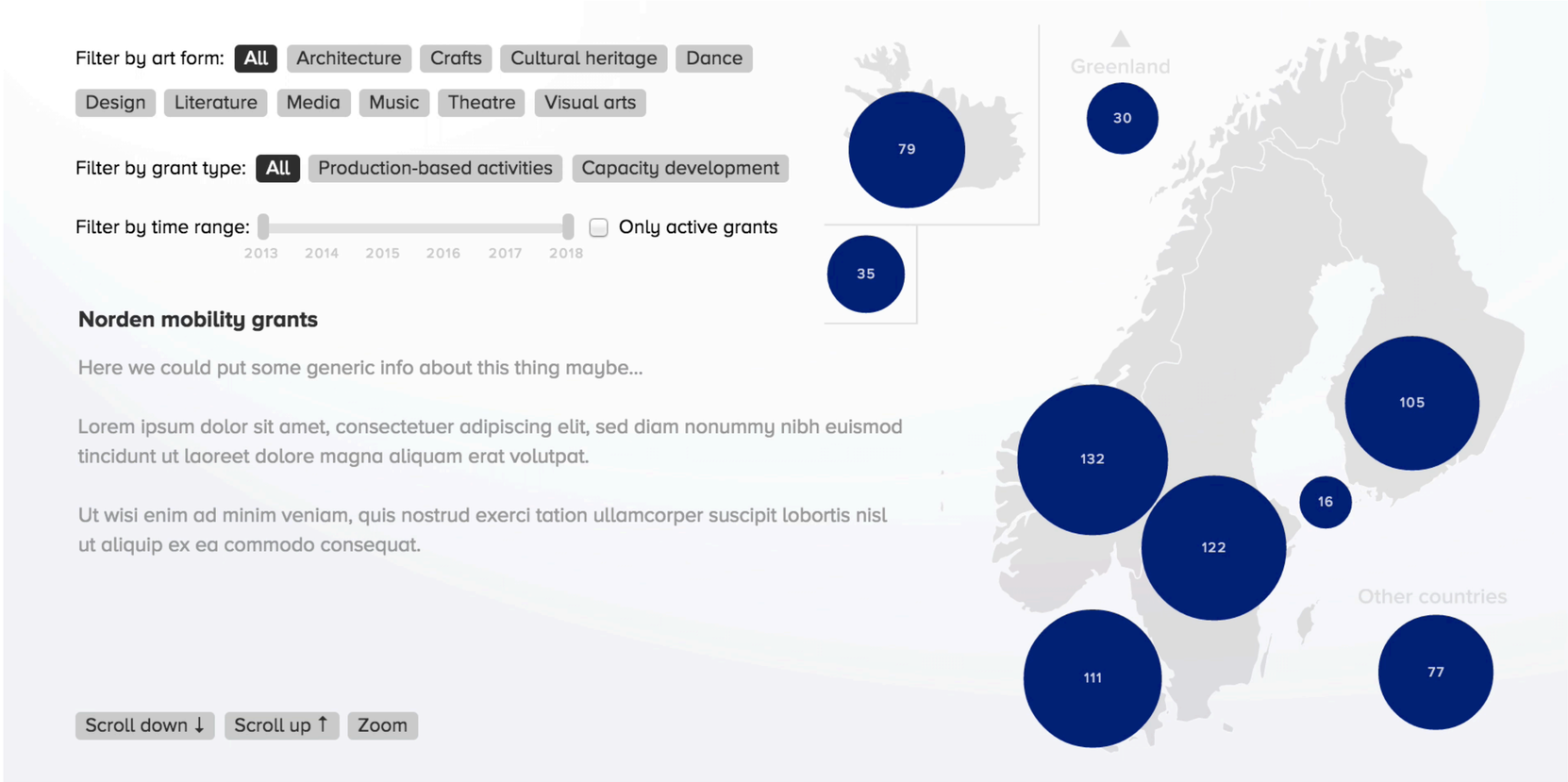
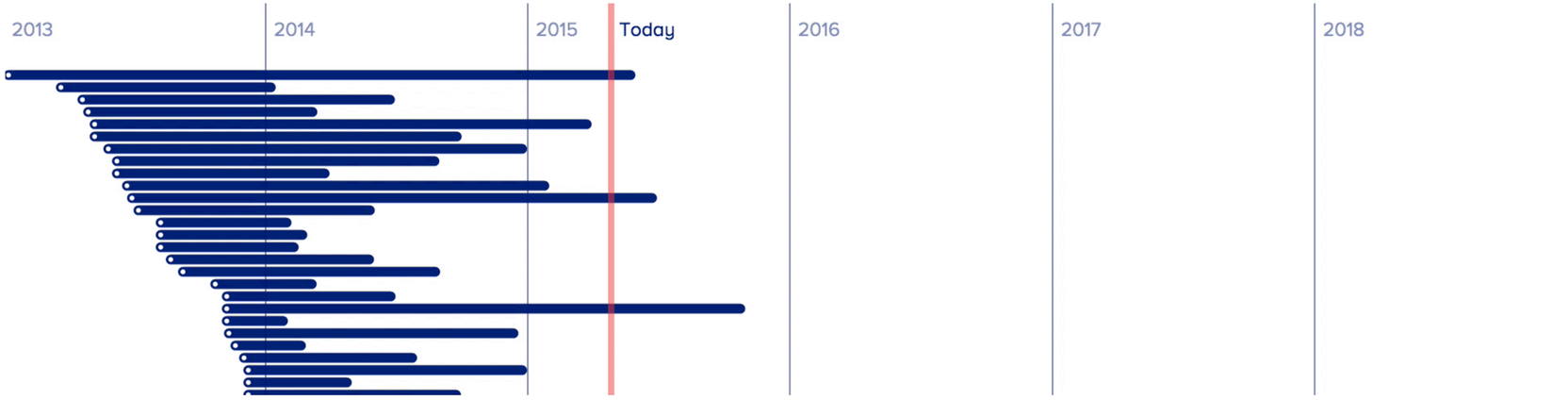
D3.js: Extremely versatile and powerful SVG based Javascript library for online visualization. Steep learning curve!

Observable: online notebook interface using D3.

OPEN SOURCE





https://observablehq.com
https://d3js.org

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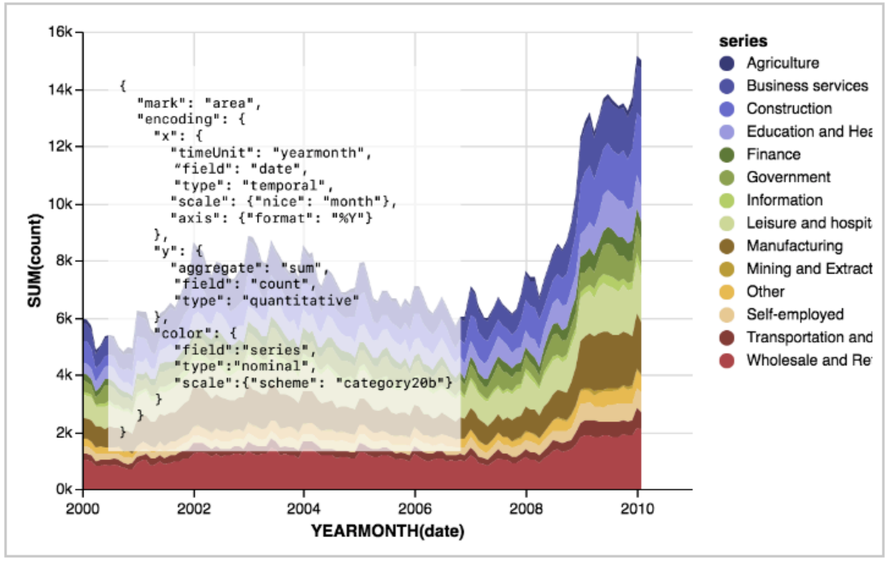
Vega and **Vega-Lite:** JSON based visualization grammars for D3. Make writing D3 code much simpler. The Vega suite also includes browser based tools such as Polestar.

OPEN SOURCE

NEW **VEGA 3.0** is a visualization grammar, a declarative language for creating, saving, and sharing interactive visualization designs. With Vega, you can describe the visual appearance and interactive behavior of a visualization in a JSON format, and generate web-based views using Canvas or SVG.

Examples | Docs & Tutorials | Porting Guide | GitHub



NEW **VEGA-LITE 2.0** is a high-level visualization grammar. It provides a concise JSON syntax for supporting rapid generation of visualizations to support analysis. Vega-Lite 2 support interactive multi-view graphics. Specifications can be compiled to Vega.

