

1. Ideas

① Choropleth Map

Total Wealth of Billionaires by Country



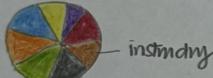
② Bar chart

Top 10 countries by Billionaire wealth

final worth → country

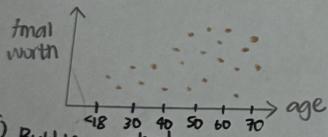
③ Pie chart

Distribution of Billionaires by country



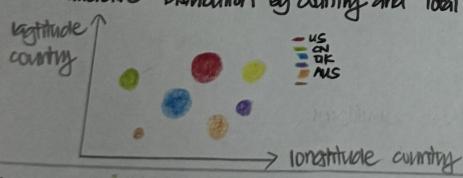
④ Scatter Plot

Relationship between Age and wealth of Billionaires



⑤ Bubble chart

Billionaire distribution by country and Total wealth



4. Combine and Refine

Design sheet 2

Geographical & Hierarchical

Focus on location-based data, helping to visualise how wealth and billionaires are distributed across different countries.

- Choropleth Map

- Wealth by Country

- Sunburst chart

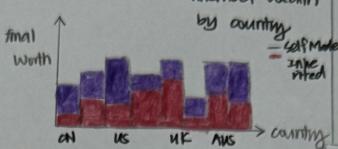
- Wealth by country & Industry

- Bubble chart

- Billionaire by country and wealth

⑥ Stacked Bar chart

self made vs inherited wealth by country



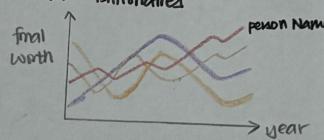
⑦ HeatMap

Age Group distribution of Billionaire by country



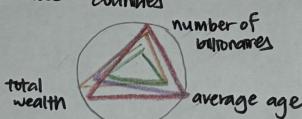
⑧ Line chart

Wealth Growth over Time for Billionaires



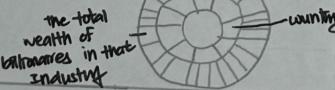
⑨ Radar chart

Comparison of Billionaire Attributes Across Countries



⑩ Sunburst chart

Wealth distribution by country and industry in Billionaire's Network



d. Filter

① Pie chart

Distribution of Billionaires by country



(2) Heatmap
Age group distribution of Billionaire by country

too many categories

difficult to compare small slices

not provide significant insights

3. Categorise

Geographical

- Choropleth Map

- Wealth by country

- Sunburst chart

- Wealth by country & Industry

- Bubble chart

- Billionaire by country and wealth

These visualizations are focused on geographical data and spatial distribution.

Comparative

Bar chart

Top 10 countries by total wealth

stacked bar chart

self made vs inherited wealth

Radar chart

Billionaire Attributes

These chart allow comparison between categories

Relationship and Trend

Scatter plot

Age vs wealth

Line chart

Wealth Growth over Time

These chart focus on showing relationship between variables or trend over time.

Design sheet 3

Comparative

To compare values across different categories, great for highlighting differences between groups and identifying trends or patterns.

Bar chart

Top 10 countries by total wealth

Stacked bar chart

self made vs Inherited wealth

Radar chart

Billionaire Attributes

Design sheet 4

Relationship and Trend

For Identifying

changes over time.

Scatter Plot

Age vs wealth

Line chart

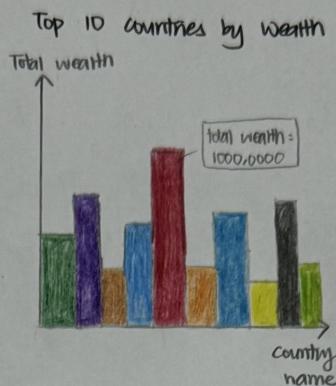
Wealth Growth over Time

5. Question

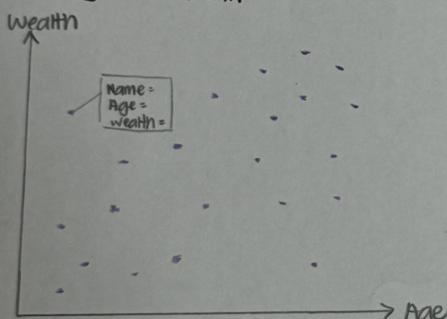
Yes, the solution satisfies the "why" because it provides a clear and comprehensive visualizations of the global distribution of billionaire wealth, allowing users to explore how wealth is concentrated across countries, industries, and demographies.

