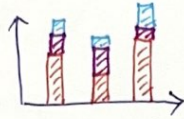Title: Healthcare Engagement Across Malaysia
Author: Joshua Ethan Yip Qing You
Date: 11/09/2024
Sheet: Sheet 1, Brainstorm
Task: Brainstorming

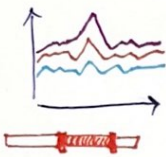① Choropleth Map

1. Ideas

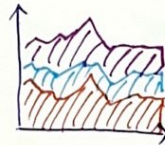② Proportional Symbol Map

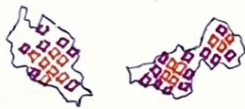③ Stacked Bar Chart

④ Correlation Line Chart

⑤ Heatmap

⑥ Stacked Area Chart

⑦ Bin Map

⑧ Interactive Time Slider

⑨ Tooltips

⑩ Filter By State
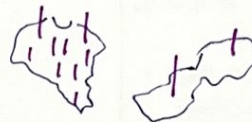

⑪ Pie Chart

2. Filter

① Choropleth Map

② Proportional Symbol Map

⑦ Bin Map

} Filter and choose 1 map

⑧ Interactive Time Slider
⑨ Tooltips
⑩ Filter By State
} Combined as interaction for graphs

③ Stacked Bar Chart
⑥ Stacked Area Chart
} for grouped categories

3. Categorise

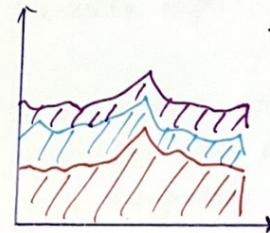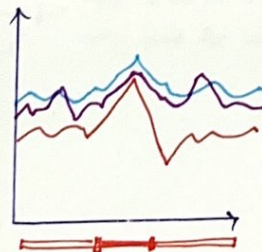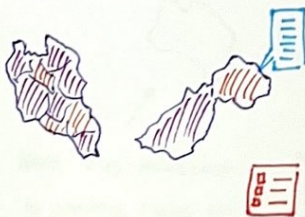① Geographical Visualisation — Choropleth Map / Proportional Symbol Map / Bin Map
② Time-based — Correlation Line Chart / Heatmap / Annotated Chart
③ Group-based — Stacked Bar Chart / Stacked Area Chart

4. Combine & Refine

- blood type categories over time

- uses normalised data
- time slider
- allow users to switch between different healthcare services.

- Correlation chart to show how different categories change over time
- time slider

5. Question

1. Does this provide insights into healthcare engagement across Malaysia?

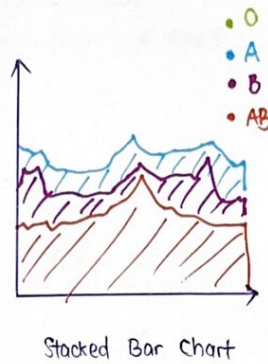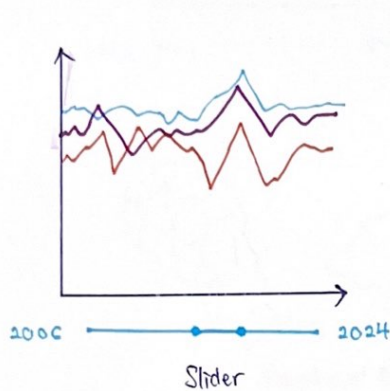2. Does this show trends/correlations between different categories?

Layout

Normalised Healthcare Engagement

Choropleth Map

Filter

2000 ———●——●——— 2024

Slider

Stacked Bar Chart

- O
- A
- B
- AB

Operations

- State-based colour coding for healthcare metrics, updated via toggle options.

- time slider allows display of healthcare engagement over different time periods.

- hovering over different states displays information for detailed stats.

Focus

- Geographical Layered Exploration

Map serves as an entry point for users.

Uses Uses interaction by selecting states on the choropleth map, triggering detailed insights.
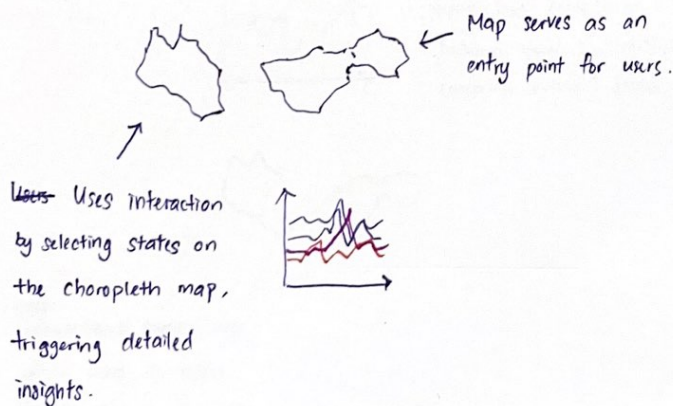
Discussion

+ map-first exploration

+ layered details

+ time-sensitive insights

- too map-dependent. users might overlook other metrics without clicking through states.