Examples | Docs & Tutorials | Online Editor | GitHub

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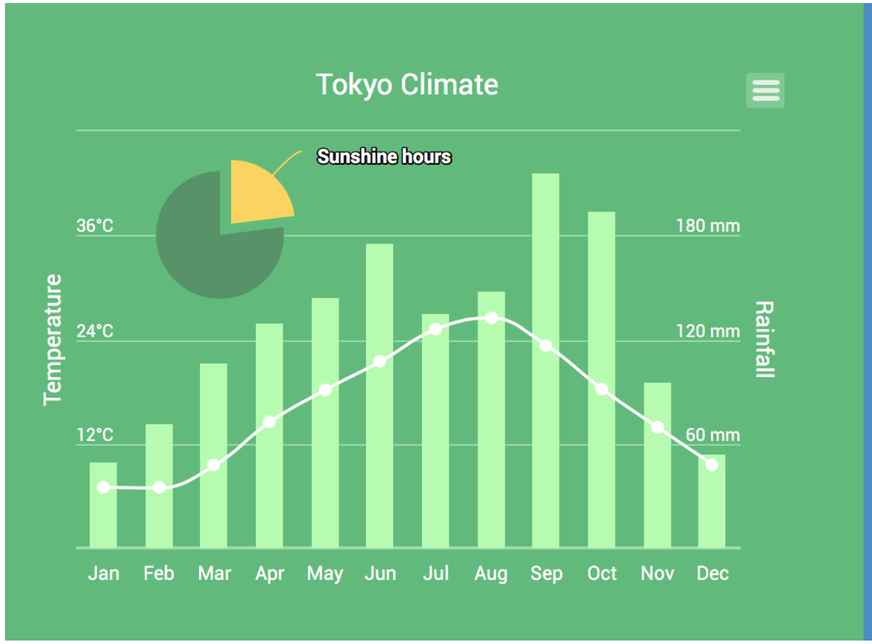
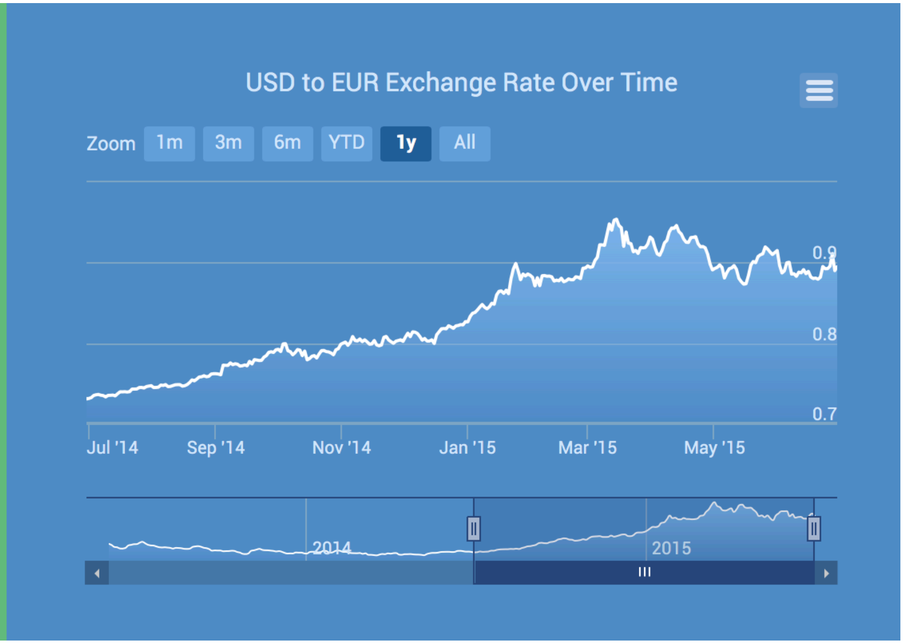
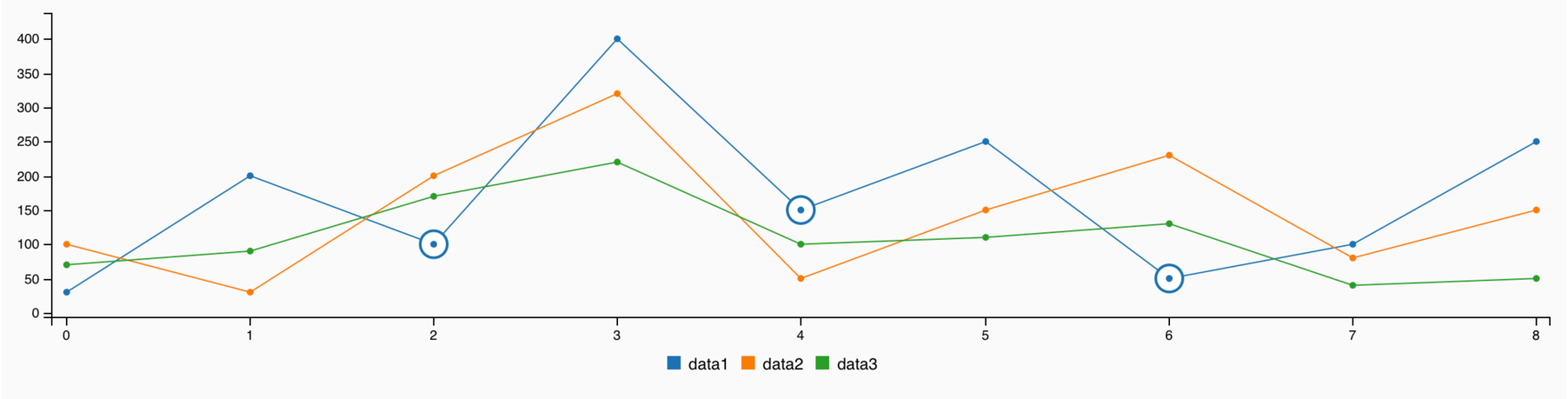
http://vega.github.io

Highcharts, **Anychart**, **Polychart**, **C3.js**...: There are many charting libraries for Javascript make enable getting results quicker than D3 or P5 but with less customization options.

VARIES







https://www.highcharts.com
https://github.com/Polychart

https://www.anychart.com
http://c3js.org

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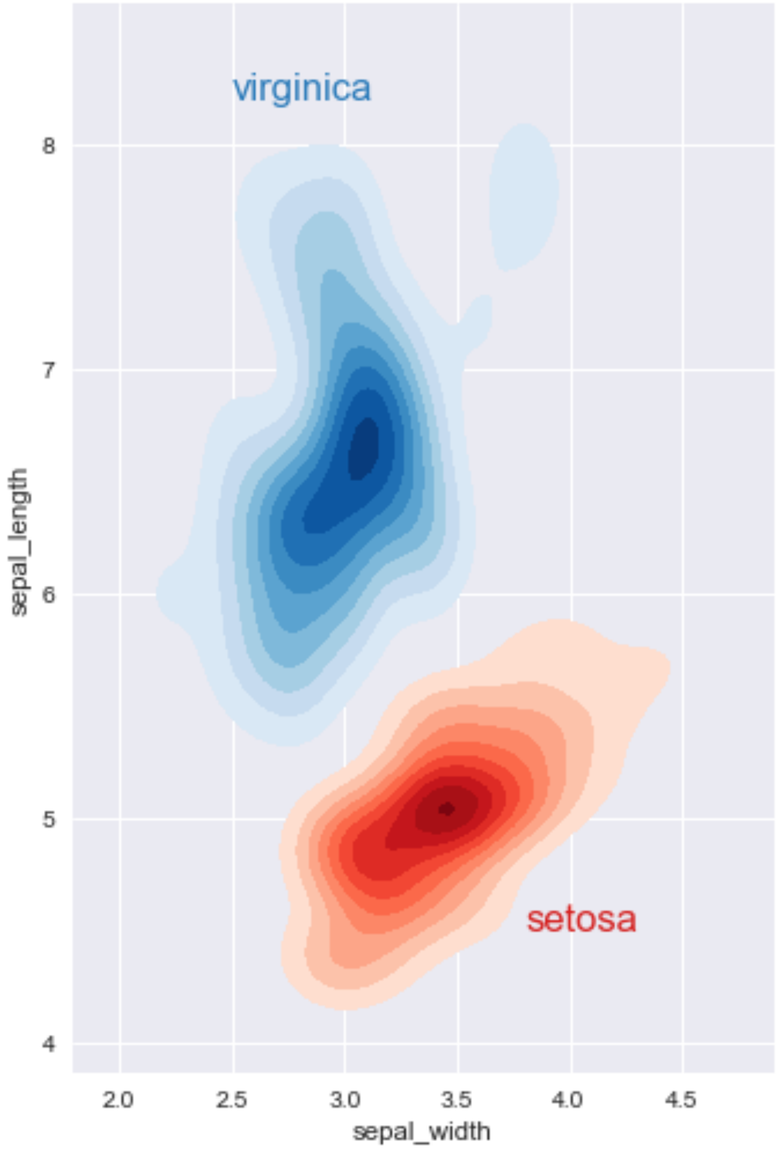
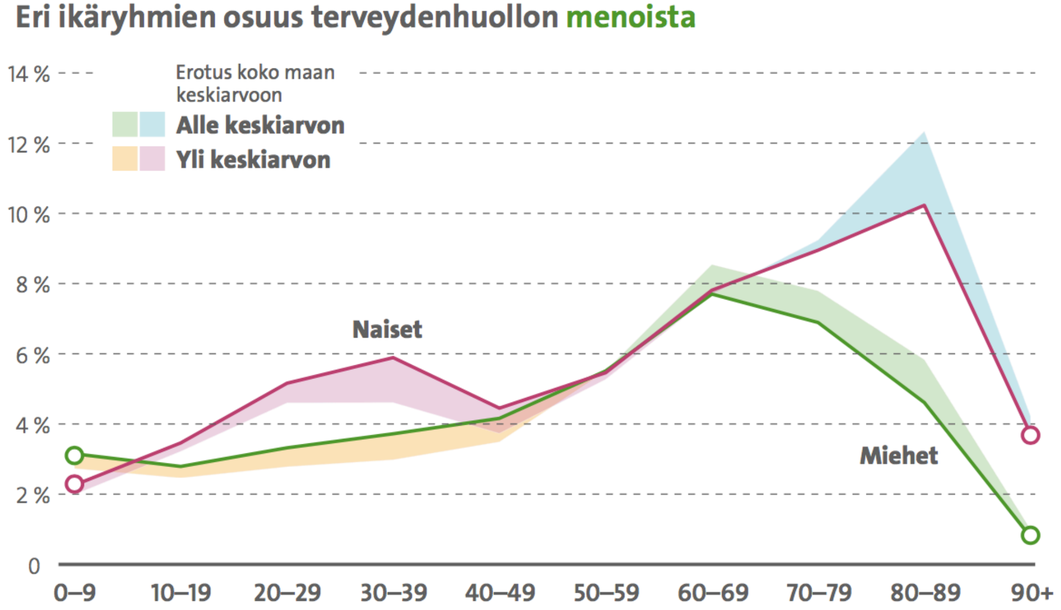
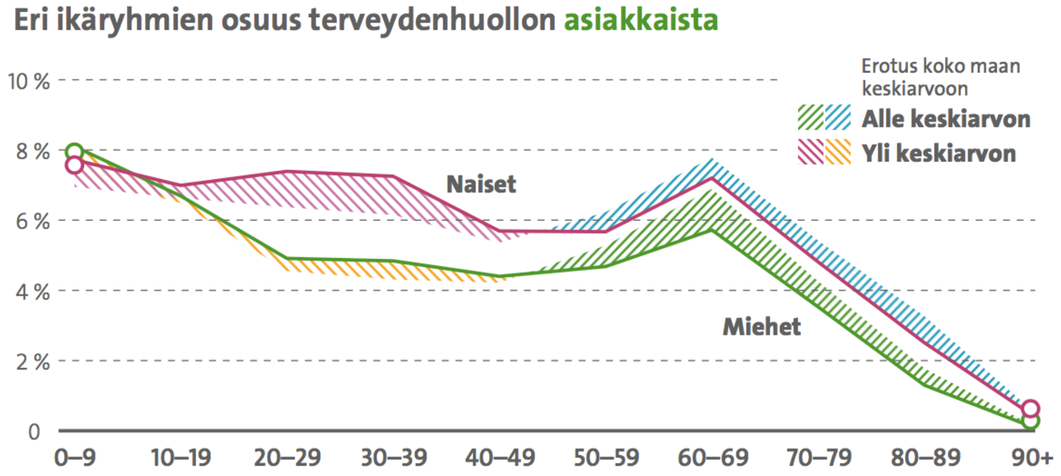
Altair, Matplotlib, Seaborn, Bokeh, and other Python visualization libraries

