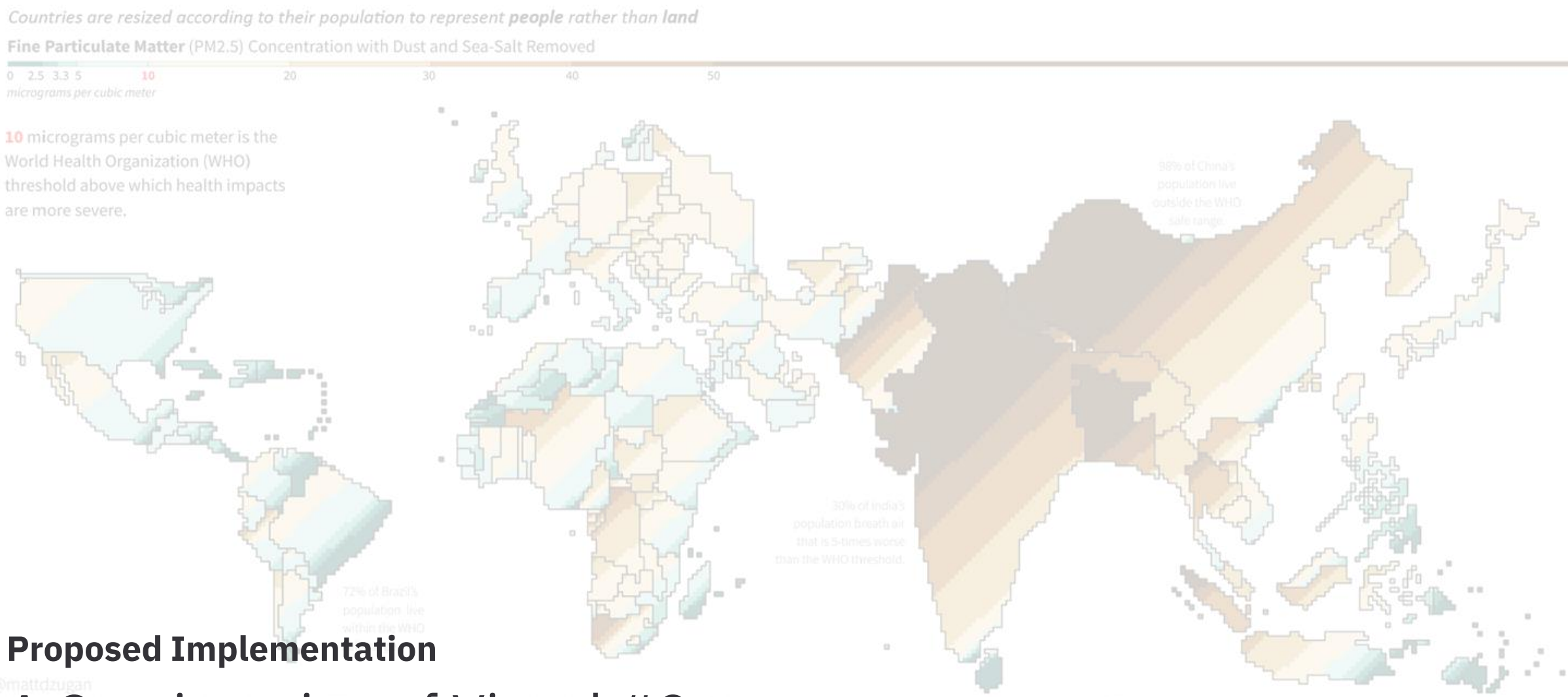
Milestone Two
Tutorial Group P2-04

People ignore design that ignores people

- Frank Chimero

Milestone Two
Tutorial Group P2-04



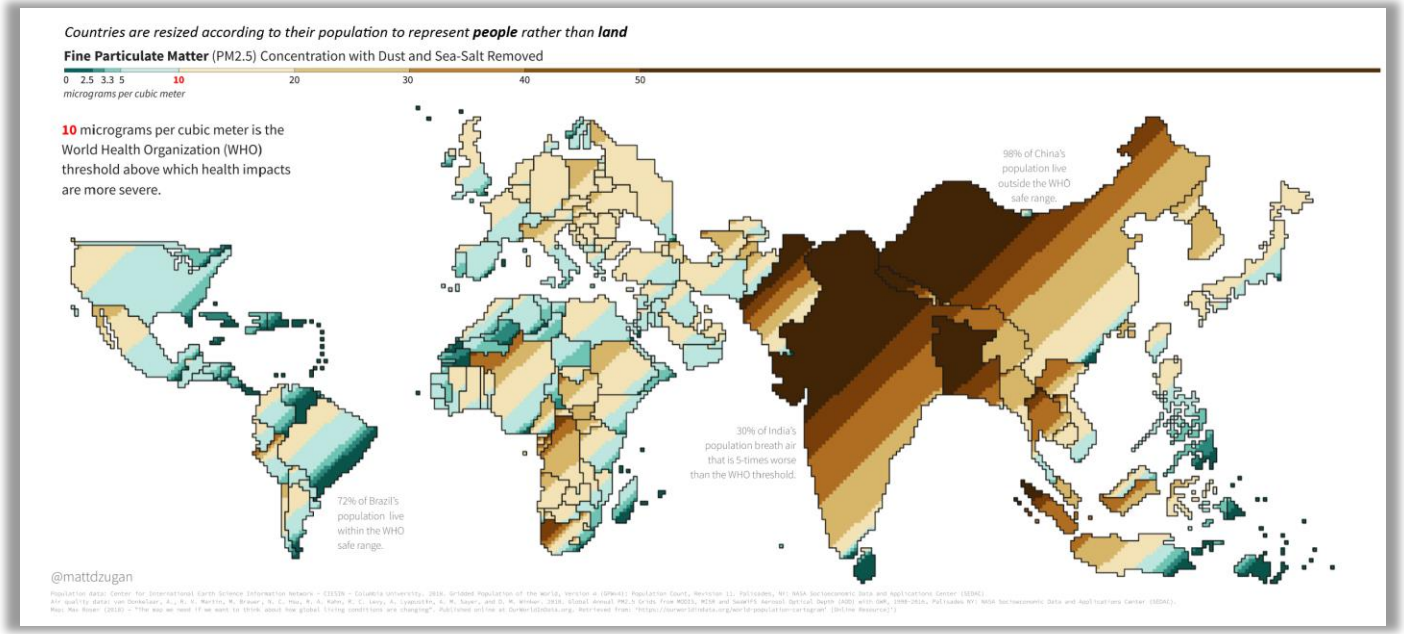
Proposed Implementation

A Continuation of Visual #2

Recap on Visual #2

- **Created by Matt Dzugan**
