Data Visualization Workshop

Presented by Simone Betito
Monitoring and Evaluation I

Feb 2020

👋 Hello!

Who Am I?

- Data Visualization Developer at Girl Scouts USA in NYC
- Recent MSDV Grad at Parsons
- I like to analyze & visualize data related to the environment, social justice issues etc. in my spare time.

Agenda

- Your definition of Data Viz 📊
- Inspiration: Historical & Current
- Understanding Your Data: Stats 101
- Choosing Your Data: Data Quality
- Designing Your Data: Data Dimensions & Choosing the Right Chart
- Break🙏
- Presentation: Storytelling with Data 📘
- Google Sheets Example + Pros & Cons
- In-Class Activity - Data Portrait

Find documentation from this workshop here:

https://github.com/simone-betito/data-viz-workshop-2020

What is your definition of Data Visualization?

Google Form
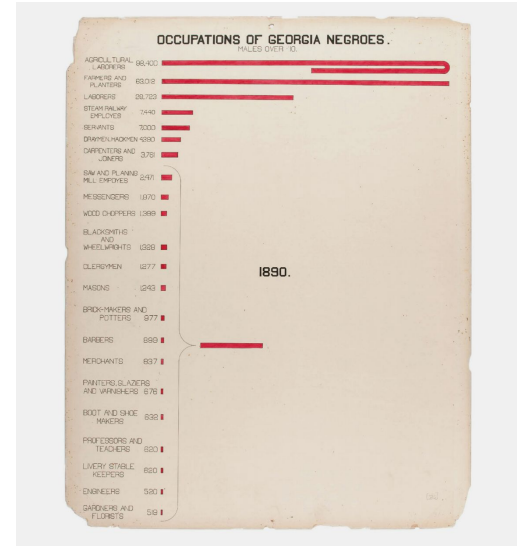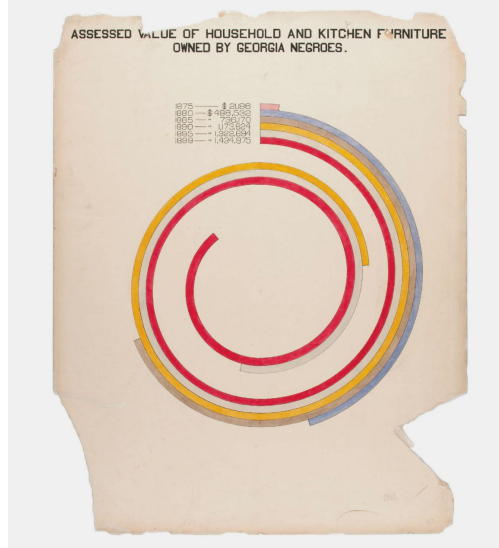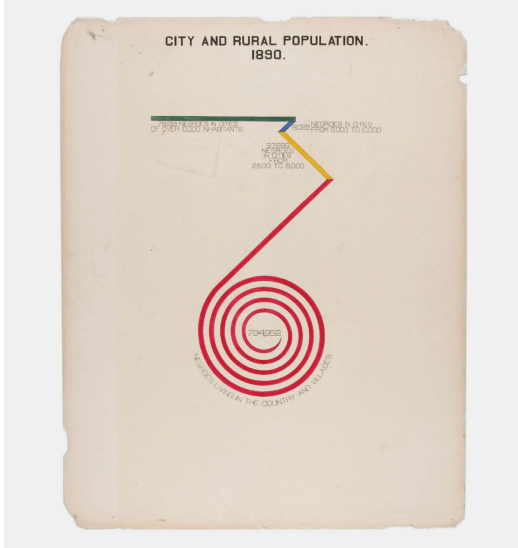
Don't look it up on Google.