OPEN SOURCE







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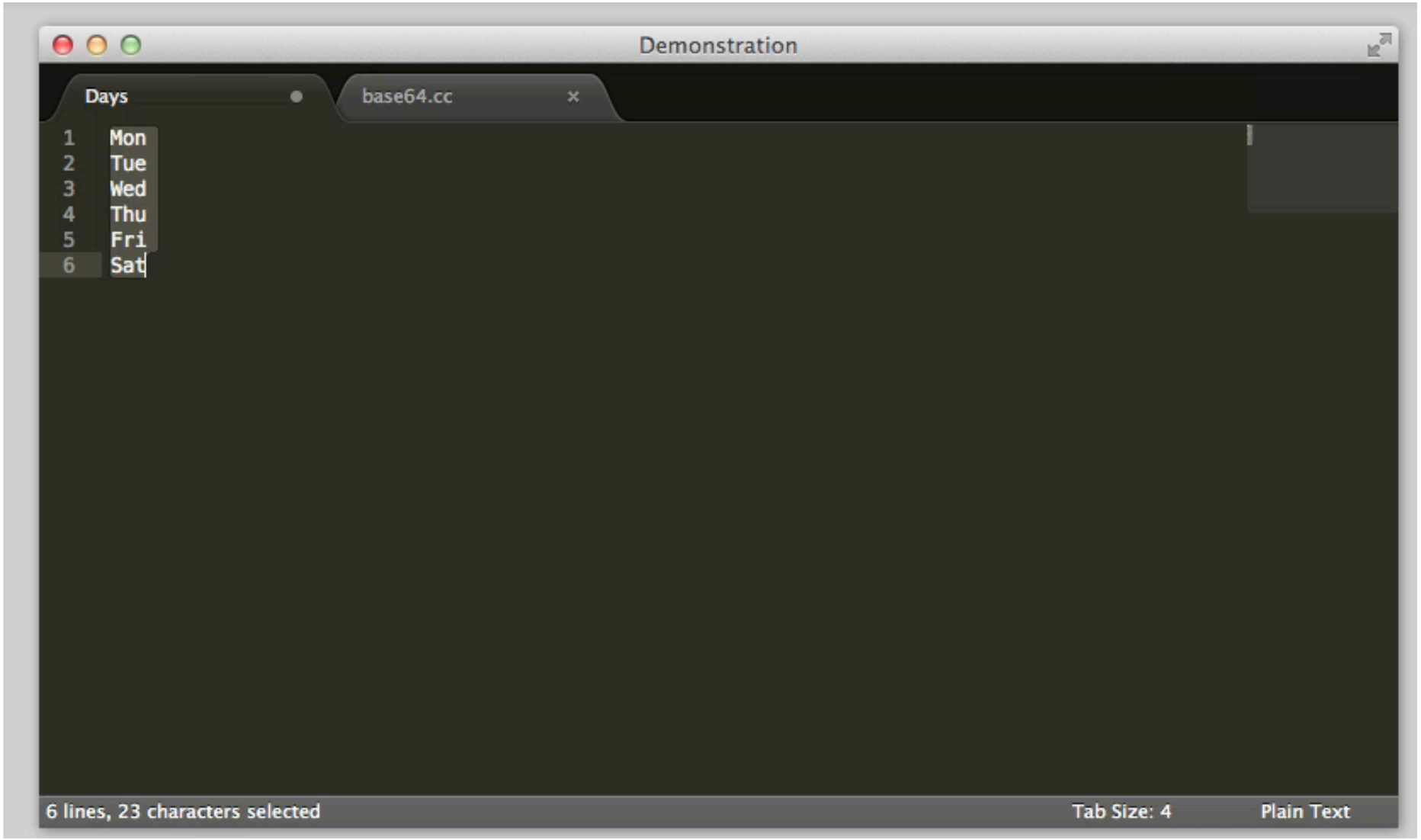
https://seaborn.pydata.org
https://altair-viz.github.io
https://bokeh.pydata.org
https://matplotlib.org

Utilities

Visual Studio Code, Sublime Text: If you do information design, you *need* a good plaintext editor. These are the two mosty versatile options for programming and wrangling text data.

FREE/NAGWARE



https://code.visualstudio.com/
http://www.sublimetext.com/

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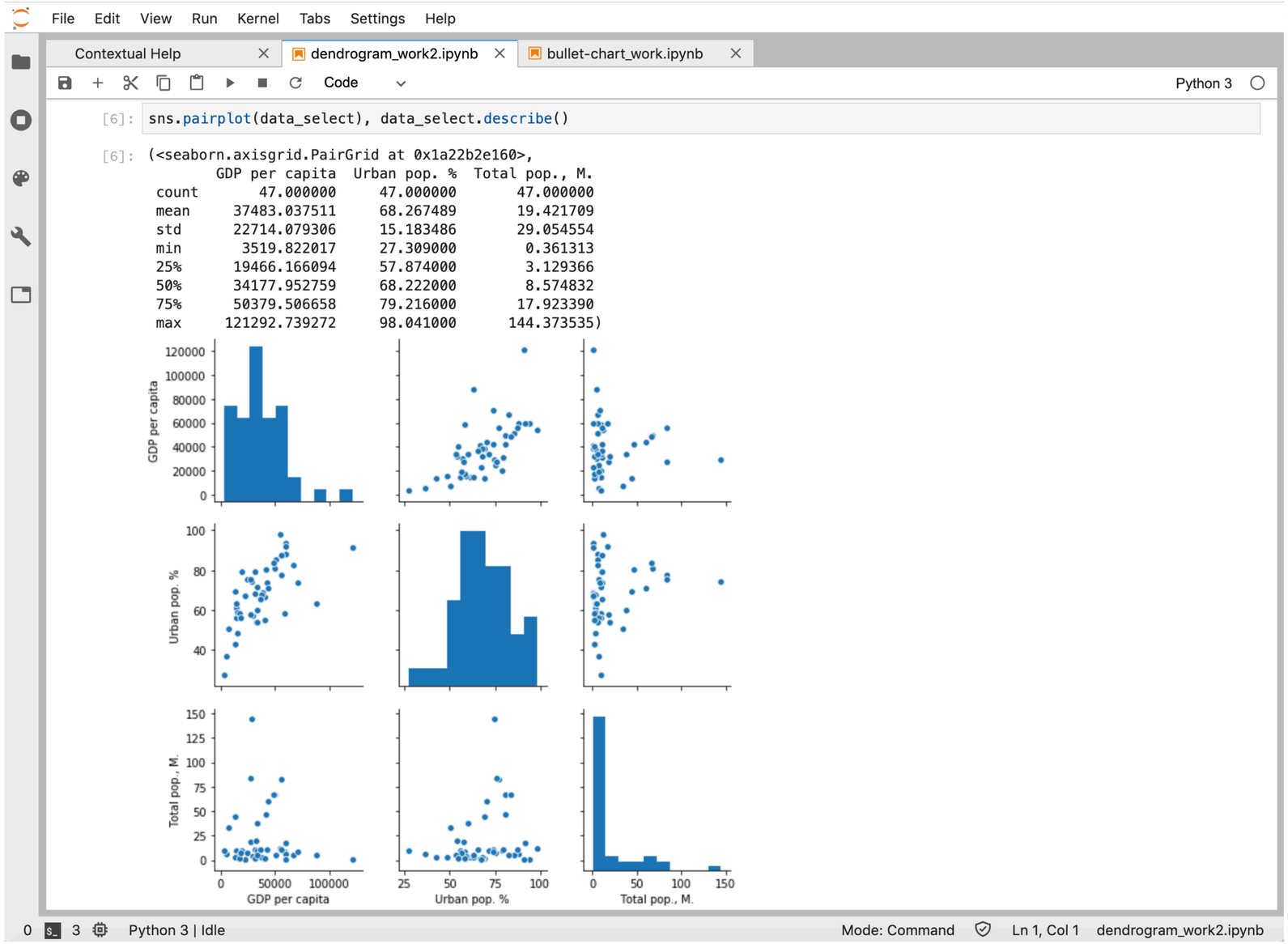
JupyterLab:
Interactive web interface for working with data and visualization libraries in *Jupyter Notebooks:* documents that combine live code with text, equations. images, interactive visualizations...