Layout

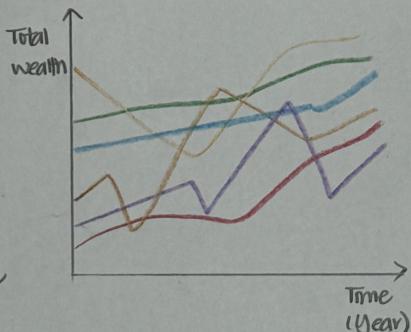
Global wealth distribution by country



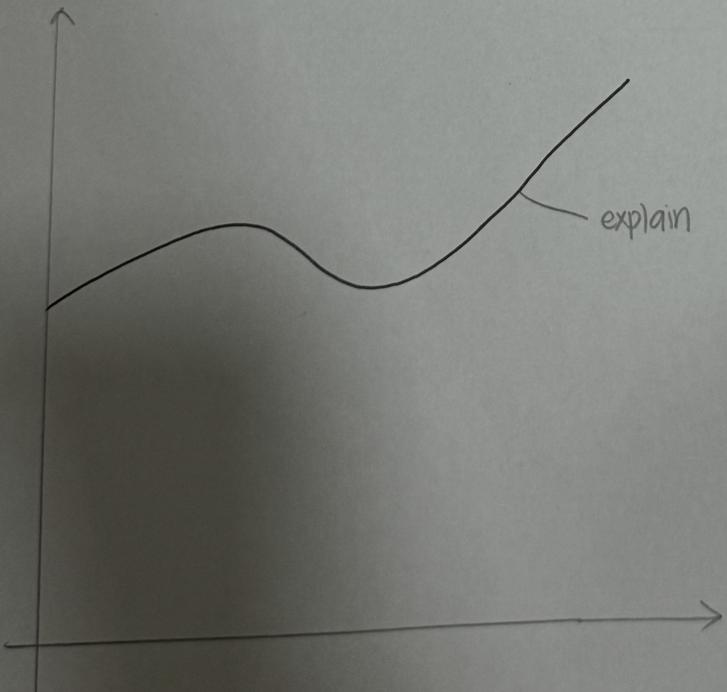
Age against wealth



Wealth Growth over Time



Focus



Title: Billionaire wealth visualizations = Layout and interaction design

Author: Tayi Liang

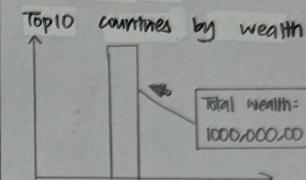
Date: 24 september 2014

sheet: 2

Task: layout, interactions, design review

Operations

① Bar chart



Tooltip: users can hover over data points to view a billionaire's total wealth.

② Scatter Plot



Tooltip: Users can hover over data points to view a billionaire's name, age and total wealth.

Discussion

Advantages

1. Clear comparison

The comparison of maps, scatter plots, and line chart allows for both geographical and comparative insights into wealth distribution.

2. Interactive Features

Hovering and zooming enable users to explore the data in depth, revealing detailed information about wealth, industries, and demographic factors.

Disadvantages

1. Complexity

The inclusion of multiple graphs could overwhelm users, especially those unfamiliar with more complex visualizations.

2. Space constraints

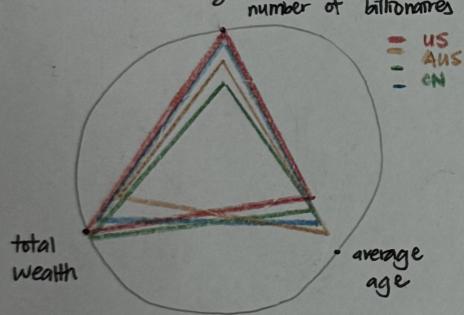
Displaying too many visualizations on a single screen.