  - For explanatory analysis
  - Uses a Cartograph to visualise PM2.5 concentration by country

- **Data Types:**
  - Country Name (Nominal)
  - PM2.5 level (Ratio) – Not illustrated



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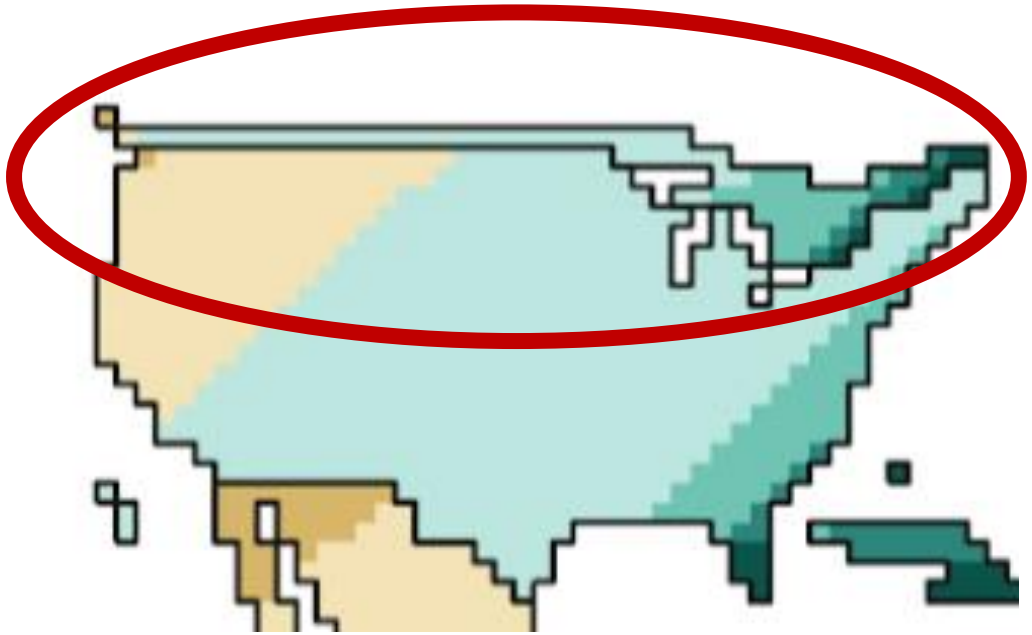
“Pixelated” Canada



