IDEAS
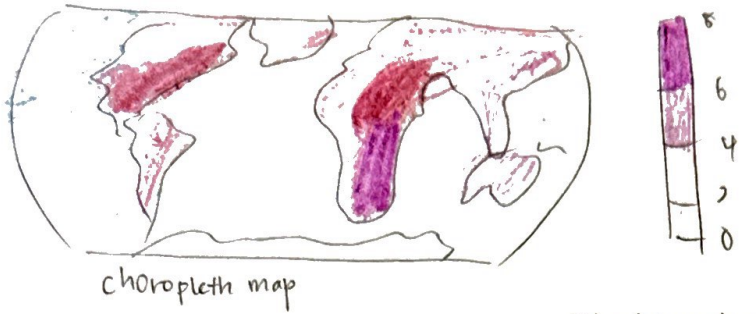
Author: Phoebe Ting

Date: 8/10/2024
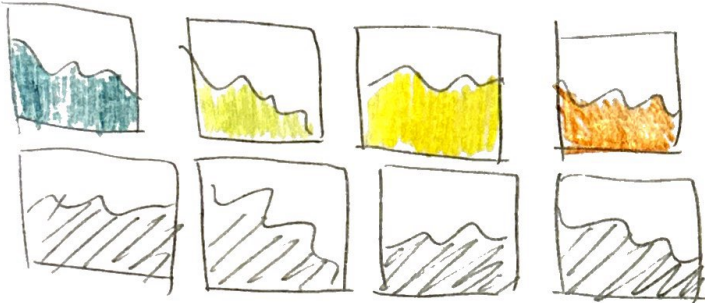
Sheet: 1

Task: Planning Visualisation
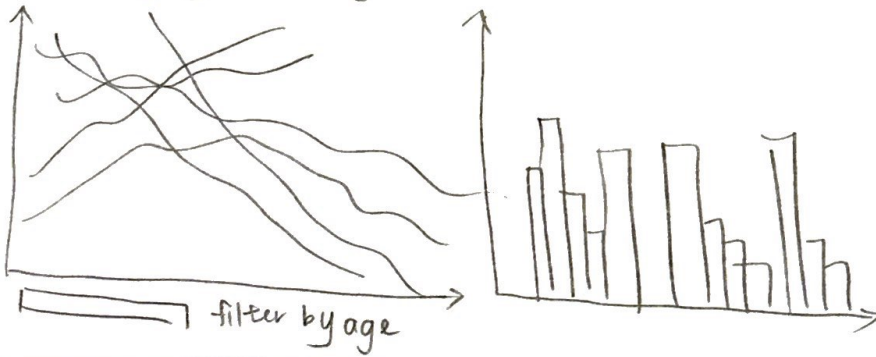
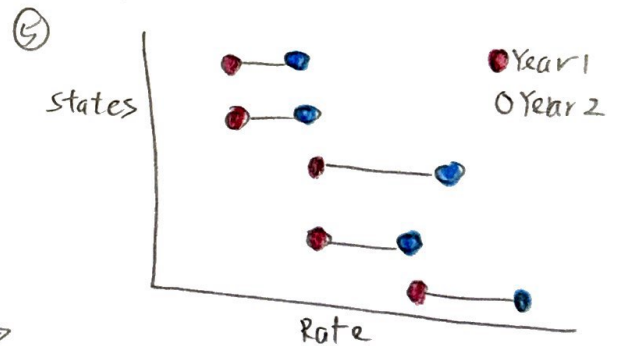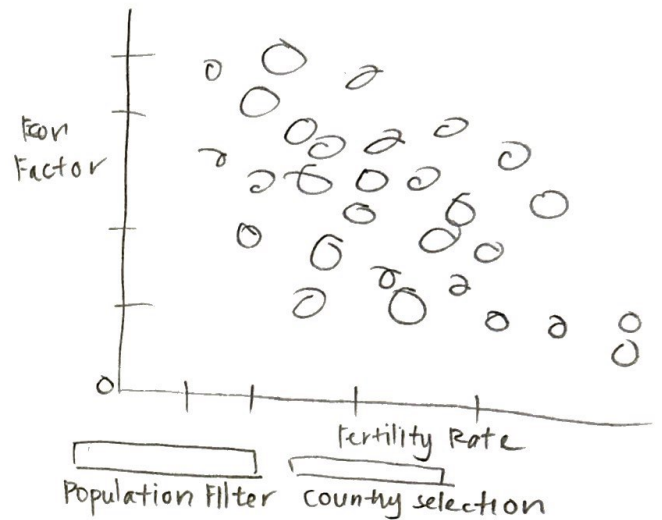① Global Fertily Rate Trend 2023

