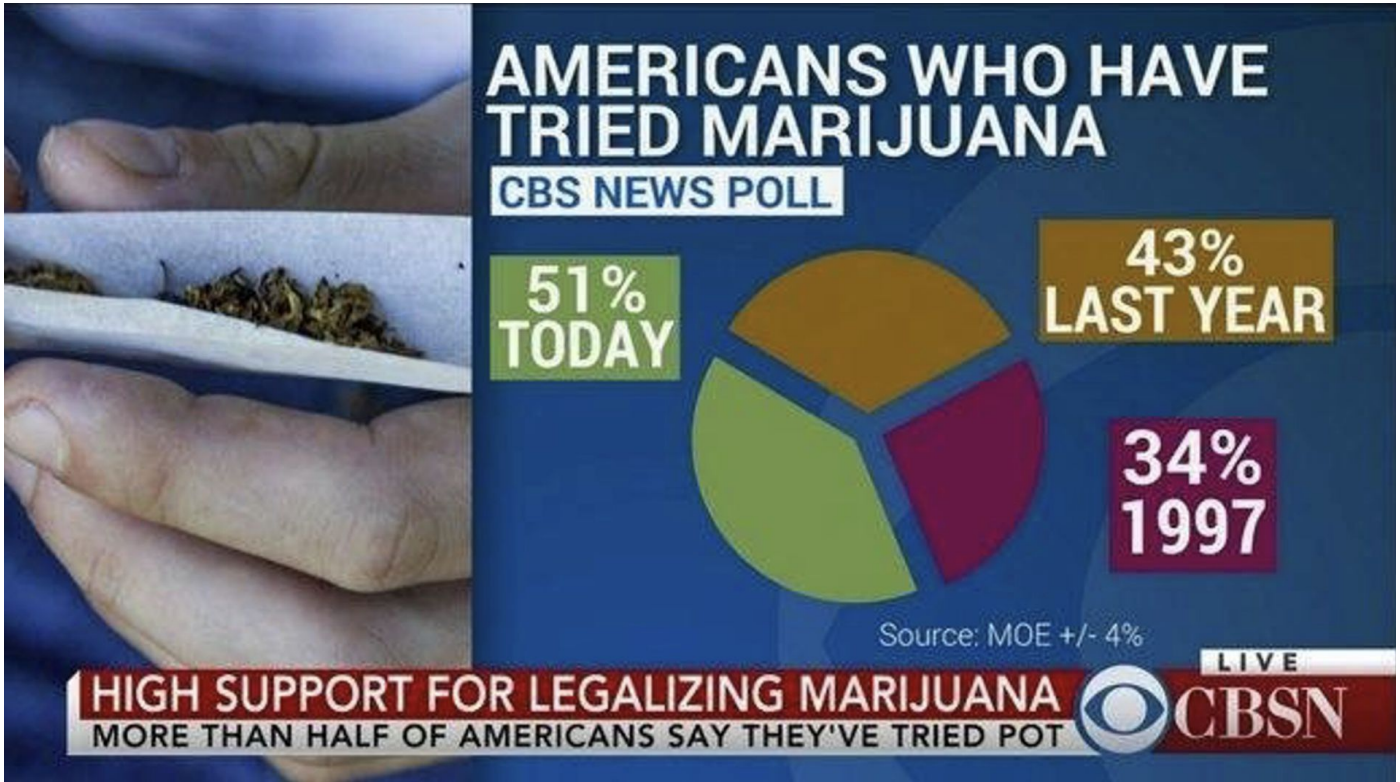
Q: What is wrong with the following graph?

