Deriving Attributes

Datasets Grouped by State
(2007-2022)
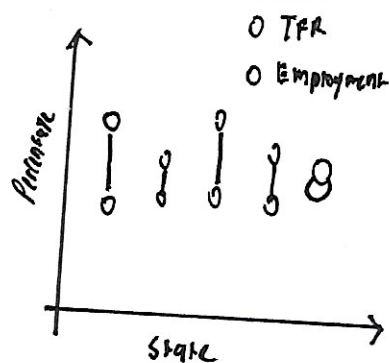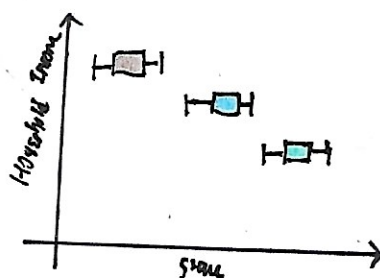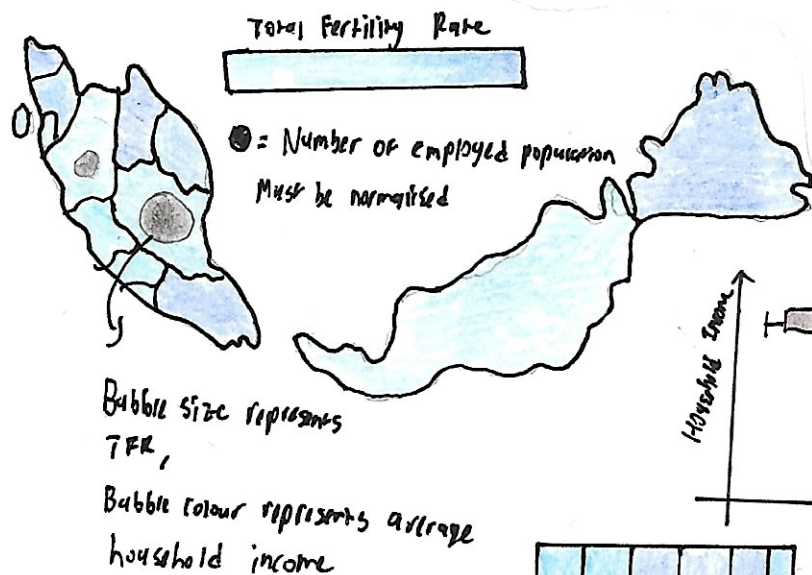
Normalised with population
by State

Household Income
- mean-income (average monthly household income)
- median-income (median gross monthly income)

Poverty Rate
- poverty-absolute (proportion below PLI)
- poverty-hardcore (proportion below FPLI)
- Relative poverty Rate (income below median state in

Total Fertility Rate (TFR)
(yearly)
- Find correlation with TFR, study trends
- Identify need for change, demographic con
- Need for new policies, economic development

Employment Rate by Sex
- labour force size (Employed + unemployed)
- labour force employed
- labour force unemployed
- unemployment rate (unemployed : labour force size
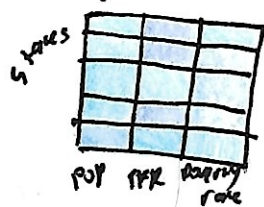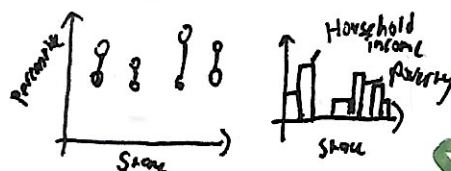- employment ratio (employed : working age popula

Charts

Total Fertility Rate

● = Number of employed population
Must be normalised

Bubble size represents
TFR,

Bubble colour represents average
household income

O TFR
O Employment

Must be
normalise
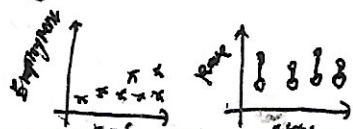

Filter

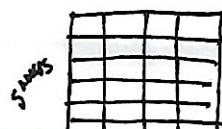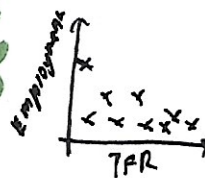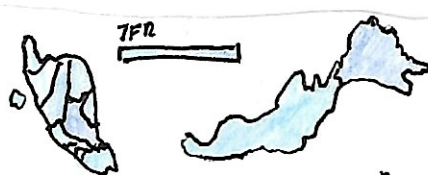① Total Fertility Rate by State
TFR