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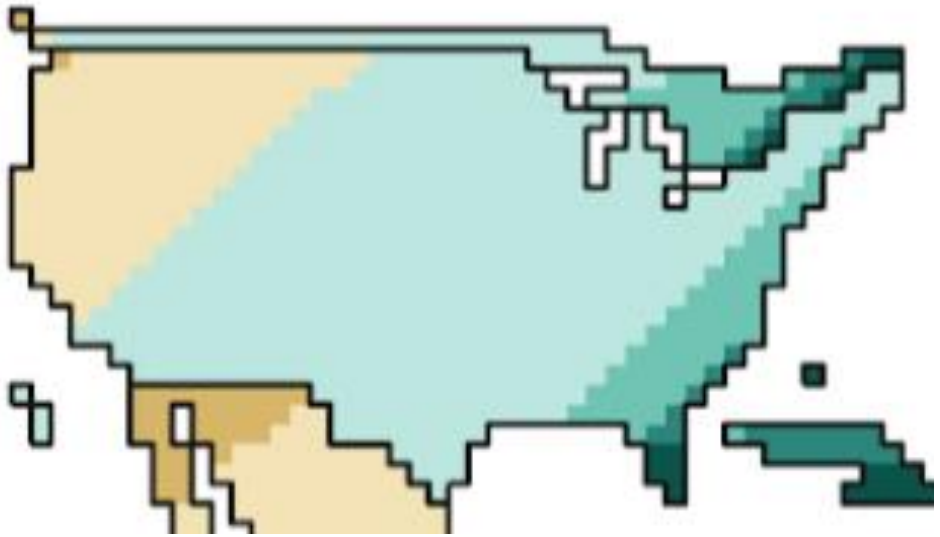
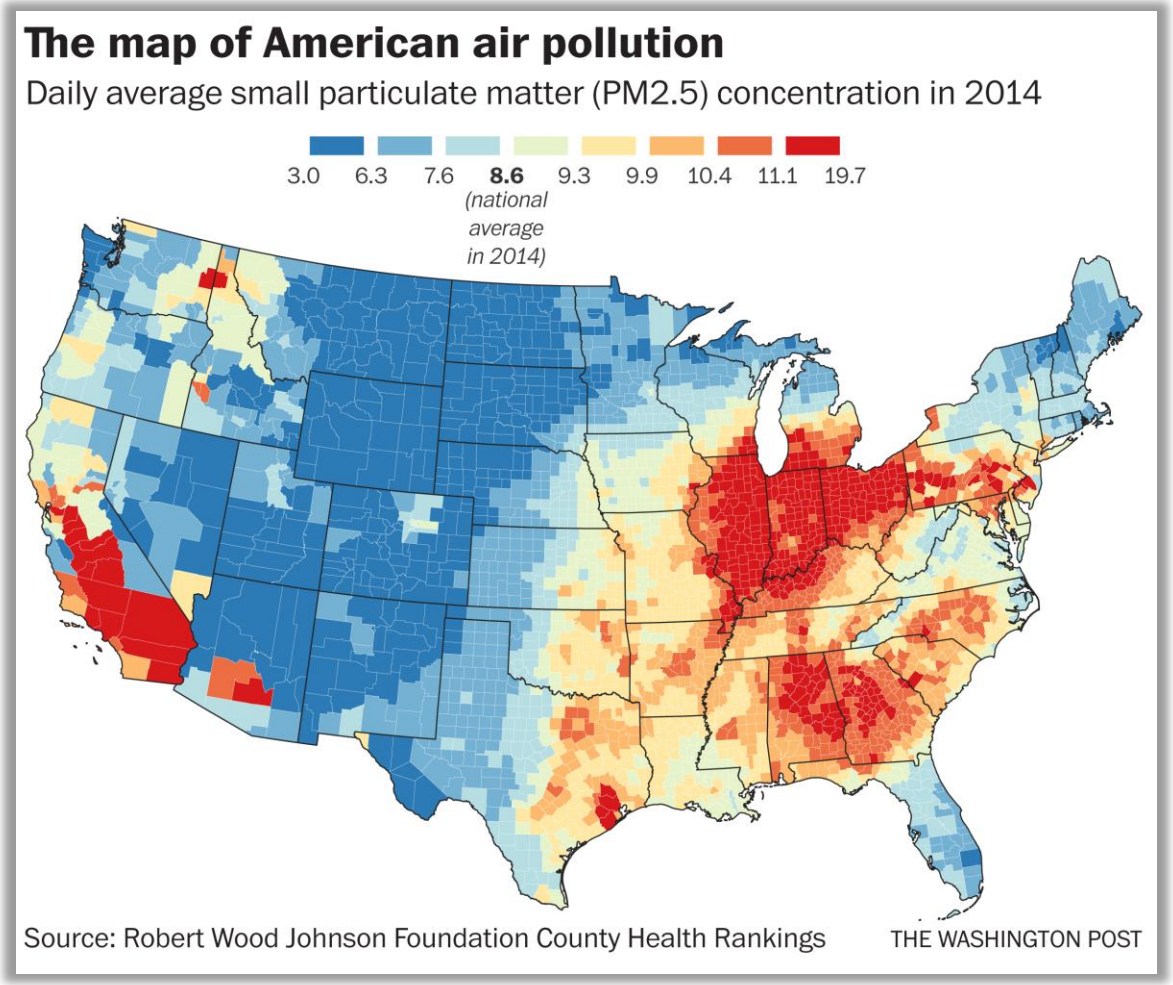
“Pixelated” USA



Actual air pollution in USA (2014)



Difference between the “Pixelated” USA and the actual air pollution situation in the USA

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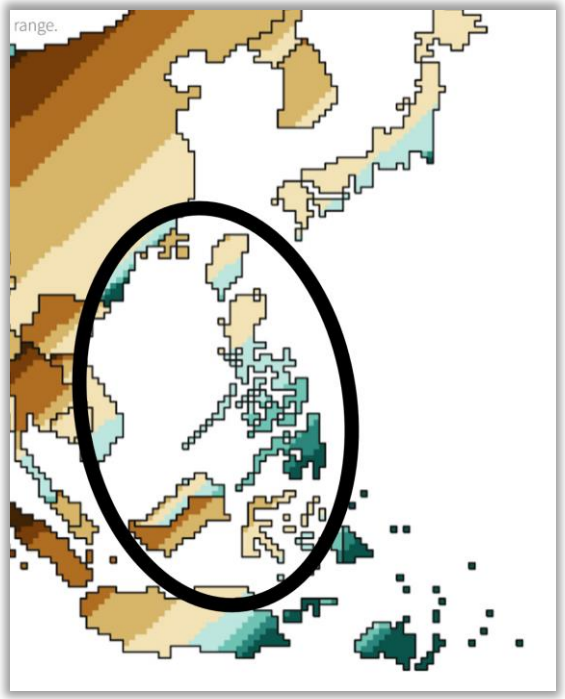
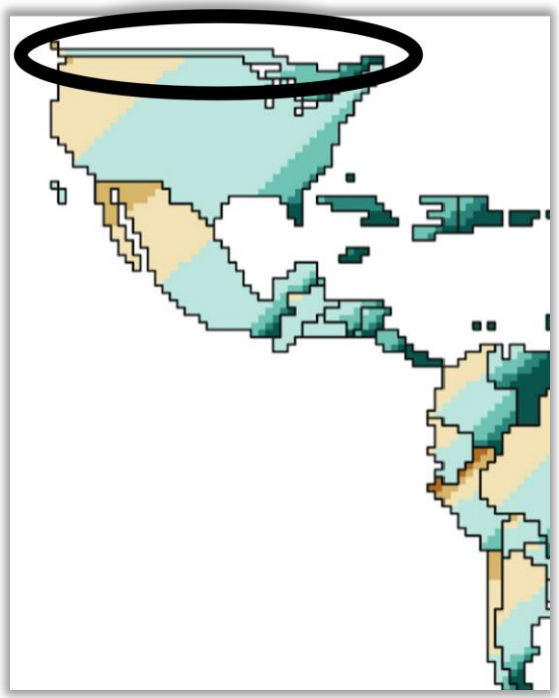