iClicker



CPSC 100

Computational Thinking

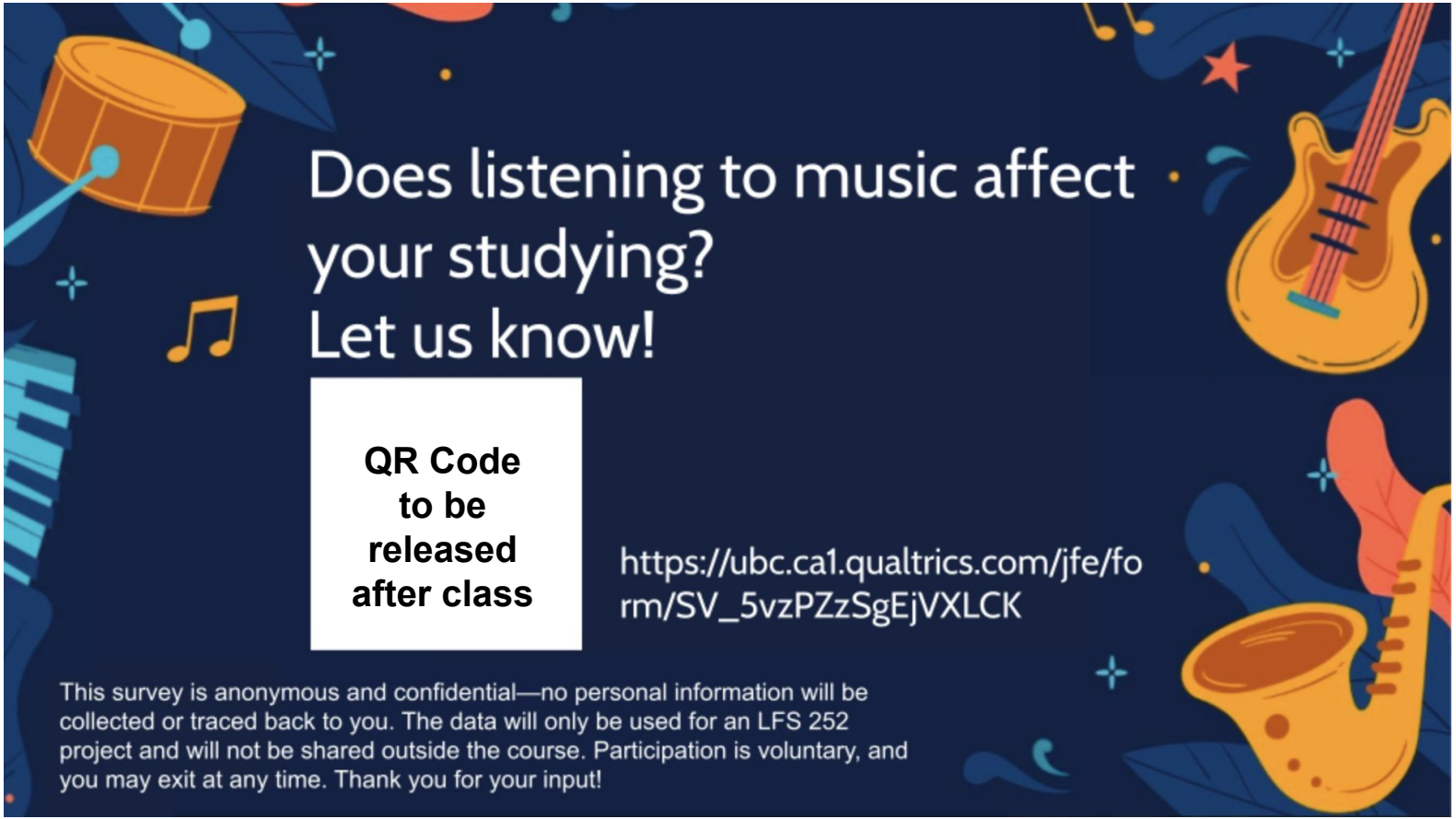
From Perception to Story:
Interactive Visual Design & Storytelling

Instructor: Parsa Rajabi
Department of Computer Science
University of British Columbia

Agenda

- Course Admin
  - Student Research Survey
- Learning Goals
- Visualizations
  - Interactive Visualizations
  - Intro to Human Computer Interaction

Student Research



Course Admin

Course Admin

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  - Due ~~Sunday, March 30~~ Monday, March 31, 11:59pm
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Learning Goals

Learning Goals

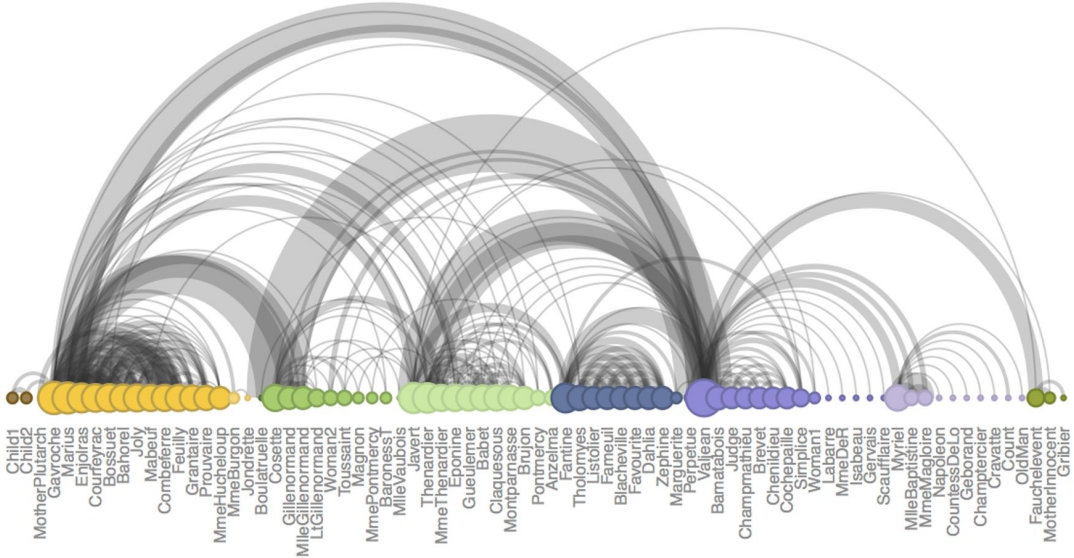
After this **today's lecture**, you should be able to:

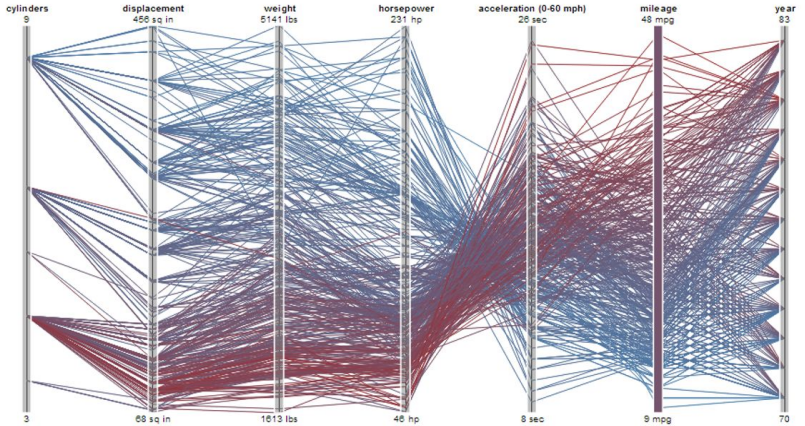
- **Describe** the limitations of static visualizations in supporting data analysis and storytelling.
- **Explain** how interactivity improves a user's engagement with and interpretation of data.
- **Analyze** how interactivity supports or detracts from the underlying message in a visualization.
- Provide a **high-level** description of Human Computer Interaction and its importance.

Limitations of Static Visualization

Limitations of Static Visualization

- Difficult to represent large amounts of data
- Inability to properly support the question and answer process involved in data analysis
- But how do we fix this…?