OPEN SOURCE



https://jupyterlab.readthedocs.io/en/stable/getting_started/overview.html

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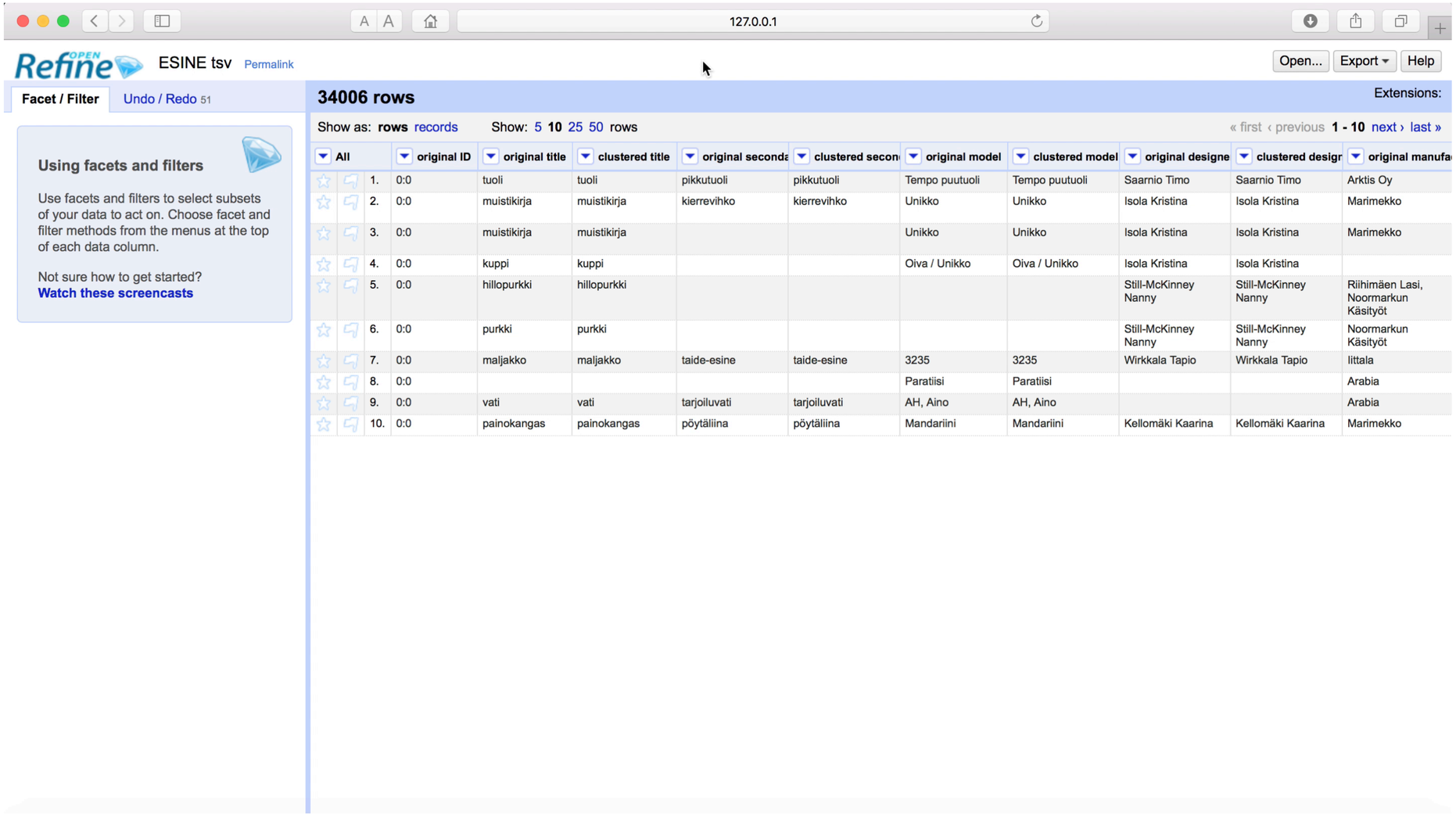
Open Refine: A powerful tool for cleaning up messy data.

OPEN SOURCE



All		original ID	original title	clustered title	original seconda	clustered secon	original model	clustered model	original designe	clustered desigr	original manufa
1.	0:0	tuoli	tuoli	pikkutuoli	pikkutuoli	Tempo puutuoli	Tempo puutuoli	Saarnio Timo	Saarnio Timo	Arktis Oy
2.	0:0	muistikirja	muistikirja	kierrevihko	kierrevihko	Unikko	Unikko	Isola Kristina	Isola Kristina	Marimekko
3.	0:0	muistikirja	muistikirja			Unikko	Unikko	Isola Kristina	Isola Kristina	Marimekko
4.	0:0	kuppi	kuppi			Oiva / Unikko	Oiva / Unikko	Isola Kristina	Isola Kristina	
5.	0:0	hillopurkki	hillopurkki					Still-McKinney Nanny	Still-McKinney Nanny	Riihimäen Lasi, Noormarkun Käsityöt
6.	0:0	purkki	purkki					Still-McKinney Nanny	Still-McKinney Nanny	Noormarkun Käsityöt
7.	0:0	maljakko	maljakko	taide-esine	taide-esine	3235	3235	Wirkkala Tapio	Wirkkala Tapio	Iittala
8.	0:0					Paratiisi	Paratiisi			Arabia
9.	0:0	vati	vati	tarjoiluvati	tarjoiluvati	AH, Aino	AH, Aino			Arabia
10.	0:0	painokangas	painokangas	pöytäliina	pöytäliina	Mandariini	Mandariini	Kellomäki Kaarina	Kellomäki Kaarina	Marimekko