Layout

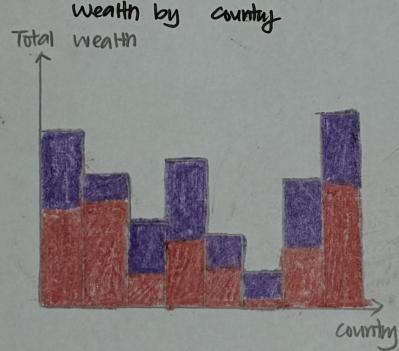
Global wealth distribution by Country



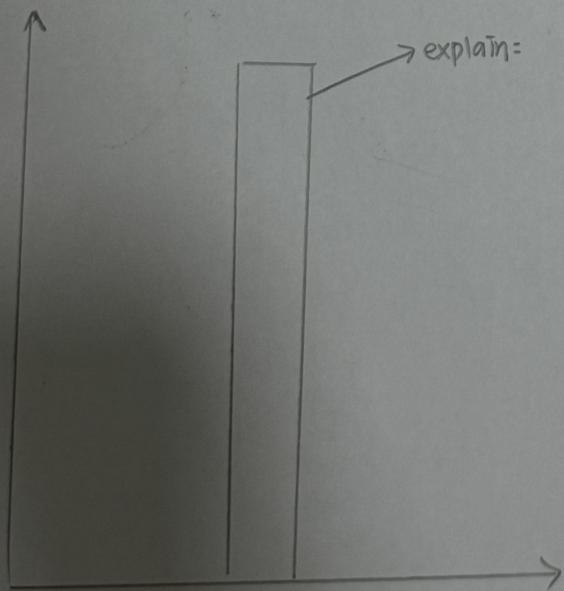
Comparison of Billionaire Attributes by country



Self Made against Inherited Wealth by country



Focus



Title: Wealth Distribution and comparison of Billionaire Attributes

Author: Tay Qing

Date: 25 September 2024

Sheet: 3

Task: sheet 3

Operations

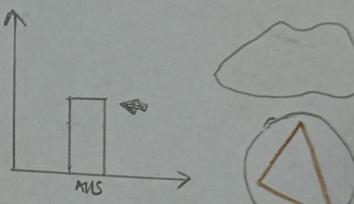
① Choropleth Map



Zooming: user can zoom into specific regions of the map for a more detailed view of smaller countries.

Tooltip: when users hover a country, a tooltip appears showing details about the total wealth, the wealth per capita.

② Stacked Bar chart



Click to filter: clicking on a country's bar highlights that country across other visualizations, such as updating the choropleth Map and Radar chart to focus on that country.

Discussion

Advantages

1. Comprehensive Data Exploration

The combination of the choropleth Map, Radar chart, and stacked Bar chart allows for a multi-dimensional view of the data. Users can explore wealth distribution geographically, compare multi attributes, and see the breakdown of wealth composition.

Disadvantages

1. Complexity for users

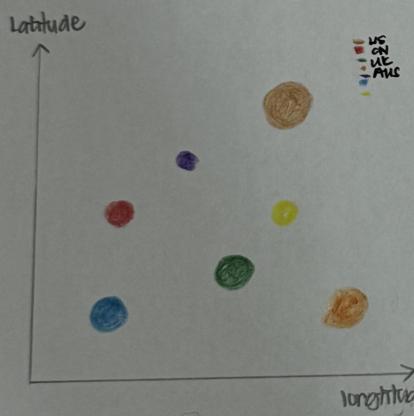
The radar chart and the combination of multiple visualizations might be overwhelming for users unfamiliar with advanced data visualization techniques. The radar chart, in particular may require additional guidance or explanation for effective interpretation.