Activity

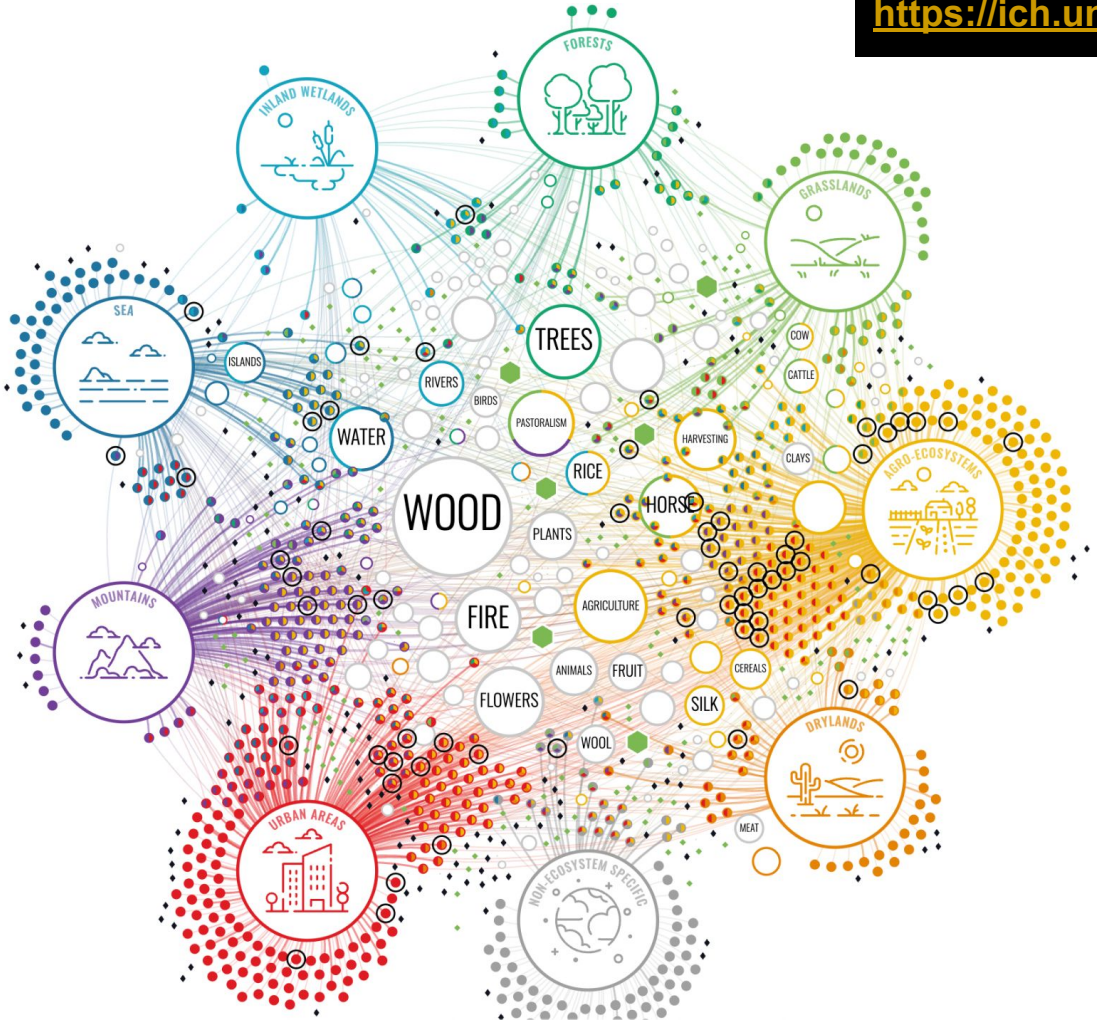
Interactive Visualizations Activity

In groups of 2-3:

- Select one of the interactive visualizations on the next 6 slides and answer these questions:
  - What did the interactives allow you to do? (compared to a static visualization with no interaction)
  - What was the role of interaction in the visualizations?
  - How does the interaction support the visualization's story/message?

Interactive Visualizations & Storytelling

https://ich.unesco.org/dive/sdg/



https://nbremer.github.io/babynames/

The 10 most popular baby names per year since 1880

USA

Each year almost 4 million babies are born in the US. Although thinking of 4 million [illegible] Nonetheless, there are always many babies given the same name (of course there are also quite a few children who are given a name that no other child received that year. Not all fall into the category of Tarzan-Lollipop luckily, many of them I like, such as Nyx).
In 2013 more than 18000 boys were named Noah in the US and more than 21000 girls named Sophia, the most popular boy and girl name of that year.

The chart below shows the top 10 names per year and per gender since 1880. You can search for any of the about 50 and 90 unique boy and girl names, respectively, that have entered the top 10 in the last 135 years and see their rise and fall. Or click on a name to see their full reign in the top 10. Use the smaller overview to change the starting and ending years in the bigger focus chart or switch between genders with the "Boys | Girls" button. You can also start an automatic loop through random names

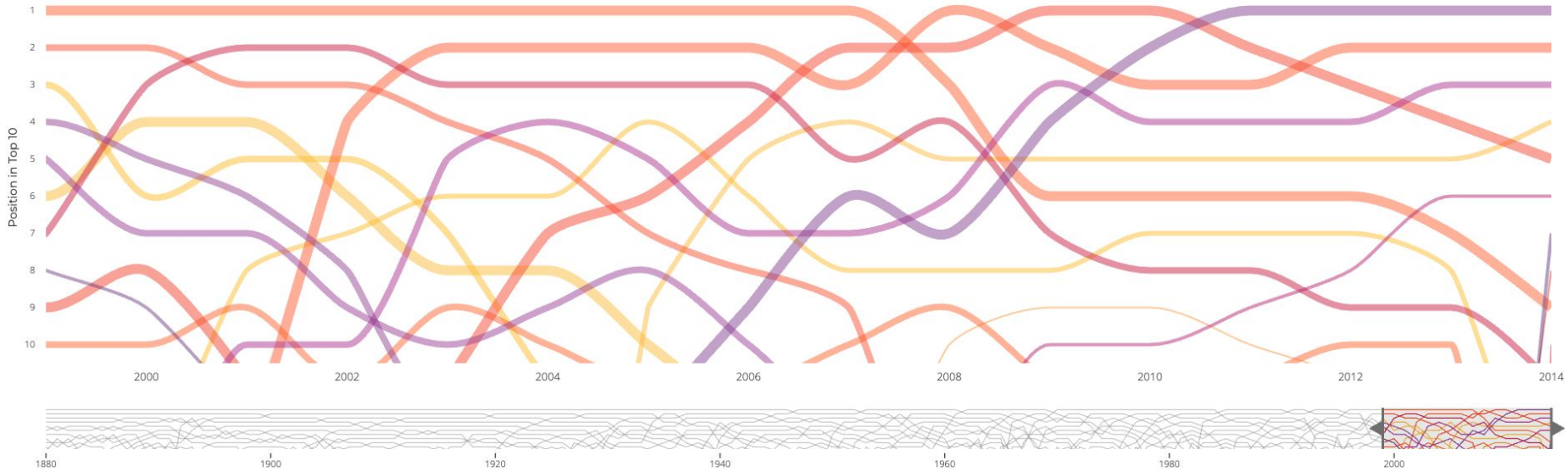
Search name...