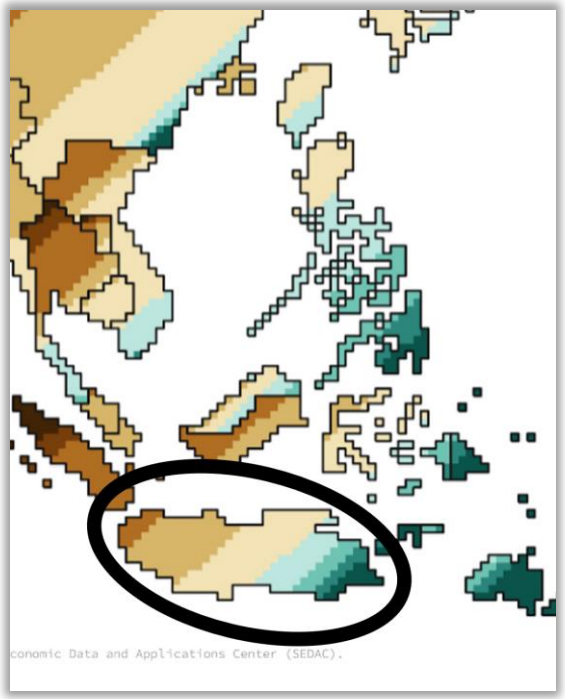
Law of Prägnanz

Different shapes and sizes were utilised to fit the countries on the density map



Jakob’s Law

Many countries were shrunk/enlarged and re-positioned to fit the diagram



Krug's 1st Law of Usability

Different colours across the scale are used. What do the colours mean?

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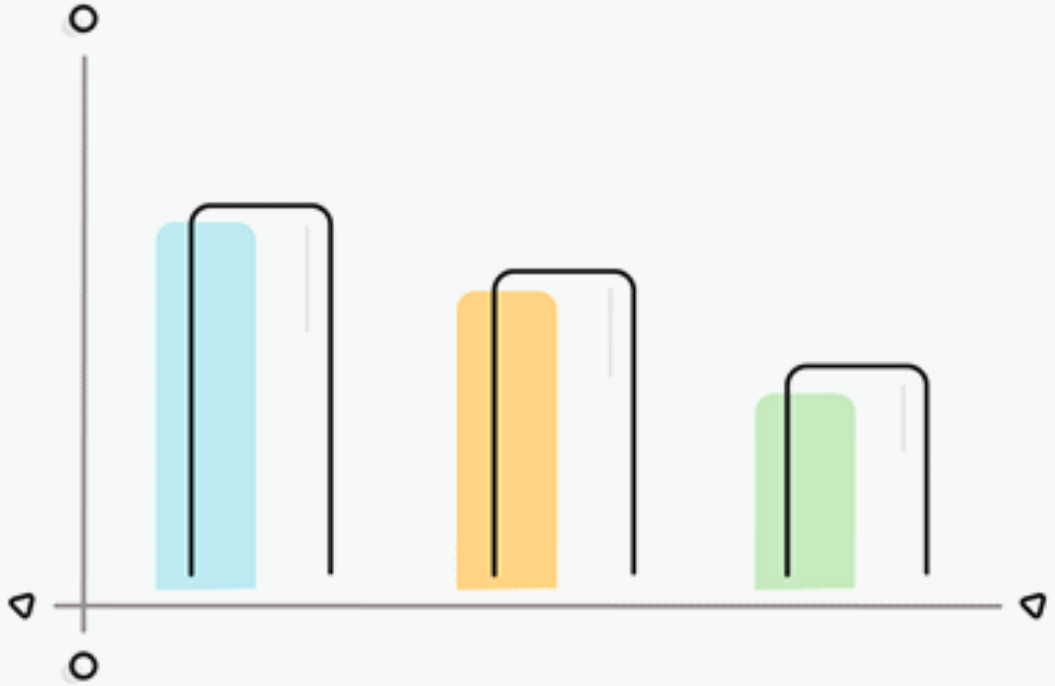


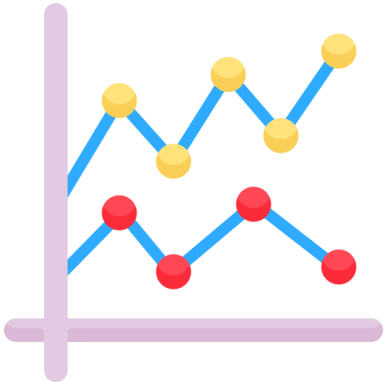
Research on Visualisation Charts

https://www.pinterest.com/pin/374784000232817518/

Possible Charts (Considered, but not used)

Pie Charts

Circular Charts



Line Charts

Stacked Bar Charts

Possible Charts (Considered, but not used)

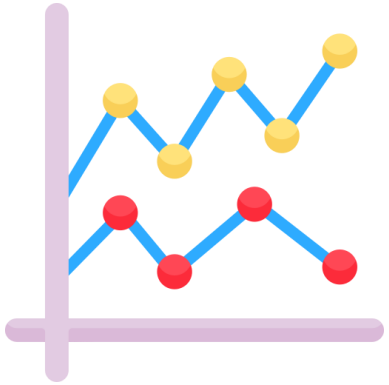
Pie Charts

- **Not all countries can be visualised**
- Too many data to visualise (176 countries)
- Hard to visualise countries with low PM 2.5 emissions

Circular Charts

- **Difficult to locate each country**
- Too many data to visualise (176 countries)
- Hard to visualise countries with low PM 2.5 emissions

Possible Charts (Considered, but not used)