No right or wrong answer as Data Visualization is in itself an interdisciplinary subject.
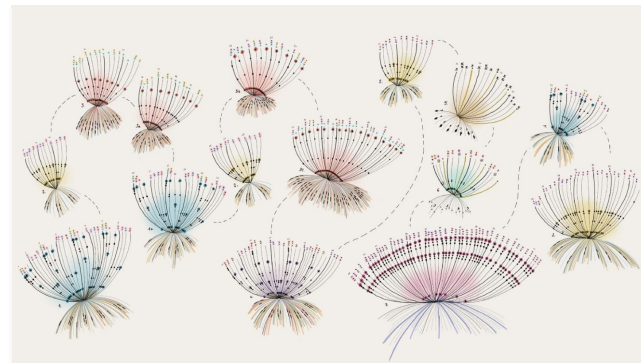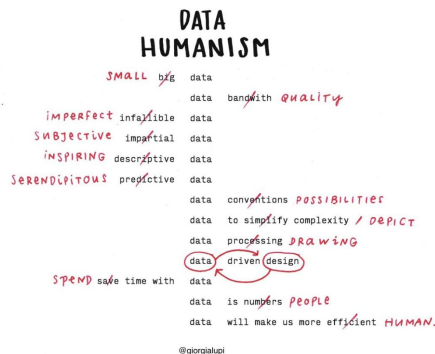
Inspiration Past/Current

W.E.B Du bois
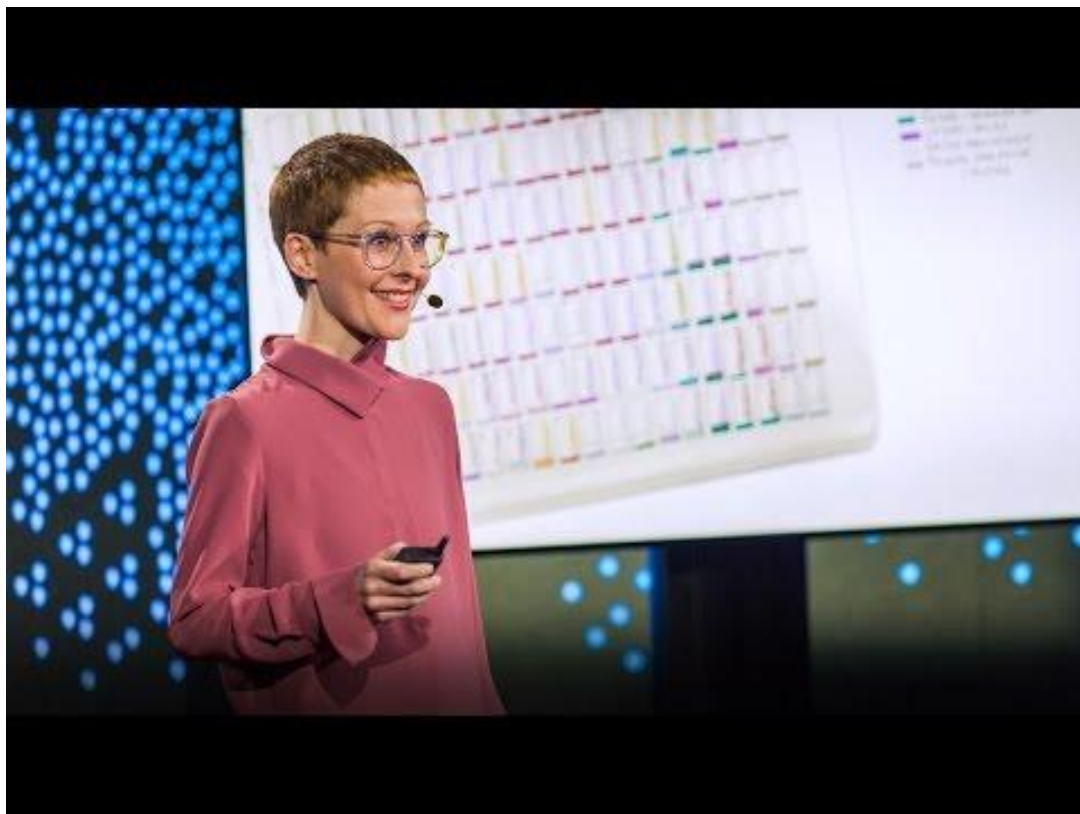
Giorgia Lupi

- Information Designer at Pentagram
- Creator of the Data Humanism School of Thought
- Embrace Complexity, Move beyond standards (sketching with data), Embrace Imperfection.