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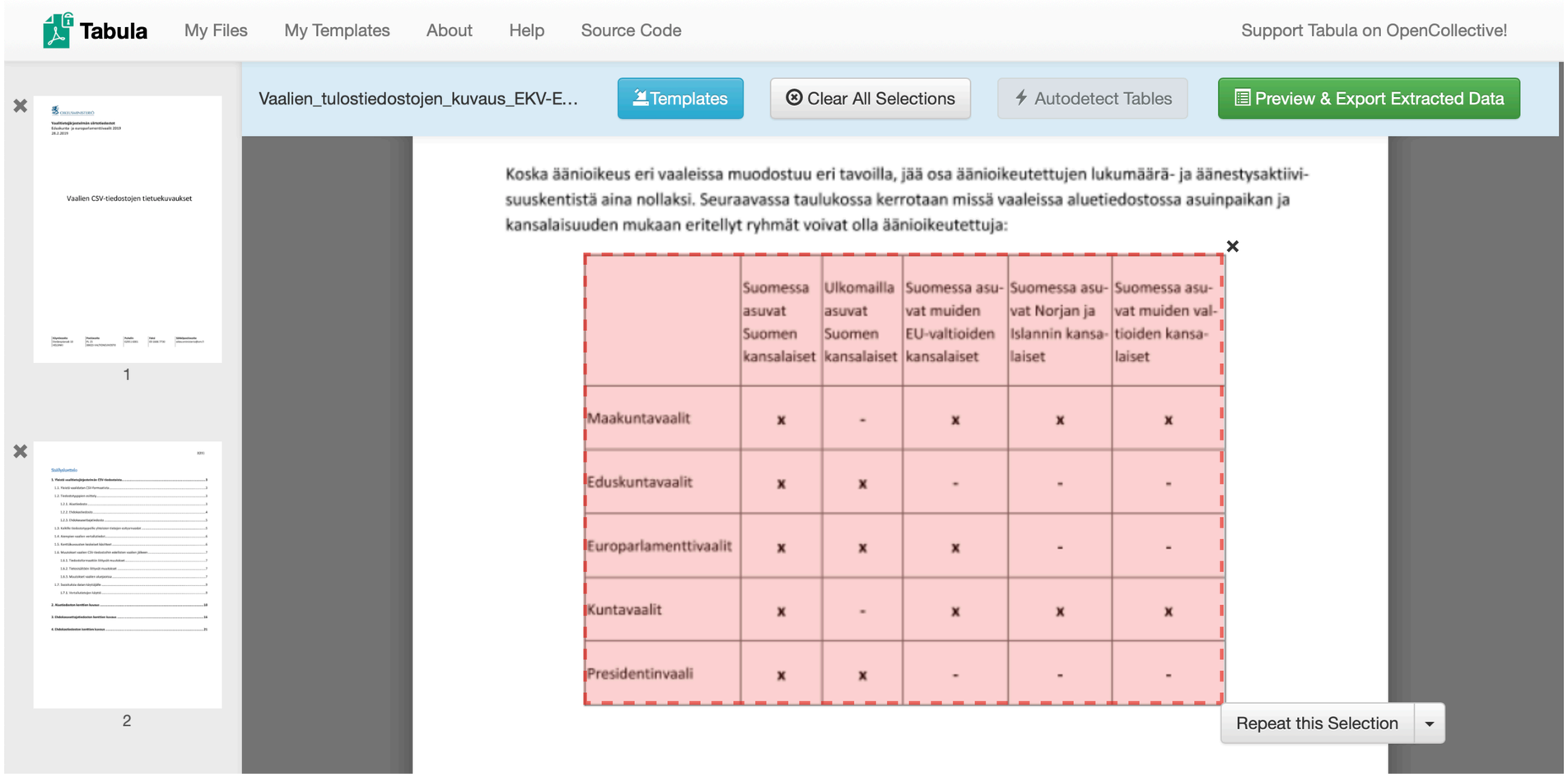
http://openrefine.org/

Tabula: A tool for extracting tabular data from PDFs.

OPEN SOURCE



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http://tabula.technology

SVG Crowbar: A Chrome extension for extracting SVGs (e.g. visualizations made with D3.js) from web pages.

OPEN SOURCE

ai2html: A tool for creating responsive web pages with Illustrator.

OPEN SOURCE

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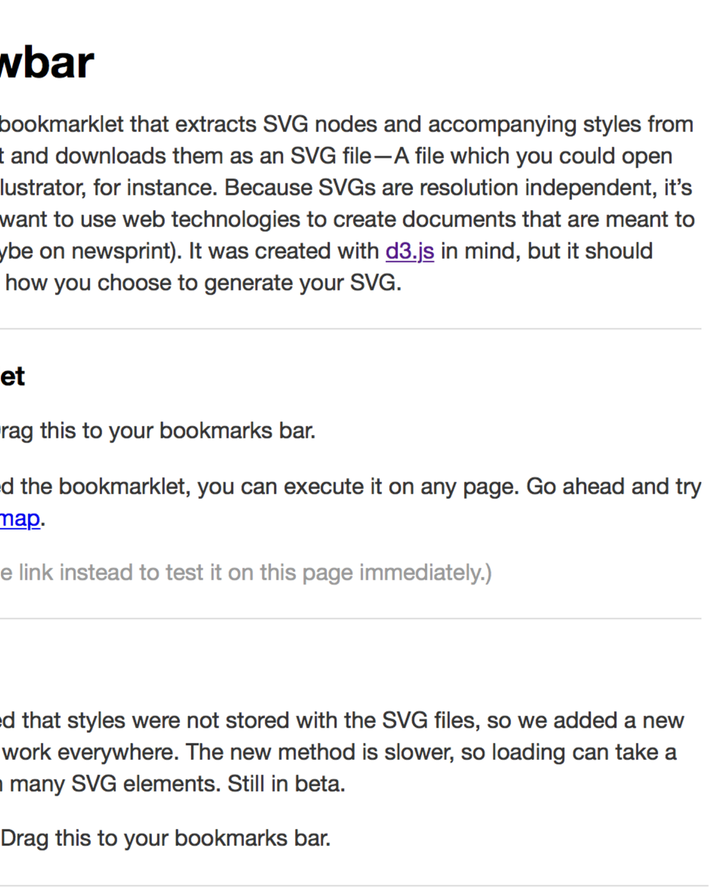


SVG Crowbar

A Chrome-specific bookmarklet that extracts SVG nodes and accompanying styles from an HTML document and downloads them as an SVG file—A file which you could open and edit in Adobe Illustrator, for instance. Because SVGs are resolution independent, it's great for when you want to use web technologies to create documents that are meant to be printed (like, maybe on newsprint). It was created with d3.js in mind, but it should work fine no matter how you choose to generate your SVG.

The Bookmarklet

SVG Crowbar ← Drag this to your bookmarks bar.

After you've installed the bookmarklet, you can execute it on any page. Go ahead and try it out on this crazy map.

(You can click on the link instead to test it on this page immediately.)

Update

Some users reported that styles were not stored with the SVG files, so we added a new version that should work everywhere. The new method is slower, so loading can take a while on pages with many SVG elements. Still in beta.

SVG Crowbar 2 ← Drag this to your bookmarks bar.

> ai2html is an open-source script for Adobe Illustrator that converts your Illustrator documents into html and css.

Here are examples of how we've used the script at The New York Times and examples of how others have used it. Share your ai2html projects on Twitter, Delicious, etc. using #ai2html.

Table of contents

- How to install ai2html
- How to use ai2html
- Frequently asked questions
- Settings
- Point text vs. area text
- Which attributes are converted to html and css
- How does ai2html work
- Limitations
- What works well and what does not
- Using fonts other than Arial and Georgia

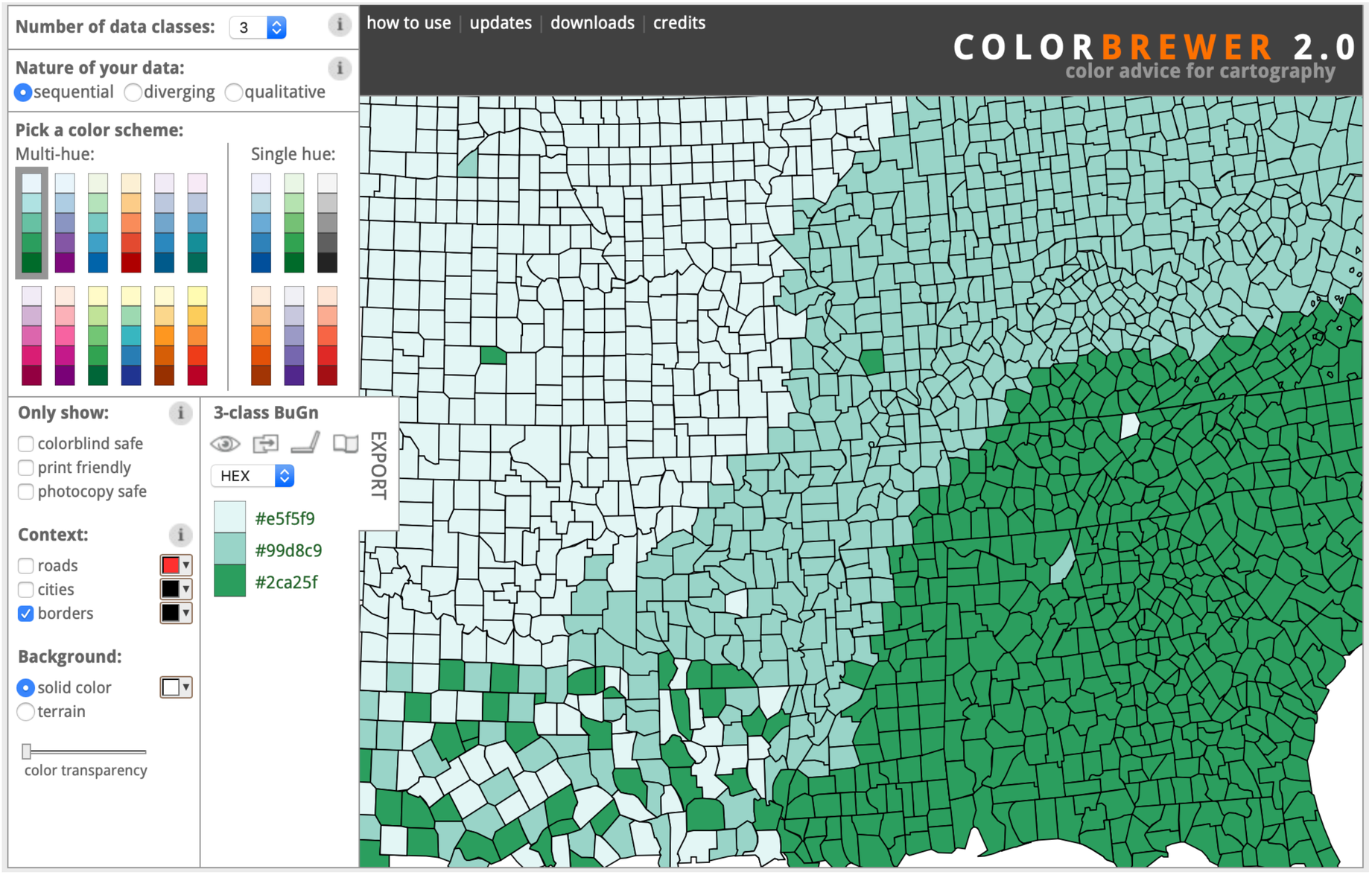
nytimes.github.io/svg-crowbar/

http://ai2html.org

Color

Color Brewer:
A simple and useful color tool based on predesigned sets, especially suitable for maps.