Line Charts

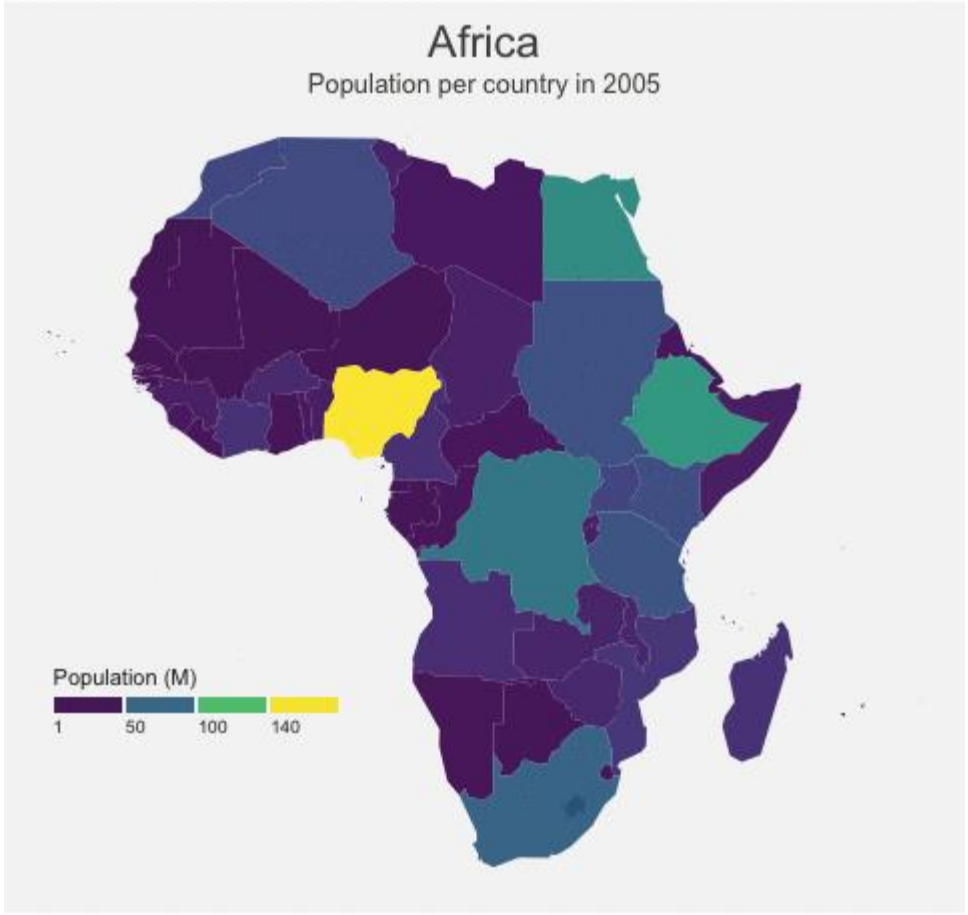
- **Not about visualising trends**
- Too many data to visualise (176 countries)
- Hard to visualise countries with low PM 2.5 emissions

Stacked Bar Charts

- **Not about showing comparison between categories**
- Too many data to visualise (176 countries)
- Hard to visualise countries with low PM 2.5 emissions

Why use Choropleth Maps?

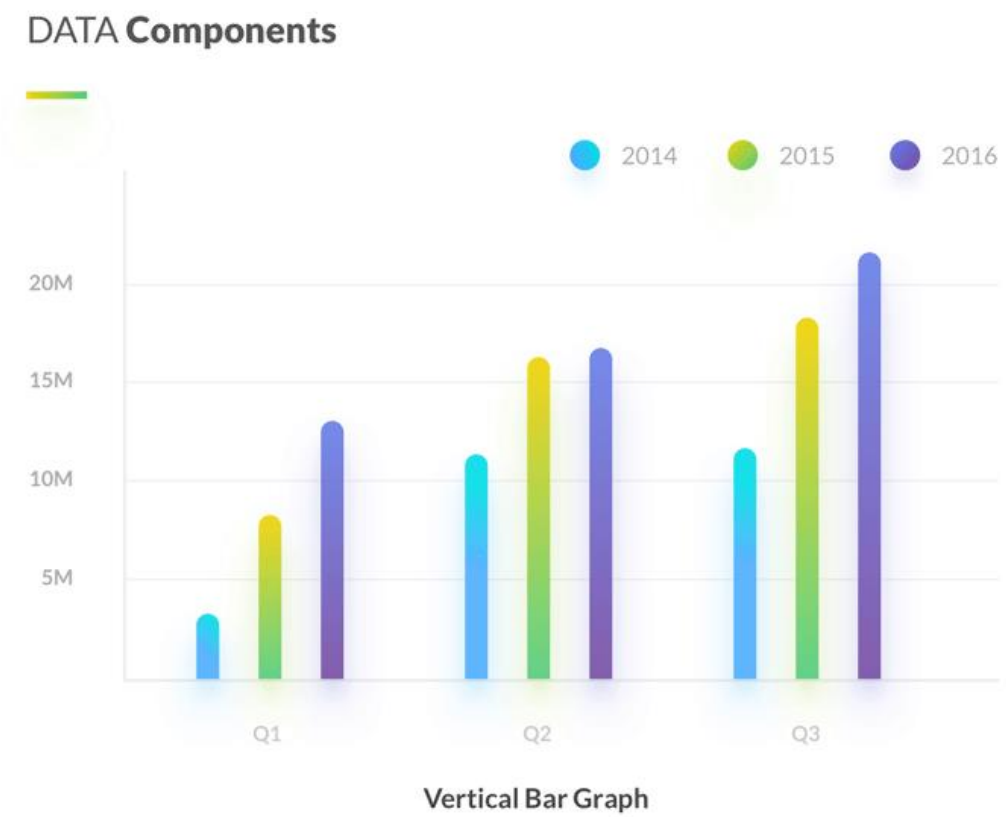
- Data Representing: **Country Name (Nominal)**
- Familiar geographical layout (Law of Familiarity)
- Countries with high PM 2.5 values can be identified easily (Von Restorff Effect)
- Provides a concise view of the regions



https://r-graph-gallery.com/a-smooth-transition-between-chloropleth-and-cartogram.html

Why use Bar Charts?