Giorgia Lupi TedTalk

Understanding Your Data

Qualitative Measures

- Usually a string
- Binary
- Nominal/ordinal
- Examples: Dates & names

Qualitative
Usually a string

Qualitative
Binary
EXAMPLE
raining, not raining

Qualitative
Nominal
EXAMPLE
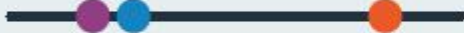sunny, cloudy, windy

Qualitative
Ordinal
EXAMPLE
not windy, very windy

Quantitative Measures

- Usually a number
- Discrete/continuous
- Example: Profit, height, weight, temperature

Quantitative

Usually a number

Quantitative
Discrete

EXAMPLE
2 tornados, 3 tornados

Quantitative
Continuous

EXAMPLE
70 degrees, 71.4 degrees

Measures & Dimensions

- Common to have qualitative and quantitative measures named as this in Business Intelligence tools (SAP, Looker, Tableau)
- Measures = Quantitative or numeric values, usually dependent (y)
- Dimensions are qualitative or categorical variables, usually independent (x)

Measure or Dimension?	
Sales in US $	
Months	
Order ID	

Choosing Your Data

Data Quality

- Are there nulls?
- Are the columns or rows summed?
- What's the source?
- How was the data collected?
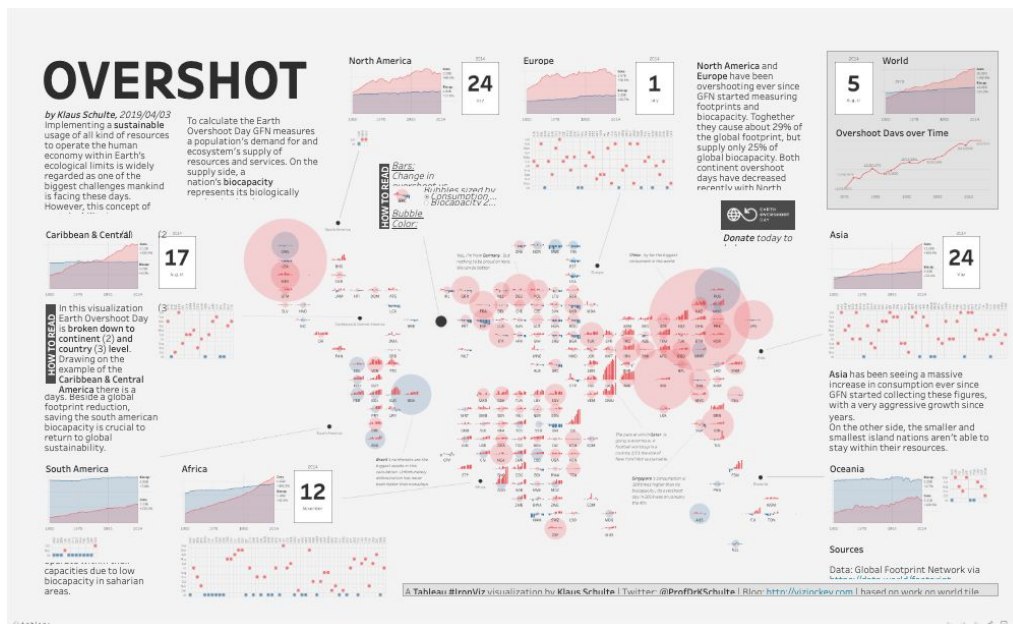- What are you deciding to show or hide?

- What might be a shady source?