GIRLS

Boys | Girls

Loop through names

On | Off



Global Oil Production & Consumption since 1965

https://labs.timogrossenbacher.ch/worldoil/

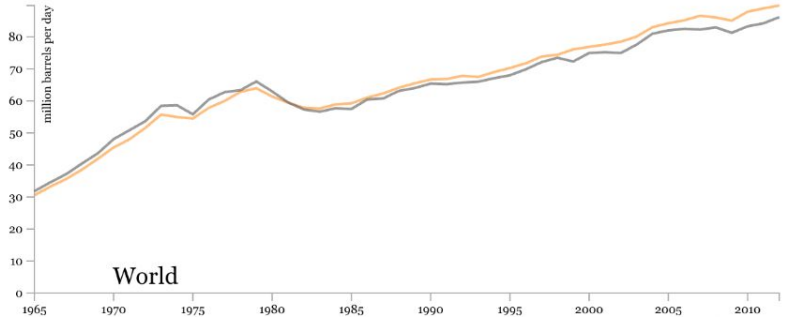
Year: 2012

Order by:

○ Production ◉ Consumption

Production		Consumption
8.90	United States	18.55
4.16	China	10.22
n/a	Japan	4.71
0.89	India	3.65
10.64	Russian Federation	3.17
11.53	Saudi Arabia	2.94
2.15	Brazil	2.81
n/a	South Korea	2.46
3.74	Canada	2.41
n/a	Germany	2.36
2.91	Mexico	2.07
3.68	Iran	1.97
n/a	France	1.69
0.92	Indonesia	1.56
0.97	United Kingdom	1.47
	World	89.77 / 86.15

* million barrels per day, only top 15 countries are shown



Tested in latest versions of Firefox, Chrome, Safari, and Internet Explorer. A minimal screen resolution of 1600 x 900px is recommended.

Note that the original data set does not consider all the countries of the world. For some countries, values are missing for a certain time period (e.g. for Russia/former UDSSR).

"Production" includes crude oil, shale oil, oil sands and NLGs, "consumption" also includes fuel ethanol and biodiesel, refinery fuel and loss.

Author:
Timo Grossenbacher (BSc in Geography, University of Zurich)

Sources:
Geodata: mbostock/topojson
Data: BP Statistical Review of World Energy 2013

GAME OF THRONES

https://mimno.github.io/showcase/project2/got/

Death Toll

According to online polls, the most important death scene is the Red Wedding, which saw the deaths of Robb Stark (King of the North and Our Hearts), his mother Catelyn Stark, and his pregnant wife, Talisa. Oh, and his direwolf, Grey Wind.