Layout

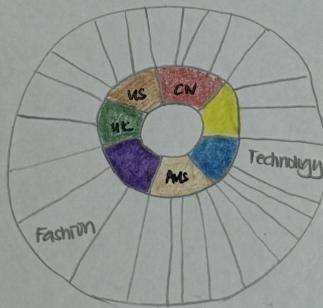
Global Wealth Distribution by country



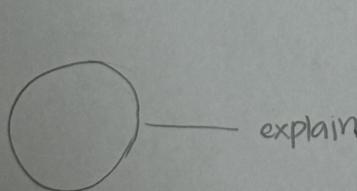
Billionaire Distribution by country



Wealth distribution by country and Industry



Focus



Title: Global and Industry-level Billionaire wealth distribution

Author: Tay Sung

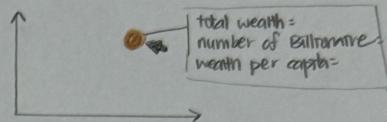
Date: 25 September 2024

sheet: 4

Task: sheet 4

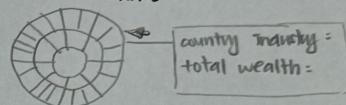
Operations

① Bubble chart



Hover interaction: Hovering over a bubble brings up a tooltip displaying the total wealth, the number of billionaires, and wealth per capita for that country.

② Sunburst chart:



Hover interaction: Hovering any segment in the sunburst chart displays a tooltip showing the country, industry and total wealth for that industry within the country.

Click to drill down: Clicking on a country isolates it, highlighting that country's distribution for wealth across industries and dimming other countries.

Discussion

Advantages

1. Clear visual hierarchy

The layout ensures a clear flow of information. The choropleth Map provides a global overview, while the bubble chart focuses on the wealth of individual countries, and the sunburst chart offers insights into how wealth is distributed across industries. This hierarchy makes the dashboard intuitive for users to navigate and explore.

Disadvantages

1. Potential for visual clutter

If there are too many countries and industries displayed, the bubble chart and sunburst chart may become cluttered, making it difficult to interpret individual data points.

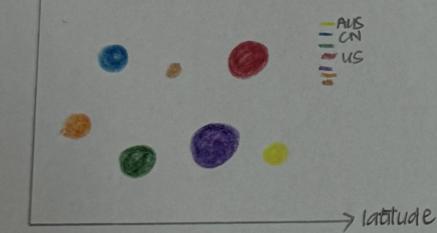
Layout

Total Wealth of Billionaire by country

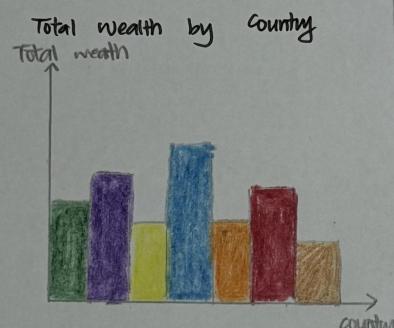


- b) Normalise: This visualisation uses normalise technique, to ensure a more meaningful comparison between countries. The total wealth for each country is divided by its population to create a 'wealth per capita' value.

Wealth distribution and longitude number of billionaires



- b) The size of the bubbles represents the total wealth of each country, while the colour represents the number of billionaires.



- b) Each bar represents the total wealth of a country.

Title: Billionaire Wealth Distribution and Visual Technique

Author: Tay Qing

Date: 25 September 2024

sheet: 5

task: detailed description of Algorithms
Dependencies, development time,

Hardware requirements

Operations

Dependencies

- software libraries:

① Vega-lite

Primary libraries to generate the visualizations.

② Python

Python's pandas library may be used for pre-aggregating or normalizing data before feeding it into the visualizations pipeline.

Detail

Specific requirements

Materials:

- Data: a well structured dataset with fields like country, final wealth ... is required.

Hardware:

- Desktop: for development, a desktop or laptop is needed to run data preprocessing and design visualizations with vega-lite.

Focus

Choropleth Map

- development time: 1-3 hours
- effort: medium

Bubble chart

- development time: 1-3 hours
- effort: low - medium

Bar chart

- development time: 1-3 hours
- effort: low