Layout
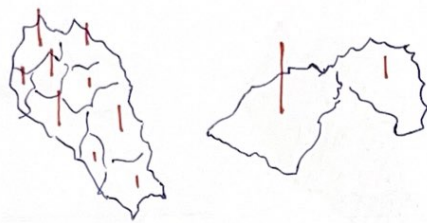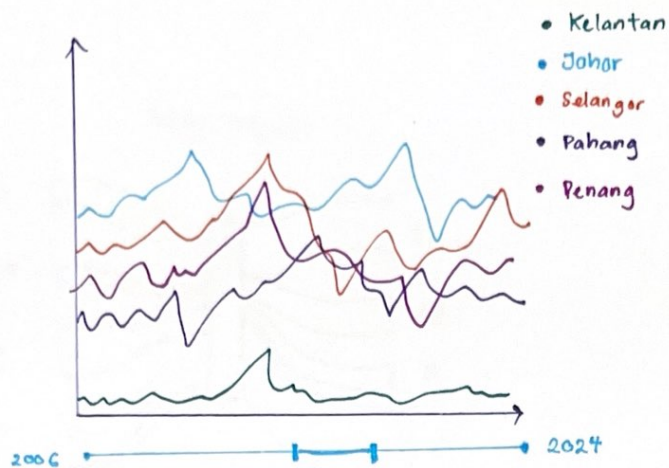
- Kelantan
- Johor
- Selangor
- Pahang
- Penang

2006 — 2024

Proportional Symbol Map
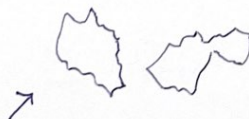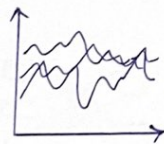
Operations

- show national and state-based time series trends for healthcare services.

- hovering over chart points displays exact data values at each point of time.

- adjusting the time slider changes the data displayed across the visualisations.

Focus

Time - Centric
Correlation Analysis

focus is time-first with the primary focus on understanding trends and correlations between healthcare services, comparing different states.
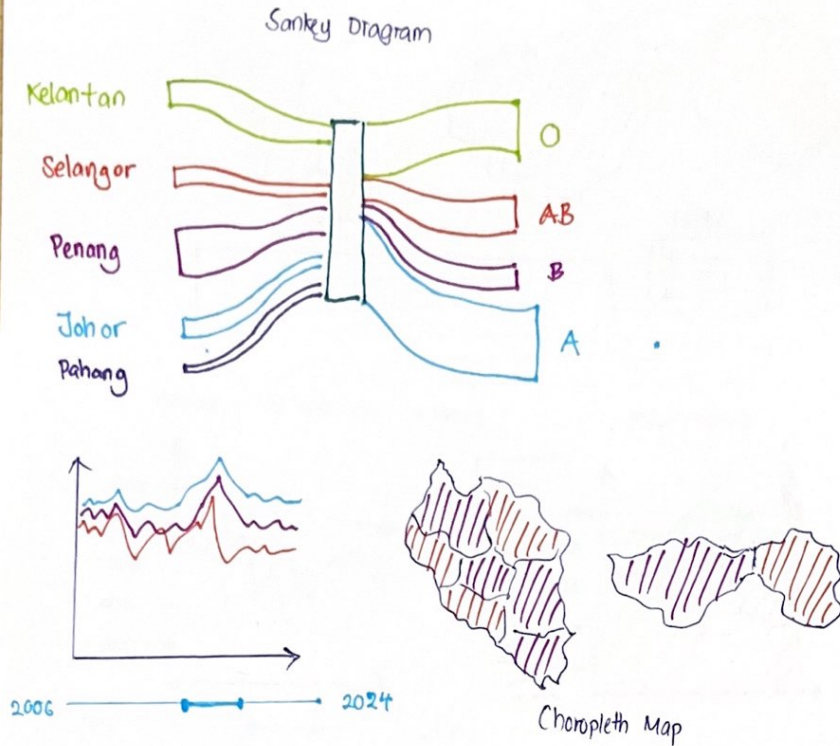
proportional symbol map allows users to select specific states, but the primary interaction revolves around time and correlations.

Discussion

+ time-first approach: users focus on trends and correlations.