31% Deceased

69% Alive

Show Deceased

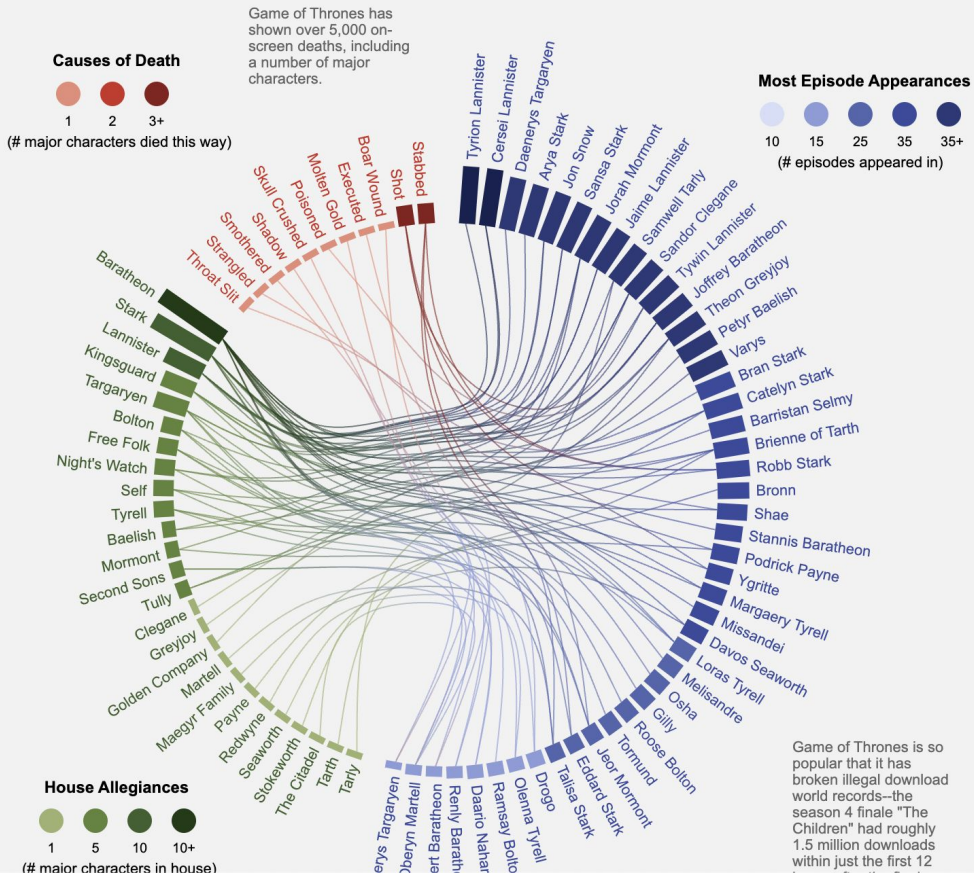
Allegiances by Gender

Game of Thrones is groundbreaking in its cast of both strong male and female characters. Emilia Clarke's Daenerys has become so popular, 146 baby girls were named Khaleesi in 2013!

67% Male

33% Female

Show Male Characters



https://projects.flowingdata.com/life-expectancy/

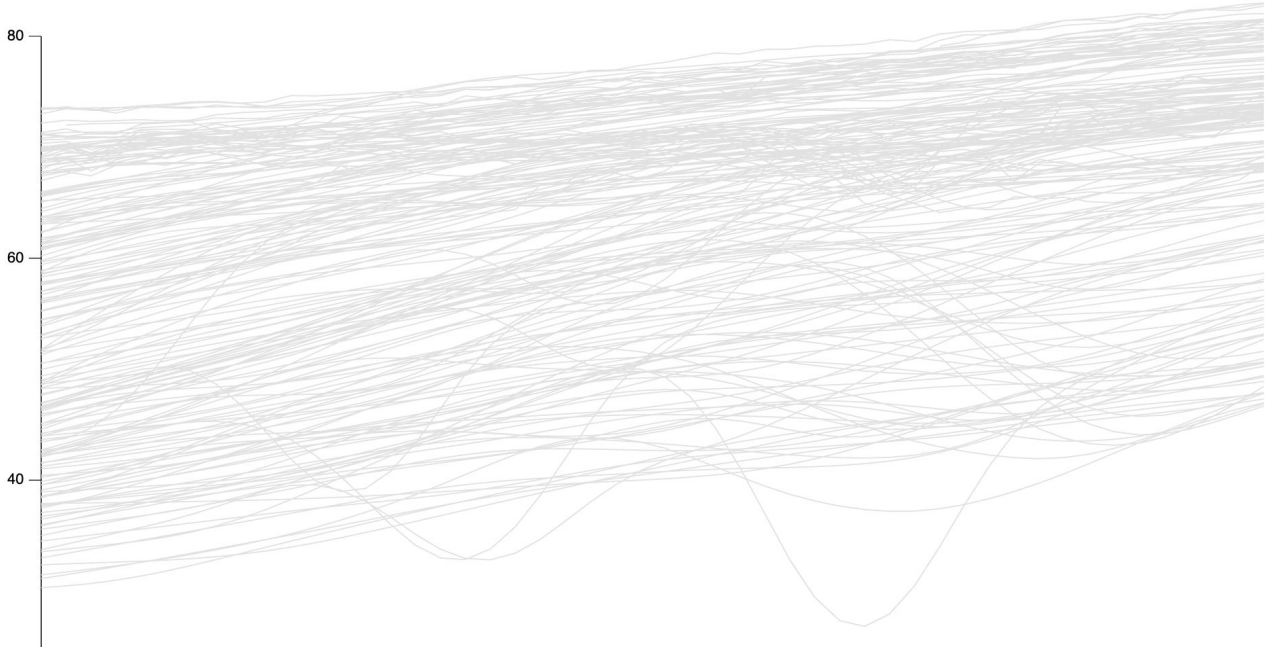
Life Expectancy

People are living longer around the world, some more so than others. Select a region (as defined by World Bank) below to compare, or roll over to the graph to highlight countries. Read more...