② Combining all attributes

③ Household income + Poverty Rate

④ Employment rate + TFR

Iterate & Revise

TFR

Questions
- Does this show affect
of employment rate o
TFR
- How to find & sho
correlation between
poverty & TFR
- Does this show
poverty & income in each
State to suggest compari

Layout

Year: [2020 ▽]

Total Fertility Rate

- Employment
- Fertility

Rate (%)

From [2000]
To [2024]

Year

- poverty
- Fertility

States
[All ▽]

Rate (%)

State

Focus

Map Tooltip

State: Pahang
Fertility Rate: 4.2
Population: 9,000,000

Map Year Select

[2020 △]
2019
2010
2020
2021
2022

State Select

[All △]
Selangor ☑
Pahang ☑
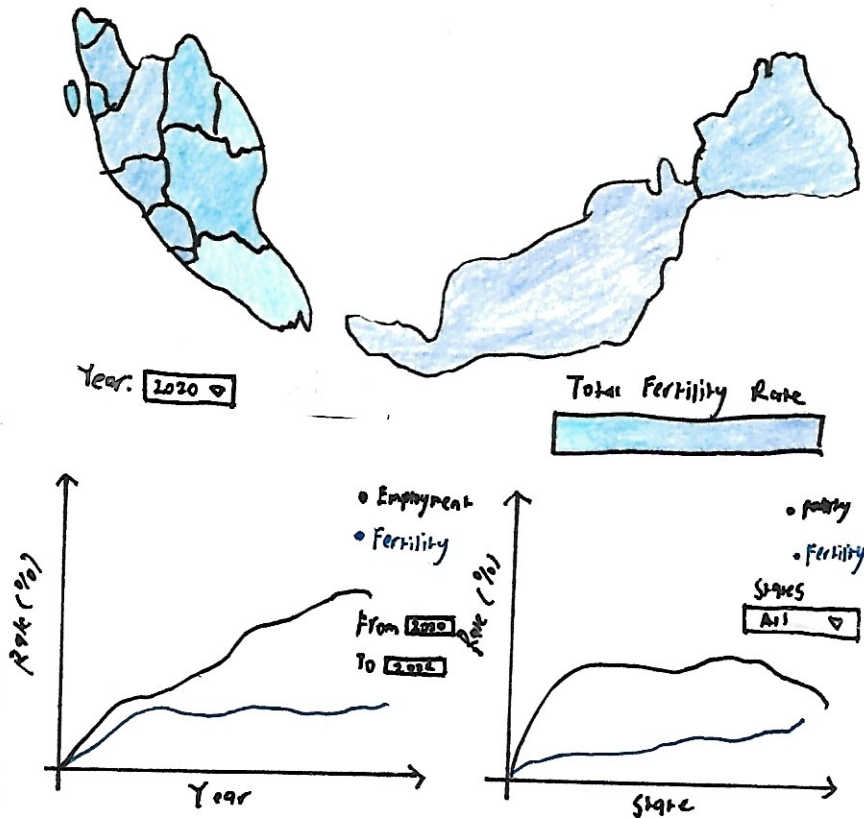Kedah ☑
Kelantan ☑
Sabah ☐

Operation

- Map is a chloropleth map used to show the fertility rate of each state using TFR which is normalised to the population number

- User can select year to display TFR which will allow them to view changes over time and draw comparison between states

- User can select which states to include in poverty and fertility line chart to display poverty and fertility in specific states

- Employment and fertility rate against time shows data combining all states to highlight correlation between the two which can be filtered by selecting year range

Positives (+)

- User can customise visualization by selecting year, year range & state
- Map tooltip allow user to view statistics for each state

- Rate (%) against year show direct correlation between employment & fertility

Negatives (−)