- Data Representing: **PM 2.5 Data (Ratio)**
- Summarize a large data set in visual form
- Can be used for ranking of countries by PM 2.5 values
- Clarify trends in data better than table



https://www.pinterest.com/pin/799177896356317798/

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Proposed Implementation

https://dribbble.com/shots/6129020-Cloud-Computing

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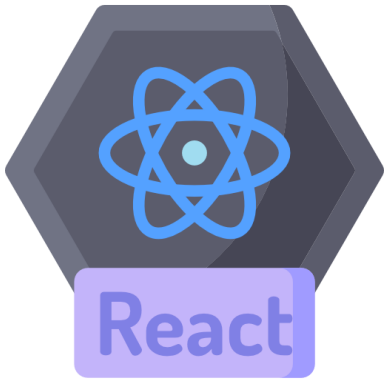
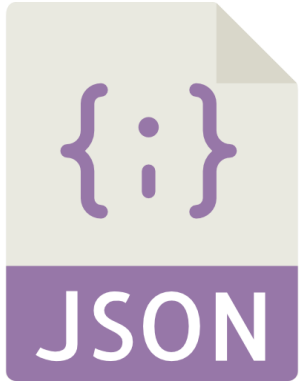
Technology Stack



Framework/Library



Data Source

UI Library

Chart Libraries Utilised

Choropleth Chart

Recharts

Bar Chart

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UI Demonstration

https://saritainfotech.com/sarita-nimble/

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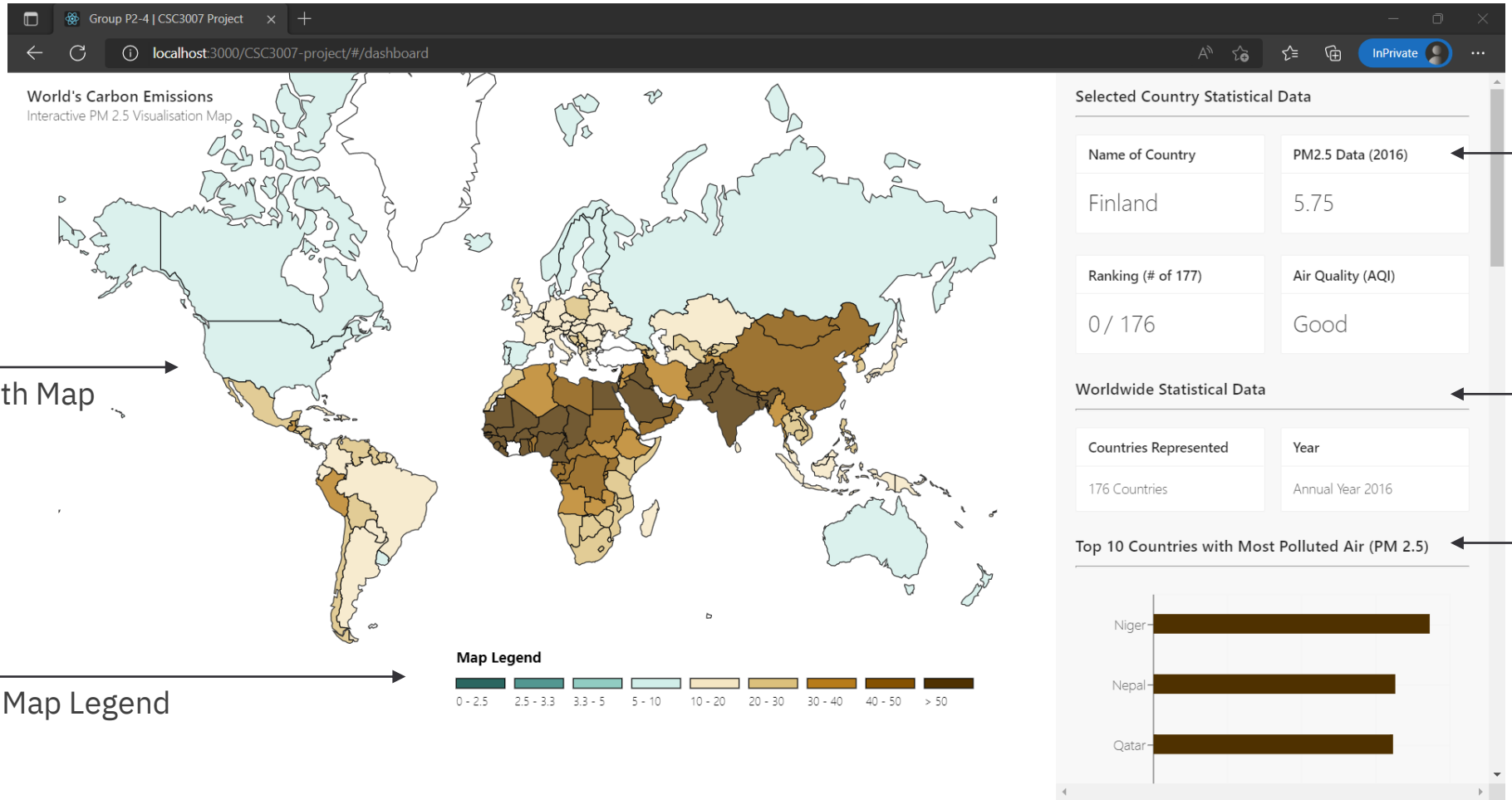