East Asia and Pacific | South Asia | Europe and Central Asia | Middle East and North Africa | Sub-Saharan Africa | Latin America and Caribbean | North America

WORLD

The average life expectancy in the world in 2009 was 69 years.

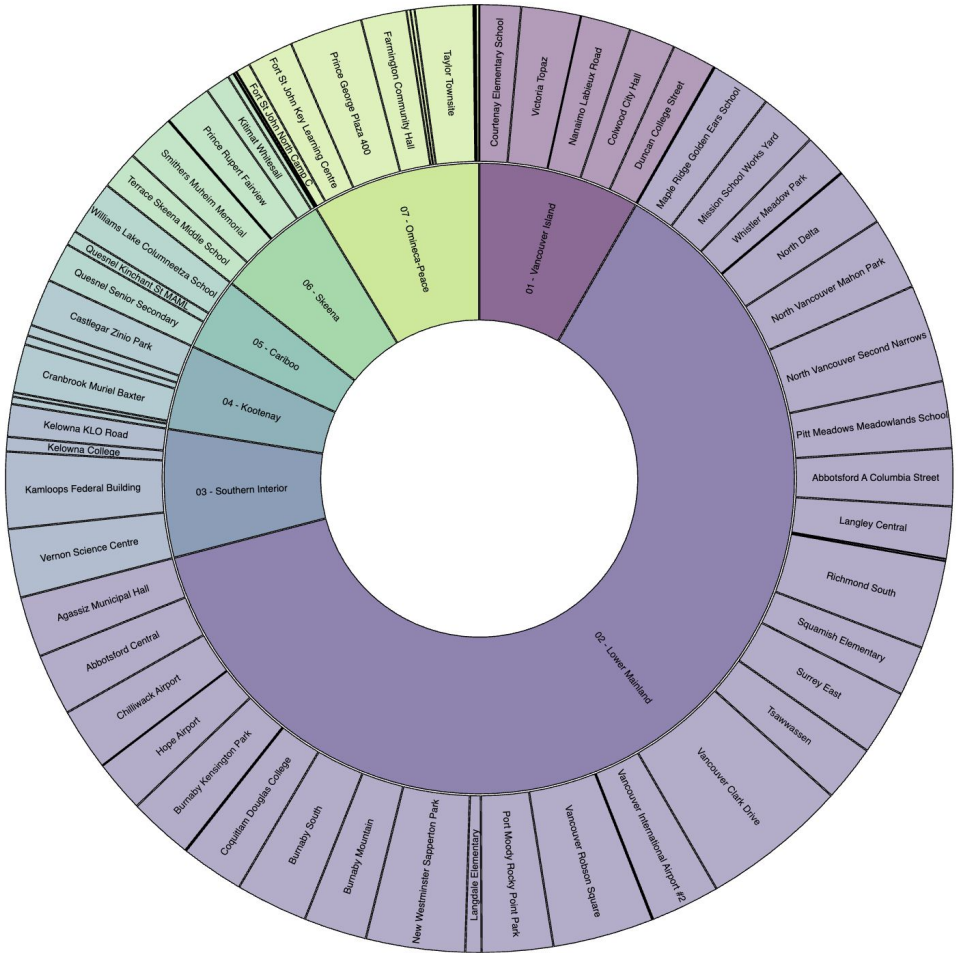


BC Air Quality

Use your mouse to hover over the inner ring for selecting the region and further on for selecting the air stati

https://bc-air-quality.netlify.app/view1.html

Size of each slice corresponds to the amount of gas emission.

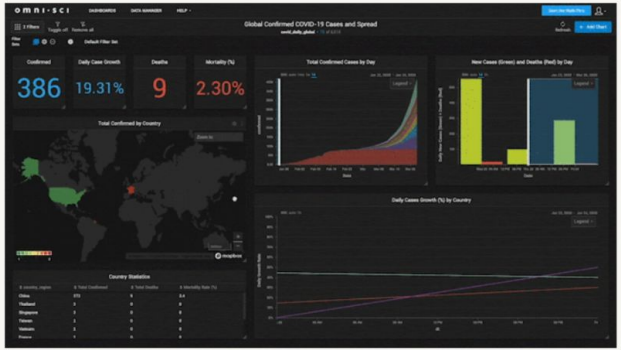


Resources

Interactive Data Visualization

Interactive Data Visualization Definition

Interactive data visualization refers to the use of software that enables direct actions to modify elements on a graphical plot.



HEAVY.AI's Interactive Data Visualization of Global Confirmed COVID-19 Cases and Spread.

Why Interactive Visualizations?