OPEN SOURCE



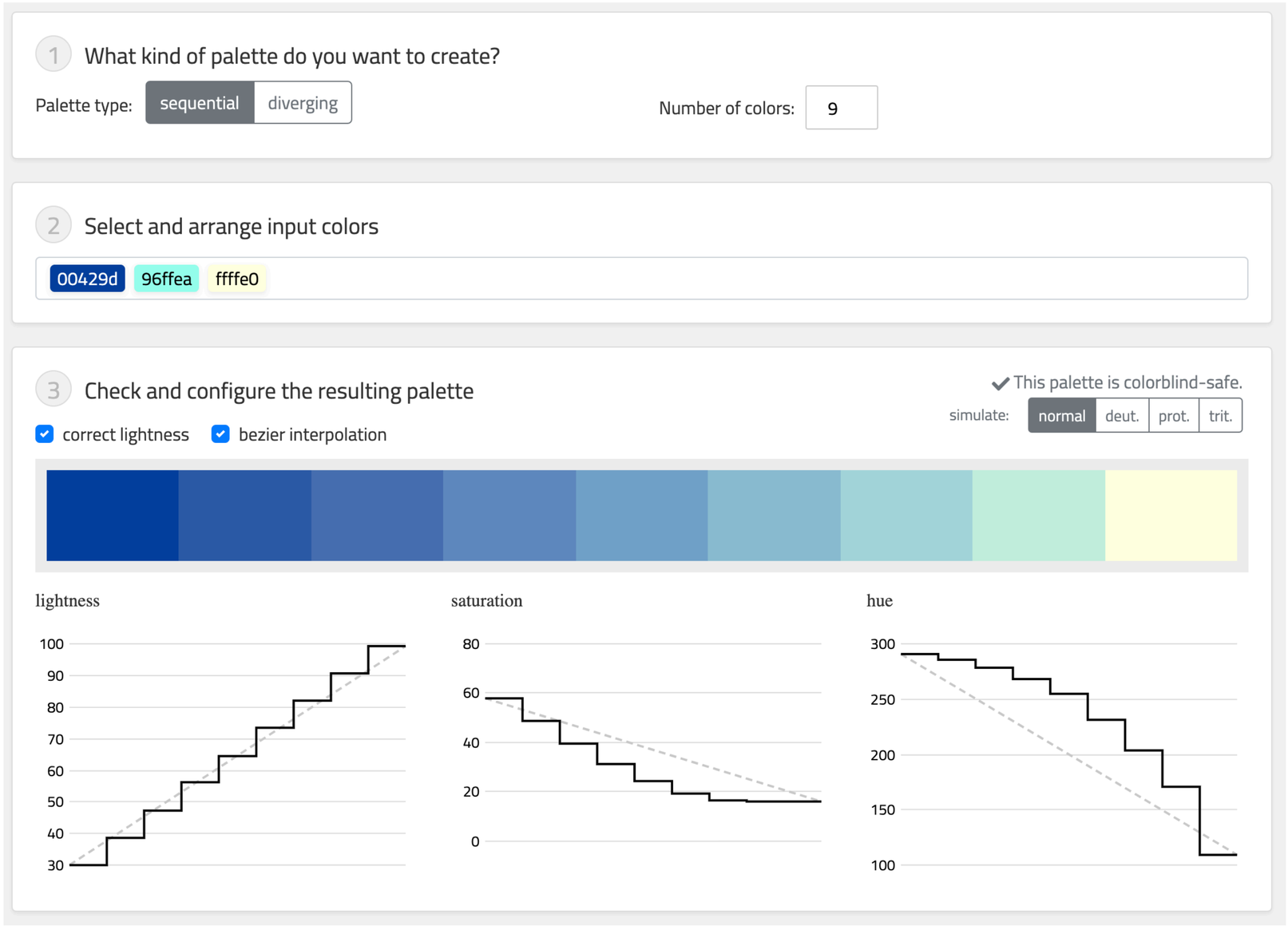
KOPONEN + HILDÉN

http://colorbrewer2.org/

Chroma.js palette helper: Simple online tool for custom building *equidistant* quantitative palettes.

OPEN SOURCE

What's so wrong with HSV? https://vis4.net/blog/posts/avoid-equidistant-hsv-colors/



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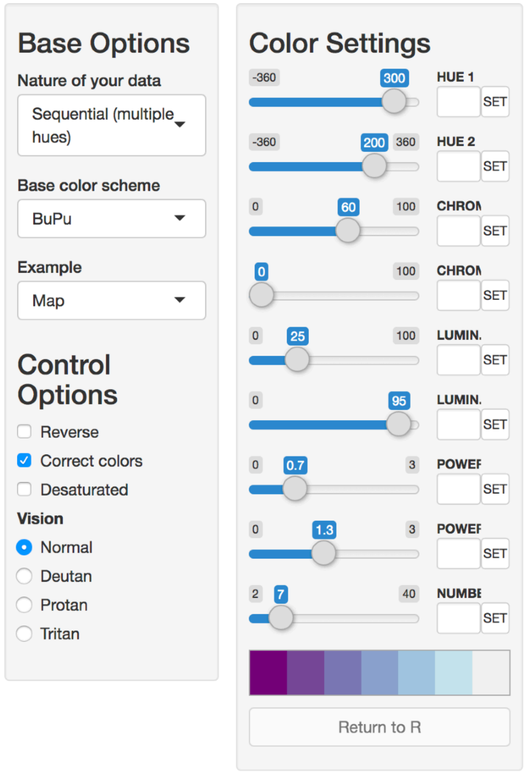
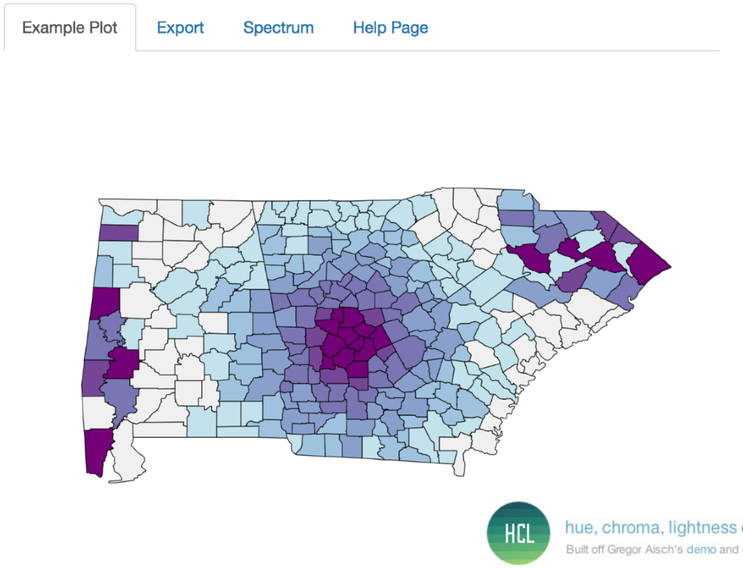
https://gka.github.io/palettes/

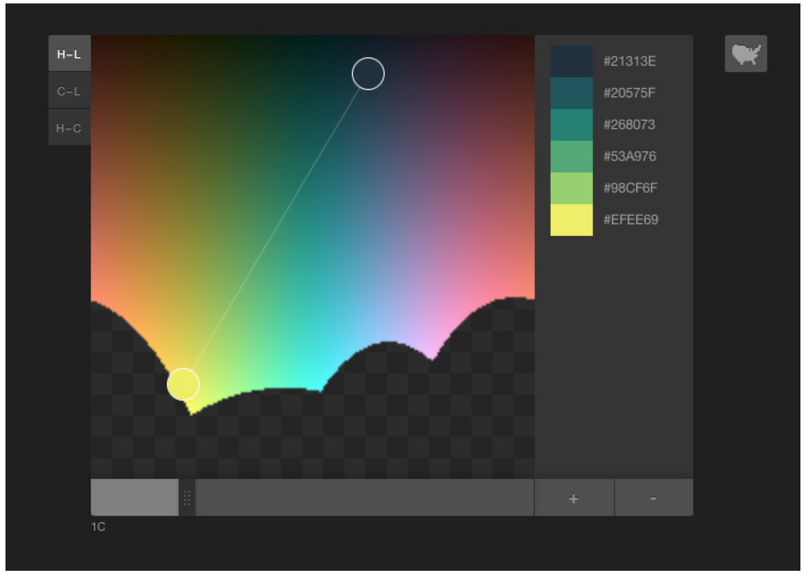
JavaScript library: https://github.com/gka/chroma.js

HCL Color Wizard and **HCL Colorpicker**: More tools for building *equidistant* quantitative color palettes.