Choropleth Map

Map Legend

Country Statistics

Worldwide Statistics

Top 10 Countries

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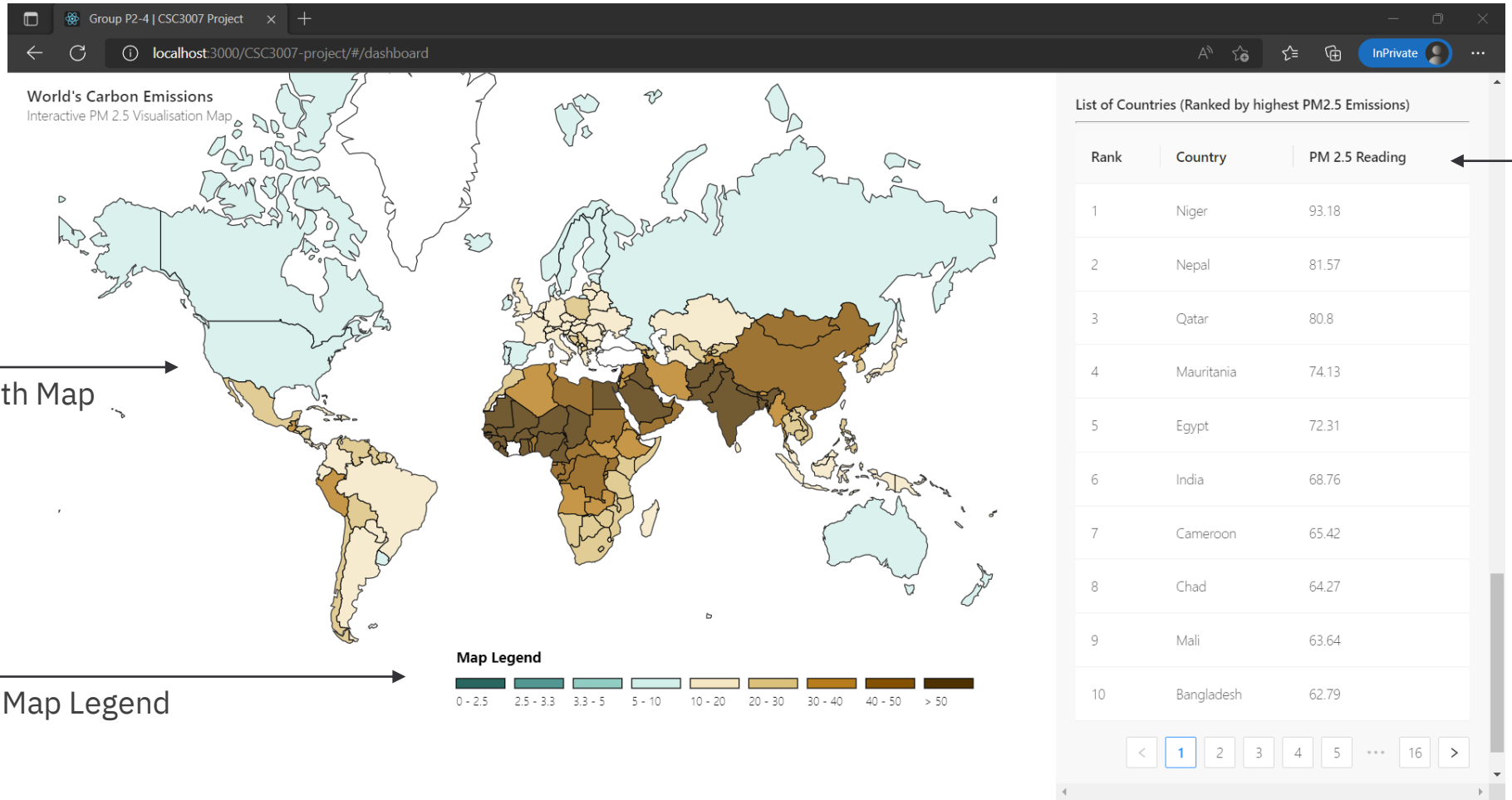

Choropleth Map

Map Legend

Table of all Countries

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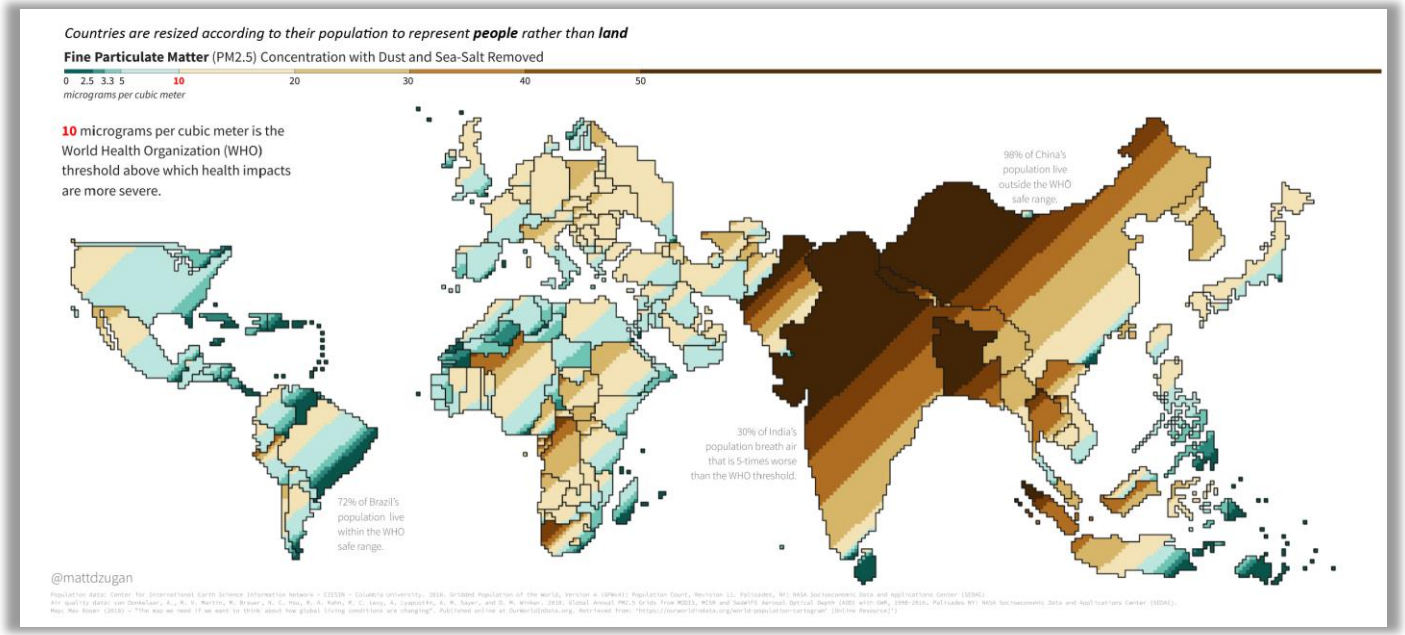
Limitations / Future Works / Retrospective

https://github.com/rudrabarad/Gifs

Limitations Discovered

- **Design/Data Mismatch**
  - Data does not tally with the actual data in Matt's Cartograph