Interactions allow us to

- Control flow of data,
- Be active participants in analysis of data
- Adjust features of the tool to suit user's needs
  - Non-technical vs technical individuals
  - What does the user want to know?

When you’re designing an interactive visualization, who are you really designing for?

Who are you really designing for?

- Executives?
- Casual Readers?
- Data Scientist?
- Policymakers?
- Students?

Who are you really designing for?

- Executives?
- Casual Readers?
- Data Scientist?
- Policymakers?
- Students?

Which one of these individuals are technical? non-technical?

Human Computer Interaction

Introduction to HCI

- Human-Computer Interaction (HCI) is the study and practice of **how people interact with computers** and design technologies that let humans engage with digital systems effectively and intuitively.

Wrap up

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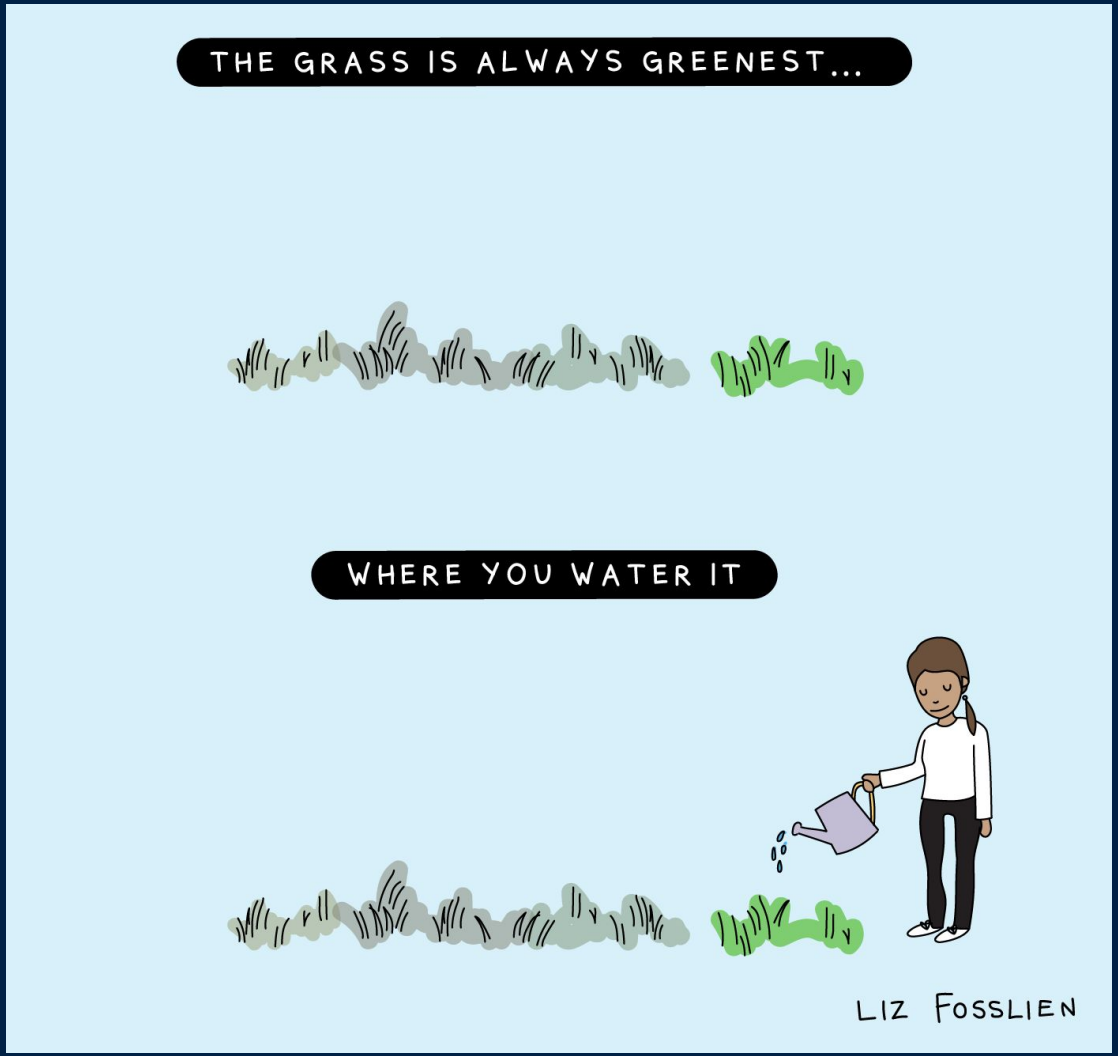
THE GRASS IS ALWAYS GREENEST...
WHERE YOU WATER IT
LIZ FOSSLIEN

What was your main takeaway from today's session?