OPEN SOURCE







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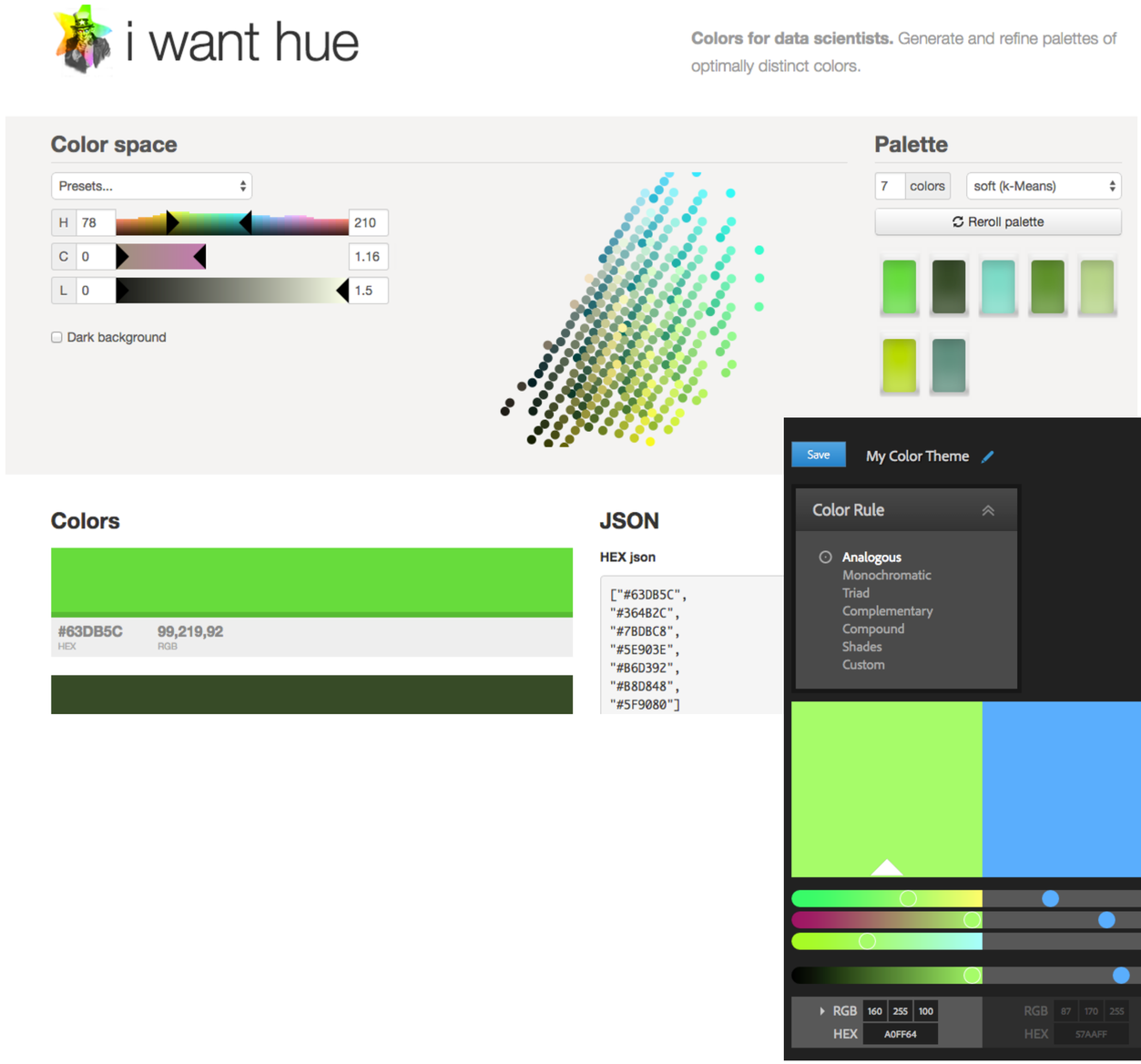
See also: http://www.husl-colors.org/
https://github.com/d3/d3-color

http://hclwizard.org:64230/hclwizard/
http://tristen.ca/hcl-picker/

I Want Hue and **Adobe CC Color**: Tools for building harmonious qualitative color palettes.