choropleth map

1960 ———— 2003   Select country

② Fertility Rate For several Countries

④ vary by Age in Malaysia

filter by age

③ Relationship of Fertility Rate with any economic factors

Econ Factor

Fertility Rate

Population Filter   country selection

⑤

States

● Year 1
○ Year 2

Rate

Filter

①   year

④
Factor
Rate

②   Year

③
Rate
Year
Age

⑤
States
Rate
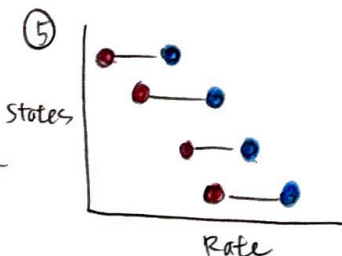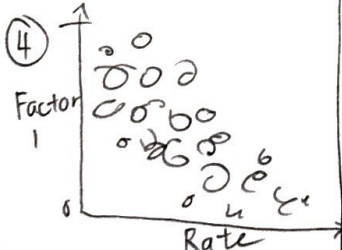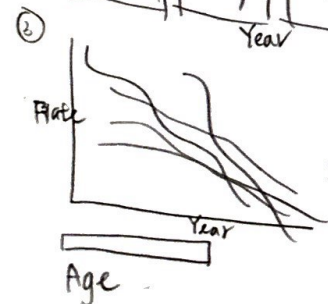
Categorise

[showing Trends Around World Across countries]

↓

[Showing Relationship Between Fertility Rate & Economic Factor]

↓

[Interesting Facts]

↓

[Datasets and show Trends of Fertility Rate in Malaysia]

Combine and Refine

① and ② are related but 2 is static and clearer to show the trend of rate across years. But ① is better to visualize certain years combining both is the solution.
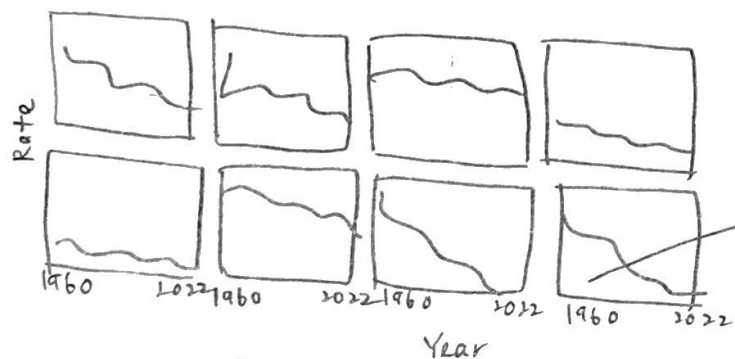
Questions

- Does my visualisation present a clear and interesting story
- Does it have a appropriate level of interactive exploration
- Is there any chart too complicated to understand?

LAYOUT
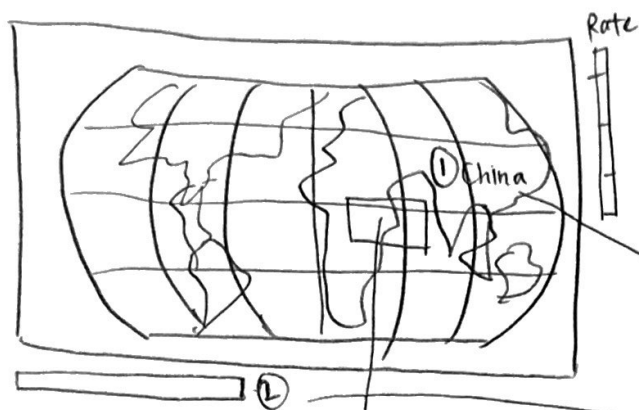
Author: Phoebe Ting Wu Jia
Date: 9/10/2024
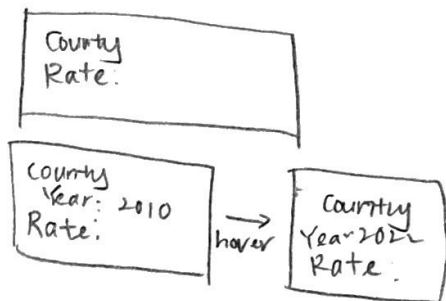Sheet: 2
Task: Design Global Trend and Select Interaction