Lara Trump @LaraLeaTrump · Sep 28, 2019

Try to impeach this.
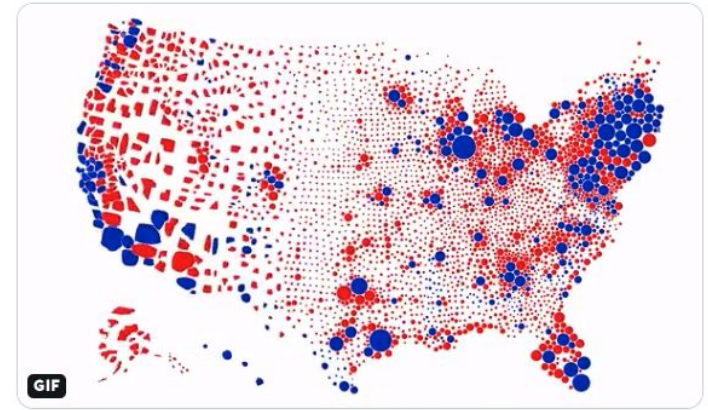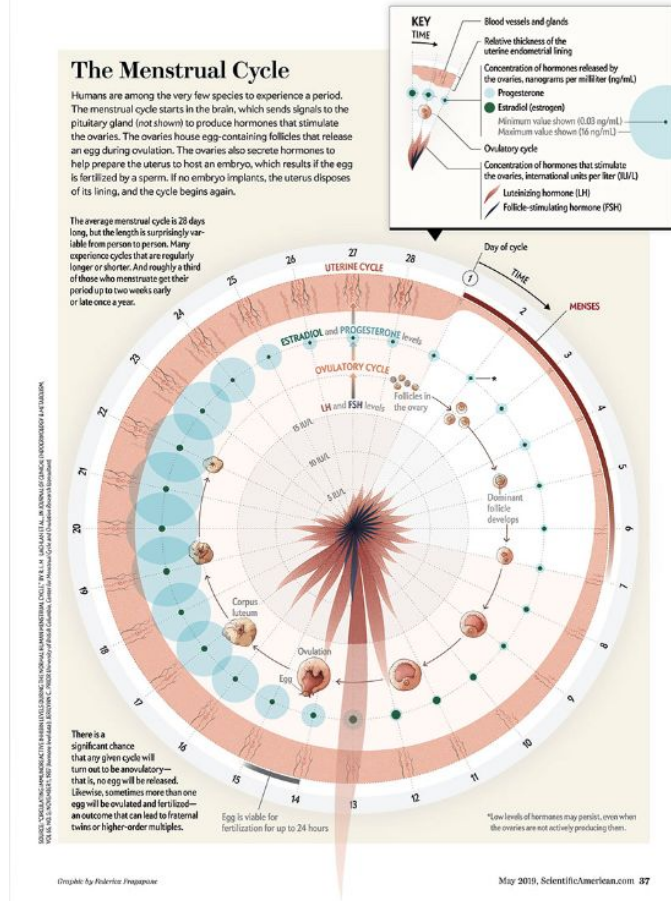
Designing Your Data

Data Dimensions

Size

- Human perception of size differences
- Changes in length, area or repetition

Position

- Changes in x, y, (z) location
- Good when precision matters
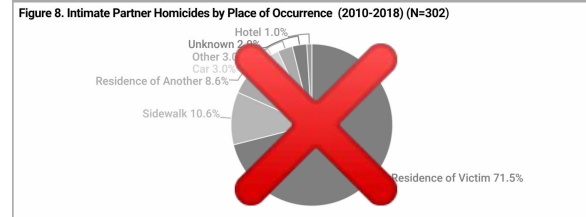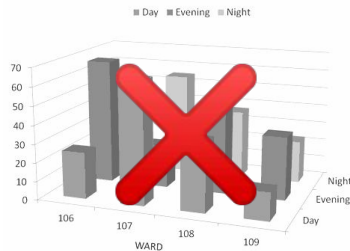- Order, length, associative