FREE

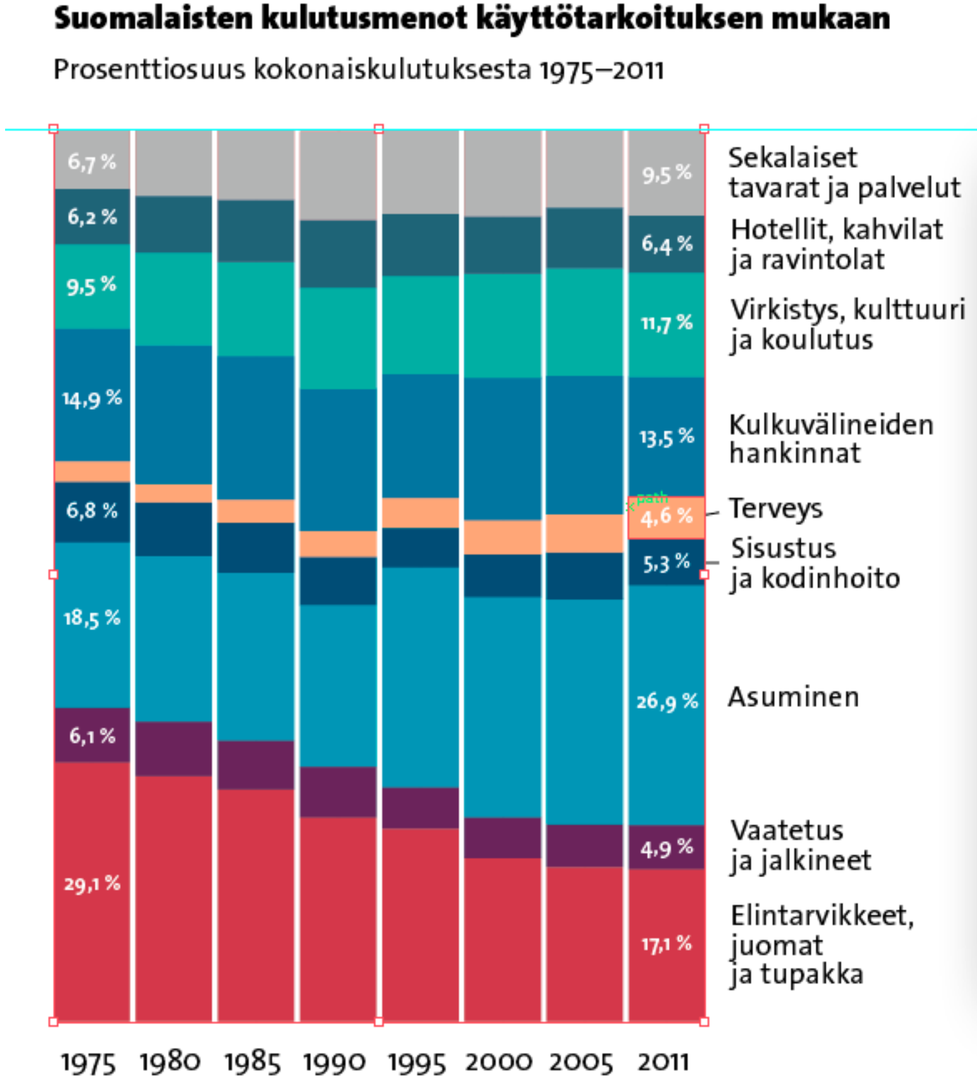


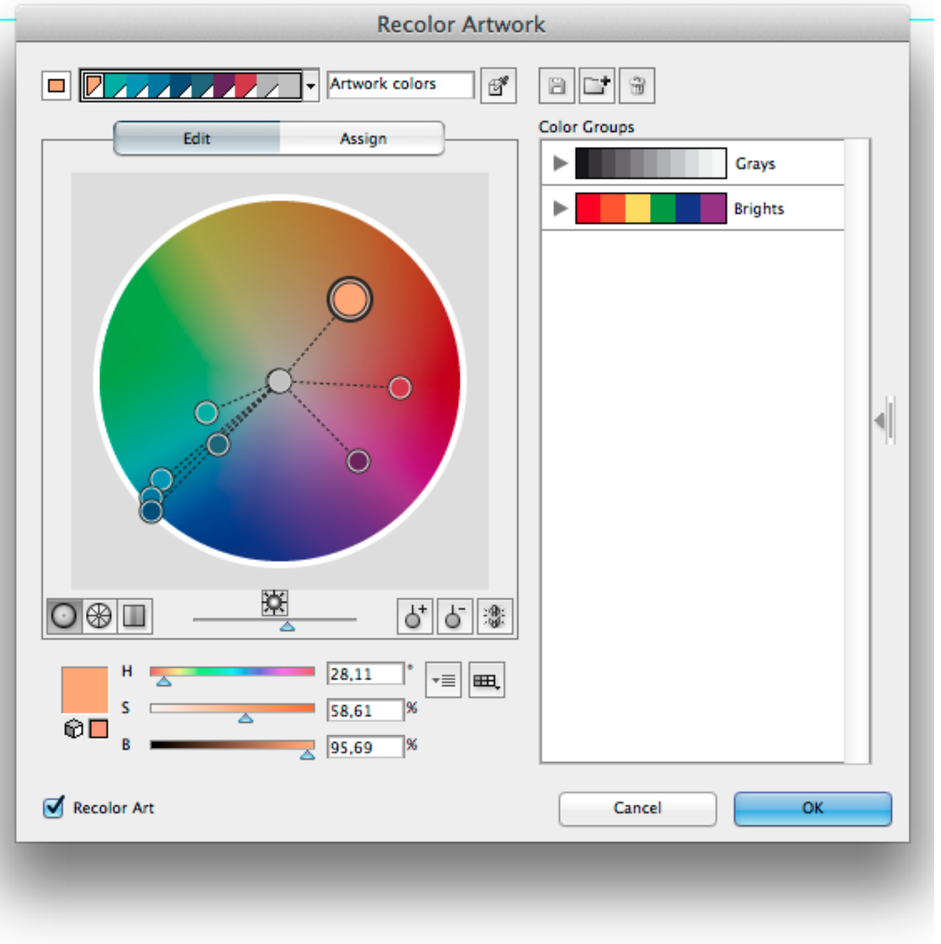
http://tools.medialab.sciences-po.fr/iwanthue/
https://color.adobe.com/

KOPONEN + HILDÉN

The **Recolor Artwork** tool in Illustrator: Very handy for manual color tweaks.

COMMERCIAL





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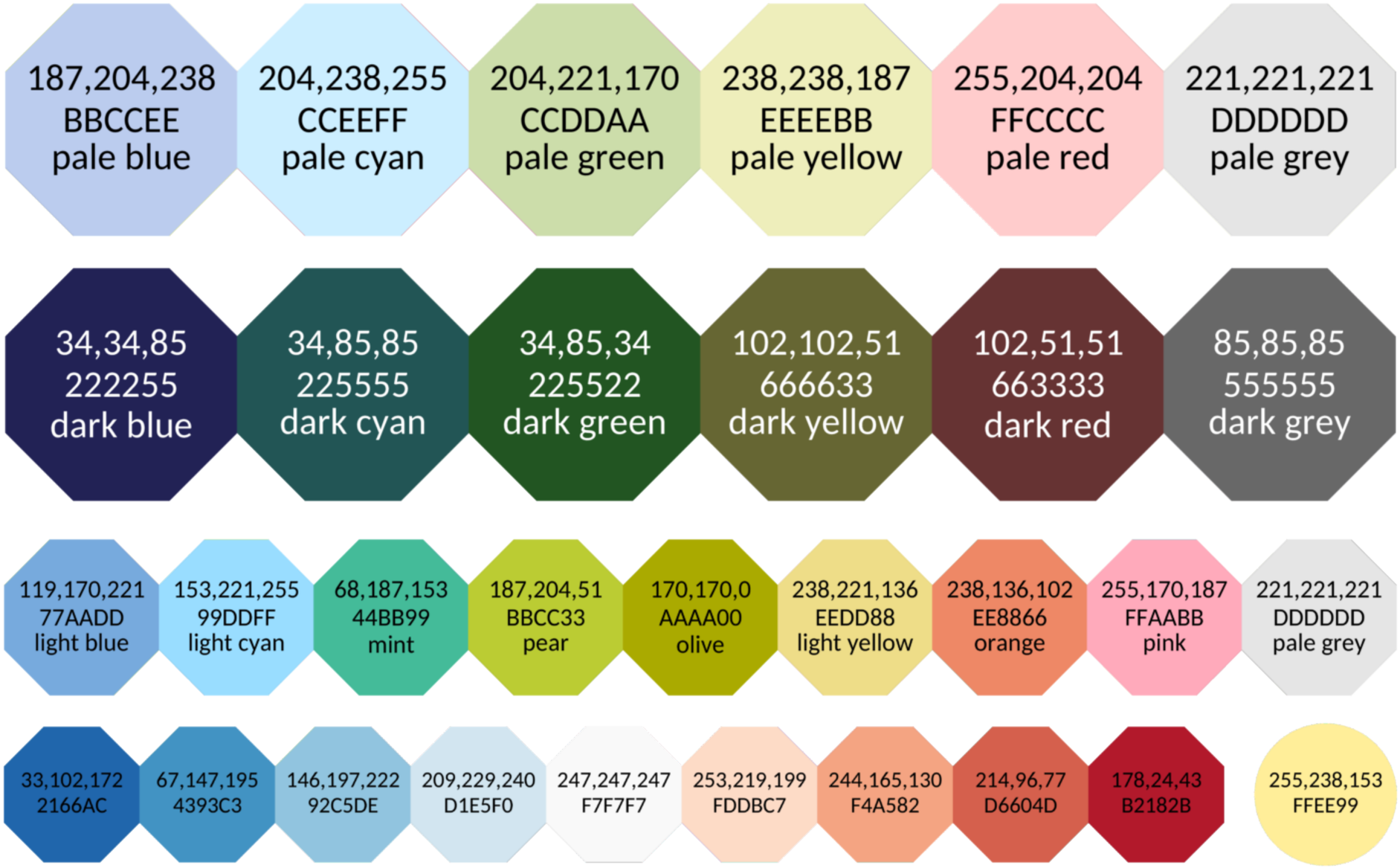
Edit > Edit Colors > Recolor Artwork

Paul Tol's notes: A comprehensive guide to color in scientific visualizations.



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https://personal.sron.nl/~pault/

- **Excel**, **Numbers**
- **Open Refine**, **Tabula**
- **Powerpoint**, **Keynote**
- **Illustrator, Sketch**
- **QGIS** (+ **Mapbox**)
- **Python** + **Pandas** + **Matplotlib** & **Seaborn** & **Altair** (+ some **Nodebox 1.0**)
- a little **R** and **Tableau**
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- **Visual Code Studio**, **Sublime Text**
- **Slack**
- Currently in process of adding to our setup: **React**, **PostGIS**
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Data sources

Examples of types of data

- statistics
- official registries
- Big Data
- MyData
- scientific research data
- surveys
- GIS data

Ways of accessing data

- statistical databases
- APIs
- scraping
- FOIA requests
- commercial data products
- data leaks
- crowdsourcing
- self-collection

Data sources: Finland

- **Statistics Finland:** http://stat.fi/tup/tilastotietokannat/
  - StatFin: http://pxnet2.stat.fi/PXWeb/pxweb/fi/StatFin/
  - Paavo – open data by postcode: http://pxnet2.stat.fi/PXWeb/pxweb/fi/Postinumeroalueittainen_avoin_tieto/
  - Eurostat key tables: http://pxnet2.stat.fi/PXWeb/pxweb/fi/Eurostat/
  - Statistics Finland GIS data: https://www.stat.fi/org/avoindata/paikkatietoaineistot.html
- **THL:** https://thl.fi/fi/tilastot-ja-data/tilastot-aiheittain
  - SotkaNet: https://sotkanet.fi/
  - Terveytemme.fi: http://www.terveytemme.fi

Data sources: Finland

- **Aluesarjat:** http://aluesarjat.fi
- **Natural Resources Institute Finland:** https://stat.luke.fi
- **Helsinki Region Infoshare:** https://hri.fi
- **National Land Survey:** www.maanmittauslaitos.fi/asioi-verkossa/avoimien-aineistojen-tiedostopalvelu
- **Paikkatietoikkuna:** https://kartta.paikkatietoikkuna.fi/
- **Environmental administration's GIS service Liiteri:** https://liiteri.ymparisto.fi

Data sources: Finland

- **Road Safety Council:** www.liikenneturva.fi/fi/tutkittua
- **Passenger transport survey :** www.traficom.fi/fi/hlt
- **Alcohol statistics:** www.valvira.fi/alkoholi/tilastot
- **Theatre statistics:** www.tinfo.fi/fi/teatteritilastot
- **Publishers' statistics:** kustantajat.fi/tilastot

Other sources: ministries, municipalities, industry groups, trade unions, regulators, sectoral research institutes; companies (e.g. mobile operators, AirBnB, Instagram...)

Data sources: International

- **World Bank:** https://data.worldbank.org
  - DataBank: https://databank.worldbank.org
- **Gapminder:** https://www.gapminder.org/data/
- **OECD:** http://data.oecd.org
- **Eurostat:** https://ec.europa.eu/eurostat
  - Statistics Explained: https://ec.europa.eu/eurostat/statistics-explained/
- **Natural Earth:** https://www.naturalearthdata.com
- **OpenStreetMap:** https://www.openstreetmap.org

Data sources: International

- **FAO:** www.fao.org/faostat/en/
- **WHO:** www.who.int/gho/en/
- **UNHCR:** popstats.unhcr.org/en/overview
- **Nordic Statistics:** http://www.nordicstatistics.org/pxweb/en/Nordic%20Statistics/

Thank you.

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