OPERATION

① Add Text Annotation to mark important data points

② Year slider
Map Changes along with year

1960 → 2020 → 2022

③ Tooltip
- see the details of the hovered county

County
Rate:

County
Year: 2010
Rate: → hover → County
Year: 2022
Rate:

FOCUS

①

year slider

- Normalised value
- we use sequential colour scheme to represent the quantitative value
- select proper amount of threshold

- important interactive elements

②

- we 8 different colours to represent different categorical attributes

- choose the most worth visualising countries
- from different continent
- different history, political issues, and family planning
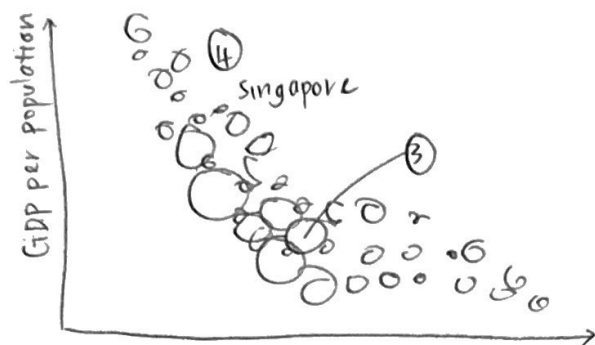
DISCUSSION

Advantages:
- clear visual storytelling
- consistent layout
- use of color
- descriptive titles, immediately let users know what each section discusses
- annotations making data more accessible and easier to understand
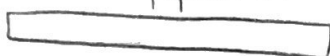
Disadvantages:
- potential overlapping
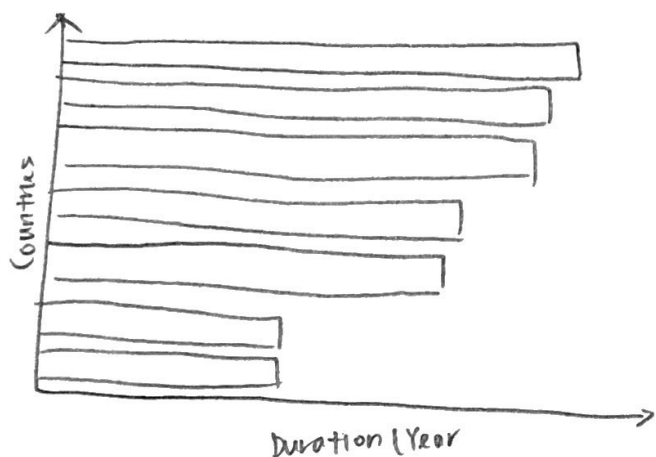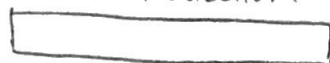- may overwhelm user with too many graphs shown at once

LAYOUT

GDP per population vs Rate
Singapore

minimum population ① ☐

continent selection ② ☐

Countries vs Duration / Year (bar chart)

Author: Phoebe Ting Wei Jia

Date: 9/10/2024

Sheet 3

Task: Design Factors that might Affect
Fertility Rate & Interesting Questions

OPERATION

① ☐ minimum population

determine the & range of data to visualise
slide right and filter

0 → 10000000

② ☐ continent selection

select from 7 continents
to see particular data of continent selected

Asia → Africa

FOCUS

①

- different size of bubble and represents different population amount
- select different colour for categorical attributes
- make sure highs saturation to visualise