- Rate (%) against state can be better visualized with a map chart

- More insight can be added by including household income statistics

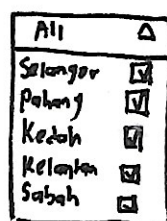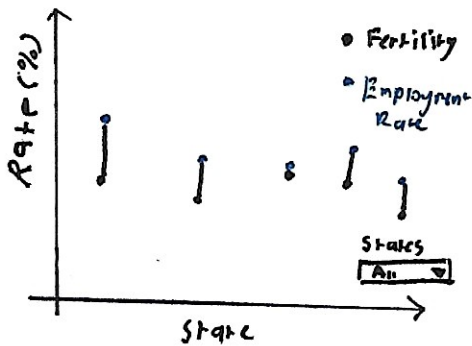- Line chart may not be the most effective to compare employment & fertility rates
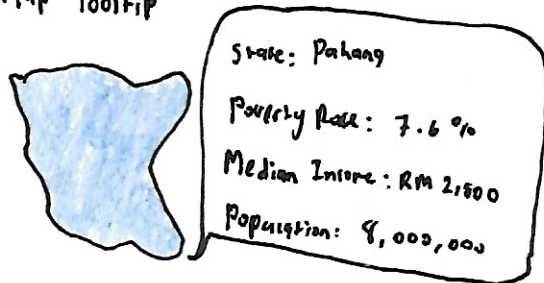
Layout

Poverty rate

Median household income

☐ RM 1,800
☐ RM 5,000
☐ RM 10,000

Year [2020 ▽]

Rate(%)

• Fertility
• Employment Rate

States [All ▽]

State

Title: Visualization 2 FOS
Author: Jasvej Singh Gill
Date: 17/8/2024
Sheet: 03

Operation

- Chloropleth map used to display poverty rate accross different states

- Bubble size is used to represent the median income of each state

- Lollipop chart is used to show direct comparison between fertility and employment rates to showcase their relationship

- Tooltip for each state shows exact poverty rate, median income and population

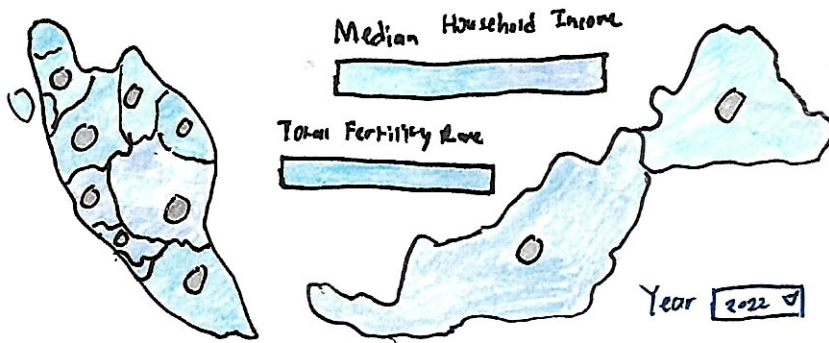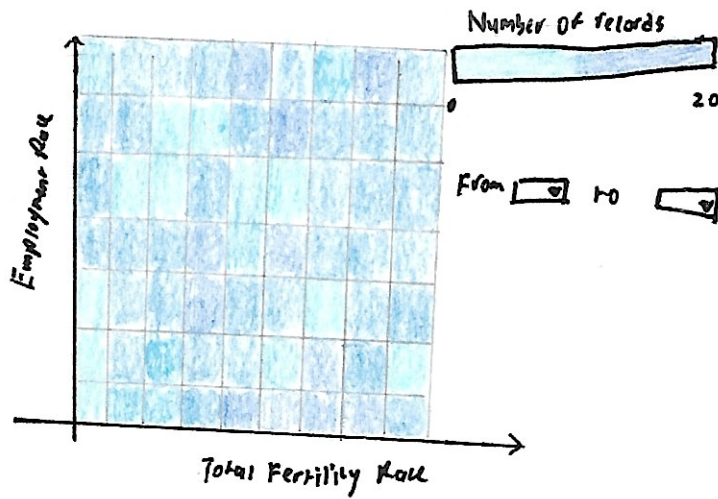- User can select Year and State in map and lollipop chart respectively

Positives (+)

- Lollipop shows direct comparison between fertility and employment rates to see how one attribute affects another

- Bubble size indicates median income to allow map to facilitate comparison of median income between states

- User can customise state & year

Negatives (-)

- Bubble colour is not used and can be added to convey additional information

Focus

Map Tooltip

State: Pahang

Poverty Rate: 7.6 %

Median Income: RM 2,500

Population: 9,000,000

Map Year Select

| 2020 ▲ |
| 2019 |
| 2019 |
| 2020 |
| 2021 |
| 2022 |

State Select

| All ▲ |
| Selangor ☑ |
| Pahang ☑ |
| Kedah ☑ |
| Kelantan ☑ |
| Sabah ☑ |

Layout

Employment Rate

Number of records

0   20

From [▽] to [▽]