Colour

- Difficult for humans to perceive vs position or size
- Colours and categories must be mentally linked, remembered and referred to without confusion.
- Consider Accessibility - colour blindness
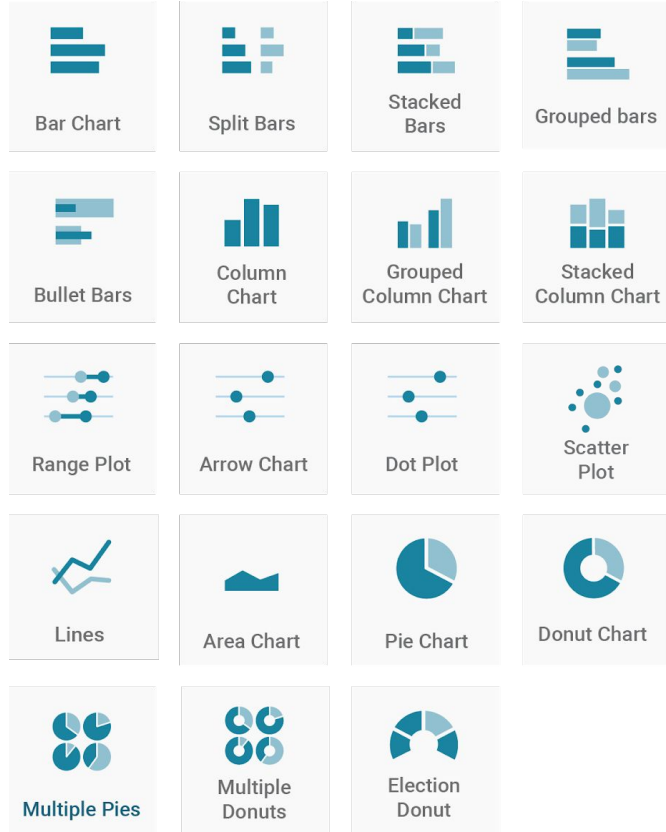- Intuitive Colour palettes (i.e: using blue for bodies of water)

Choosing Your Chart
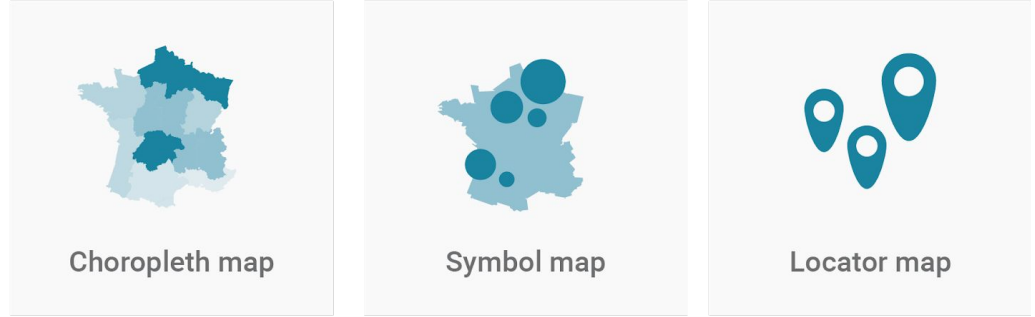
How to choose the right chart?

- No single right way to visualize data
- Iteration
- Rough Guide:
  - **Think about the data you're visualizing** for example: Line charts -> use **continuous** data
  - 🆘 Pie charts 🆘 -> less than 4-5 "slices"
  - No 3D Charts!

Figure 8. Intimate Partner Homicides by Place of Occurrence (2010-2018) (N=302)

Charts

Bar Chart	Split Bars	Stacked Bars	Grouped bars
Bullet Bars	Column Chart	Grouped Column Chart	Stacked Column Chart
Range Plot	Arrow Chart	Dot Plot	Scatter Plot
Lines	Area Chart	Pie Chart	Donut Chart
Multiple Pies	Multiple Donuts	Election Donut	