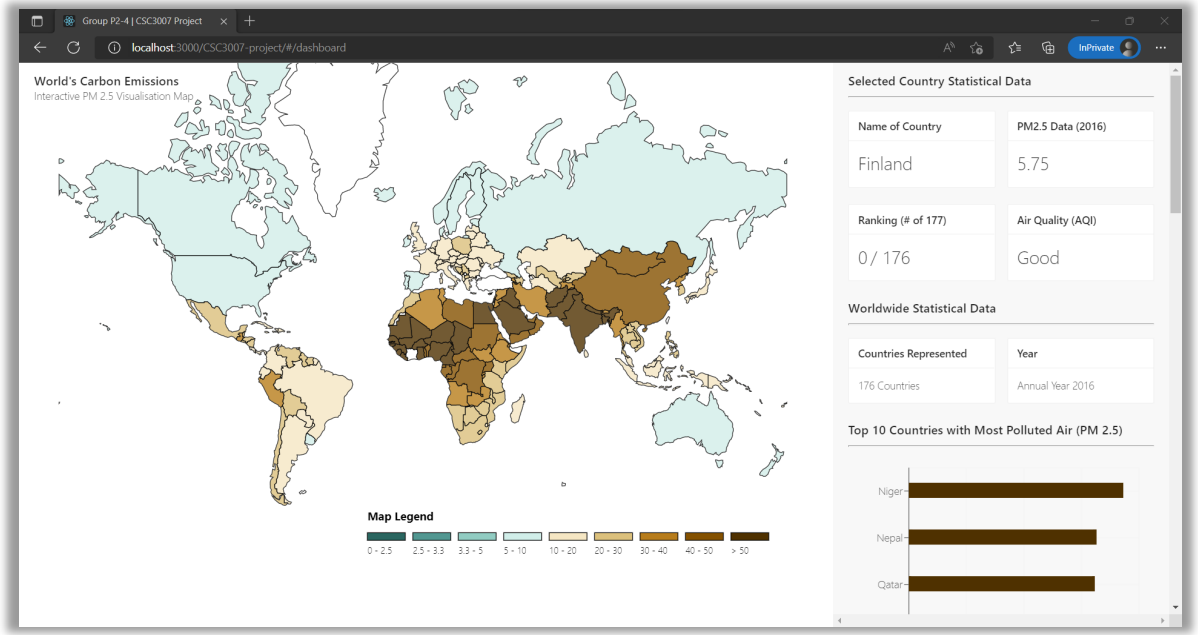
- **WHO Data is up to 2016?**
  - Despite "last updated" in 2021, the latest data is for 2016
  - Cartograph is not clear on the year(s) used



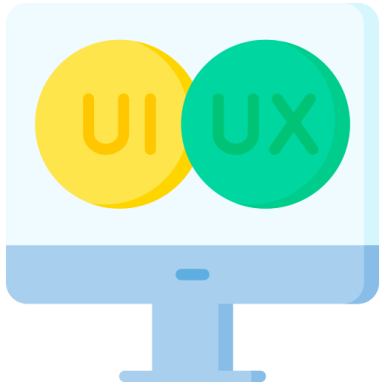
UI Development Issues

- **Outdated D3 Source Code**
  - Most source code found online and on the official D3 gallery website are deprecated

- **JSON/GeoJSON Name Mismatch**
  - Additional time is needed to resolve country name mismatches in the WHO JSON and GeoJSON file

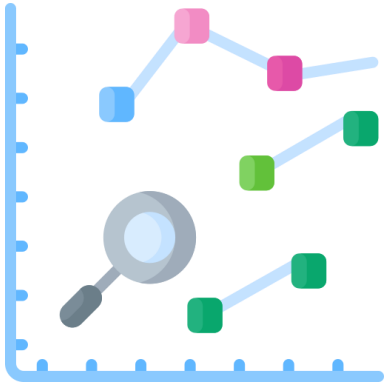


Future Works (If there is more time)



Explore Other Libraries

Toggle 2D vs 3D



Population Trends?

Distribution of Project Work

Zheng Yu

- ✓ Data filtering and restructuring for GeoJSON
- ✓ Research on graphs for data representation
- ✓ Development on Table UI component (all countries)
- ✓ Documentations on GitHub

Claudia

- ✓ Data filtering and restructuring for GeoJSON
- ✓ Research on graphs for data representation
- ✓ Development of Bar Chart component (Top 10 countries)
- ✓ Documentations on GitHub

Keith

- ✓ UI design scheme
- ✓ Development on Choropleth Map component
- ✓ Development on Card UI components (Country details)
- ✓ Documentations on GitHub
- ✓ Overall Project Integration and ReactJS state management

Team Retrospective

Need more time to explore more data visualisation libraries

Should have crafted User Stories to sieve out unnecessary functions

All team members are receptive of new findings and UI changes

Some source code are not compactible with ReactJS

Using of UI library helps standardise the UI layout

Feedback from Milestone #1 is very helpful

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Thank you!