②

Year

- same colour for every country
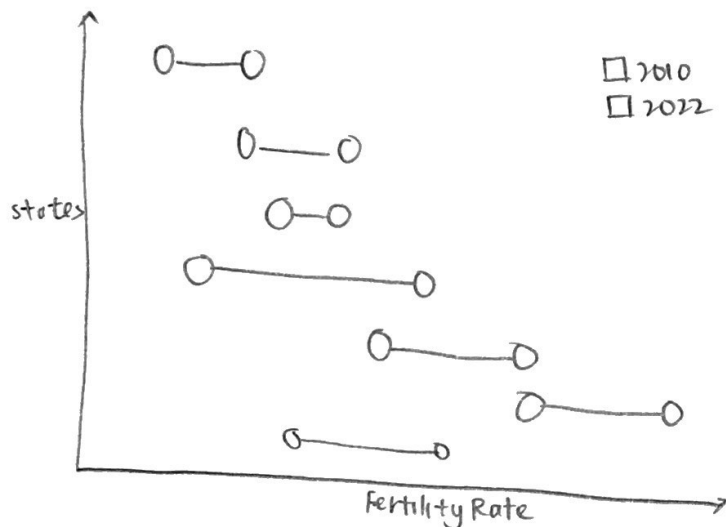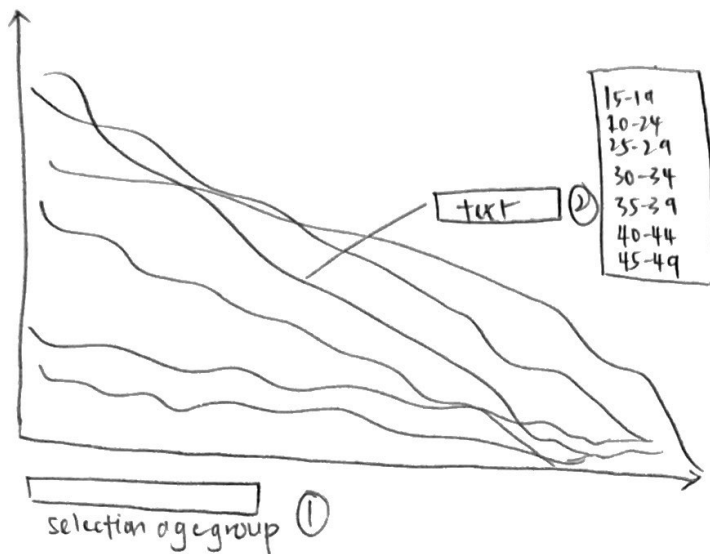- sort descendingly so that we can see highest easily

DISCUSSION

Advantages:

- Clear relationship representation show negative correlation between factor and fertility rate
- Interactive filters to explore data from different angles

Disadvantages:

- scale misinterpretion for logarithmic scale
- clustered long lists, if it is larger datasets, the bar chart might become cluttered and difficult to scroll through

LAYOUT

selection age group ①

text ②

15-19
20-24
25-29
30-34
35-39
40-44
45-49

states

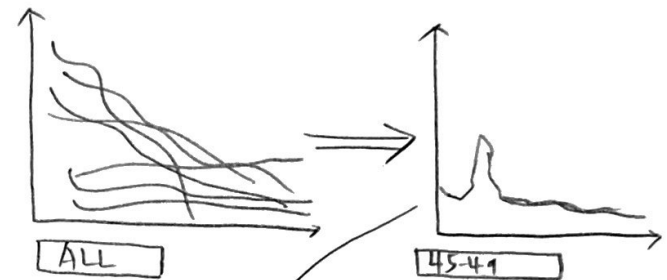Fertility Rate

☐ 2010
☐ 2022

Author: Phoebe Ting Wei Jia

Date: 10/10/2024

Sheet: 4

Task: Design graphs to visualise the structure or trend of fertility rate of Malaysia
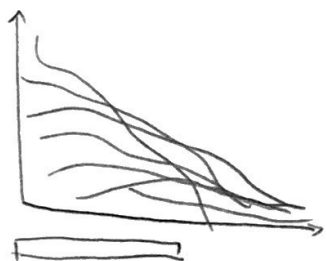
OPERATION

① select age group

ALL

45-49

②

text

- add annotation to specific age group that has interesting patterns
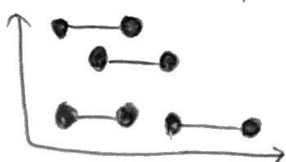
- find the reasons behind it and annotate it

FOCUS

- choose different colour for different categorial attributes

- make sure the lines are not too overlapping

- filter to see the specific age group trend

- choose two different opposite hue for the two years
  - not green and red
  - not friendly for colour blind

DISCUSSION

Advantages

- clarity in presentation, structured form and present data clearly

- ease of comparison, fertility rate are visually distinct, straight forward to compare
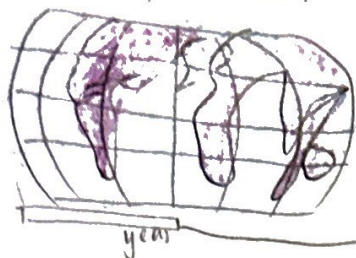
Disadvantages:

- complexity for general audience
- limited context
- limited interactions
- should provide additional context

LAYOUT

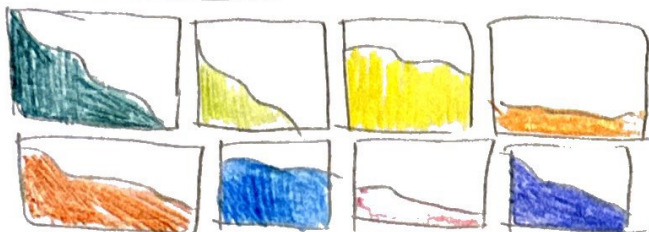## Worldwide Fertility Trends And Malaysia's Story

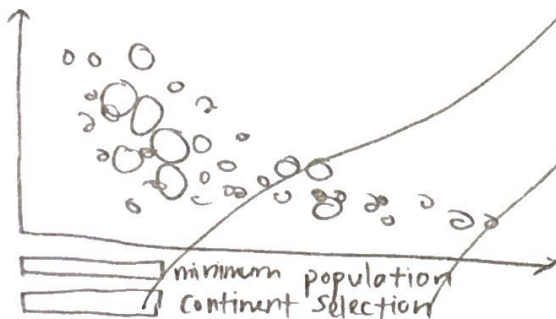### How Does Fertility Vary Across our World in 2023

text description

year
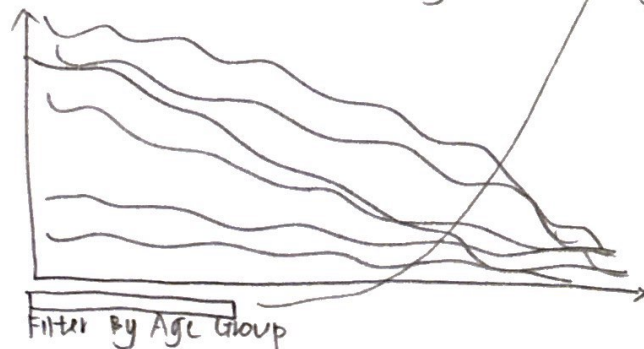
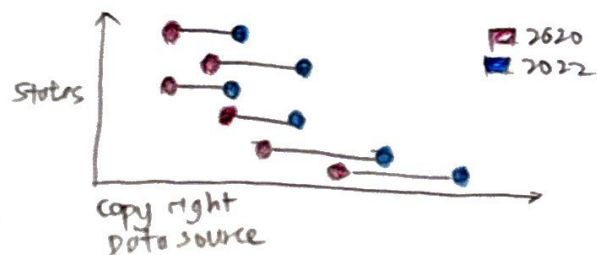### Fertility Rate Trends Across 8 Nations (1960-2022)

text description

Does Economic Growth Affect Fertility Rates?

minimum population
Continent selection

How Does Fertility Rate Vary By Age in Malaysia?

Filter By Age Group

How Has Fertility Rate Change Across Malaysia Over Two Decades?

2020
2022

States

copy right
Data source

Author: Phoebe Ting Wei Jia

Date: 12/10/2024

Sheet: 5

Task: Final Implementation Design

OPERATION

① Interactivity

filter — choose specific data groups
slider — to visualise

② Year: Rate: Tooltip — hover to any data point too see details

③ text — annotations are added sufficiently to mark interesting data or storytelling

FOCUS

- choose appropriate color for different
  ↳ quantitative: sequential colour scheme
  ↳ qualitative value: hue colour scheme

- make sure data points are chosen with appropriate colour
- some color may be too hard to see
- some size of data points should vary obviously to observe patterns

- choose appropriate interactivity for every graphs.

DETAIL

- data will be preprocessed to ensure it is in a suitable format for visualisation
- in excel or using pandas
- dashboard created using vega lite and use Python pandas for data cleaning and appropriate pivoted before plotting graph using vega lite
- Github link and GitHub Repository are accessible via web browsers ensuring cross platform compatability

- Estimated Time:
  ↳ Data Preparation: 4-6 hours
  ↳ Dash Board Design: 10-12 hours
  ↳ Interactivity Implementation: 4-6 hours
  ↳ Testing and Refinement: 3 hours

- software
Github,
web browser
VS code