Maps

Choropleth map	Symbol map	Locator map

Tables
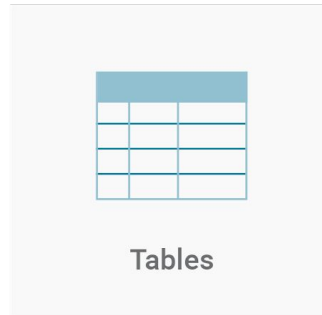
Tables

Presenting Your Data
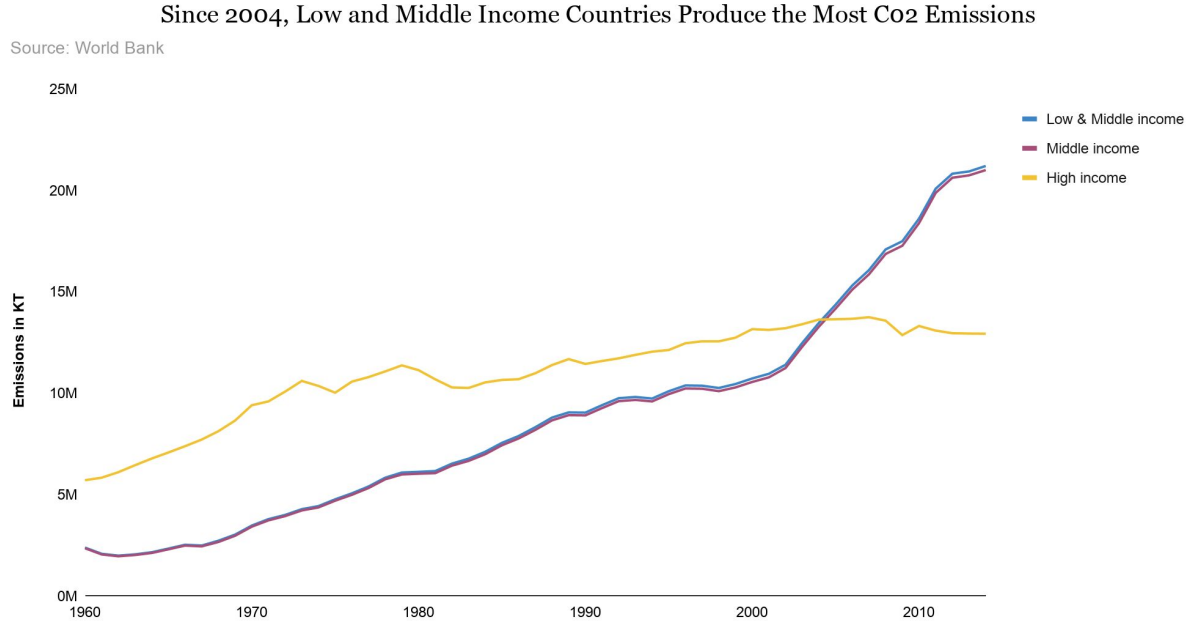
Storytelling With Data

- What is the objective?/Call to Action?

- What do you want people to do with information?

- Do you want people to think differently? Drive Change?

↓

- Impact Behaviour

Google Sheets Viz

Google Sheets - Line Chart

Since 2004, Low and Middle Income Countries Produce the Most C02 Emissions

Source: World Bank

- Low & Middle income
- Middle income
- High income

Emissions in KT

- To follow along, save a copy of the data to your Drive.

In-Class Activity

Data Humanism

In-Class Activity - Create Your Data Portrait!
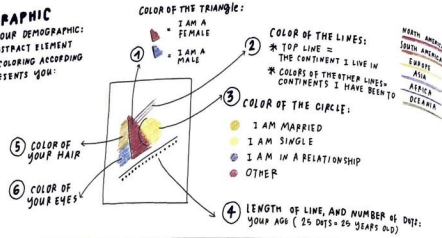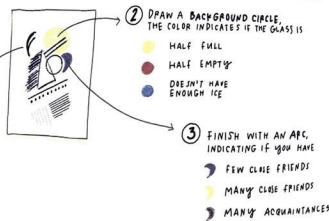
- 20-30 Minute Activity

- Use markers and coloured pencils to build your colour palette

- Any surprising insights?

Questions?

Thank you!