+ immediate comparison between healthcare engagement with different states

− map isn't the central point of interaction, reducing its impact.

Layout

Sankey Diagram

Kelantan
Selangor
Penang
Johor
Pahang

O
AB
B
A


2006 ————————— 2024

Choropleth Map

Operations

- hovering over the Sankey diagram flow lines displays detailed information about the volume of donations from a specific state to a blood type.

- selecting a state on the map updates the Sankey diagram to reflect the selected region.

Focus

Healthcare Distribution and Flow

main interaction is through the Sankey diagram, providing a view on how blood donations move from different states to various blood types
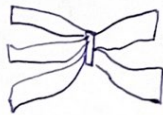
understanding how healthcare contributions are distributed across Malaysia.
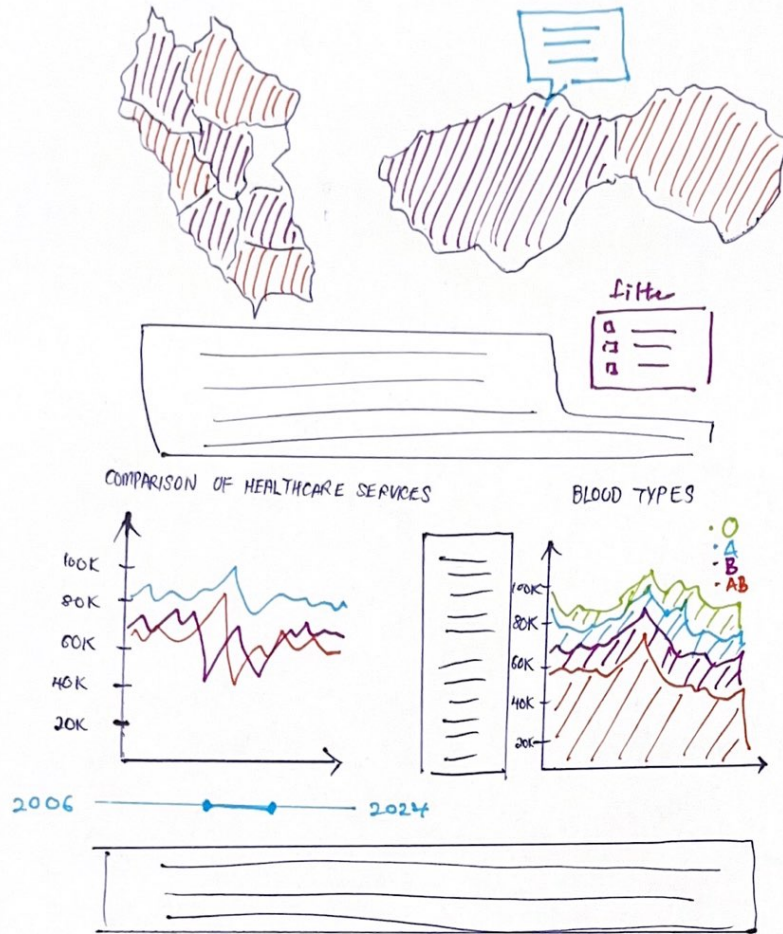

Supplementary visuals to give more context to the flow of donations over time.

Discussion

+ Sankey diagram is visually compelling, allowing users to immediate grasp distribution patterns

+ flow-based analysis

- sankey diagram may be too complex for some users

- map isn't the central point of interaction, reducing its impact.

HEALTHCARE ENGAGEMENT IN MALAYSIA

filte

COMPARISON OF HEALTHCARE SERVICES

100K
80K
60K
40K
20K

2006 ————————— 2024

BLOOD TYPES

O
A
B
AB

100K
80K
60K
40K
20K

- hovering over a state displays a tooltip, showing detailed numbers for that state

- clicking on a state filters the line graphs below.

- users can filter between 3 healthcare engagements : blood donation, organ donation pledges, PeKaB40 health screenings.

- adjusting the time sliders updates the line charts for the selected time period.

LAYOUT	OPERATIONS
FOCUS	DETAIL

user starts with map to identify geographical differences in healthcare participation across Malaysia

filter between services allows quick comparison

text boxes provide a narrative and a story.

additional insights through line charts and stacked area charts provide temporal analysis.

- Implemented using Vega-Lite

- utilise the Pure.css library.

- data will be sourced from Malaysia's open data portal (dataset in CSV format)

- takes about 1-2 weeks to build the Vega-Lite dashboard.

- uploaded via GitHub links.

- data is to be normalised before displaying to the map.

- GeoJSON / TopoJSON format for rendering the map of Malaysia.