Total Fertility Rate

Median Household Income

Total Fertility Rate

Year [2022 ▽]

Operation

- Histogram heatmap show number of state entries for each cell

- User can select specific range of years to display records

- Bubbles on map are equally sized

- Colour of bubble & map show household income and the fertility rate respectively
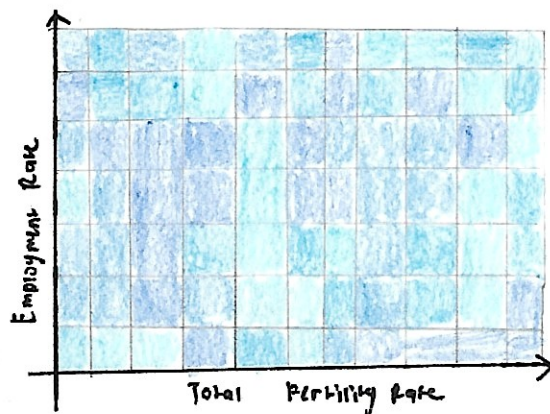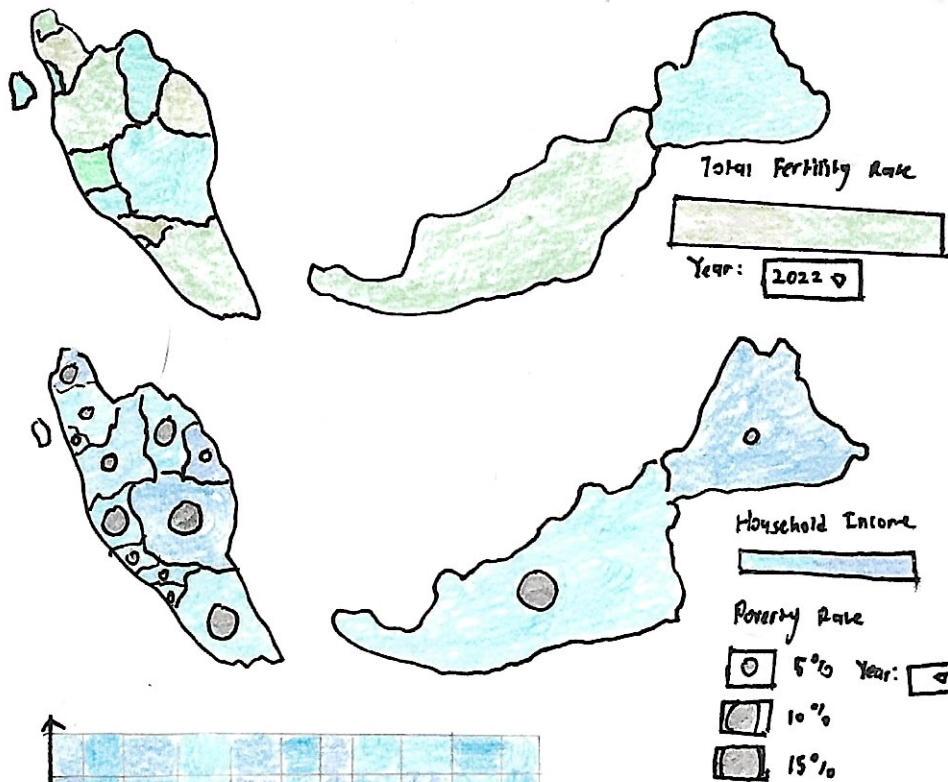
- User can select year to display data

Focus

Map Tooltip

State: Pahang

Total Fertility Rate: 7.6 %

Median Household Income: RM 2,500

Population: 8,000,000

Year Select

[2020   ▽]
2018
2019
2020
2021
2022

Positives (+)

- Correlation between total fertility rate and employment rate are effectively highted using 2D histogram heatmap with colour representing number of state entries

- Colour on bubbles effectively contrast with colour on map to facilitate comparison
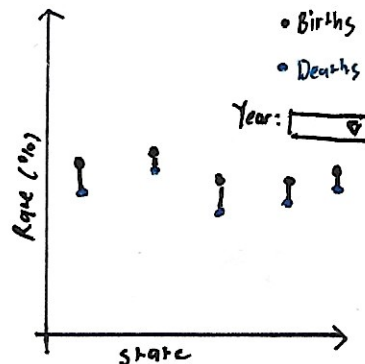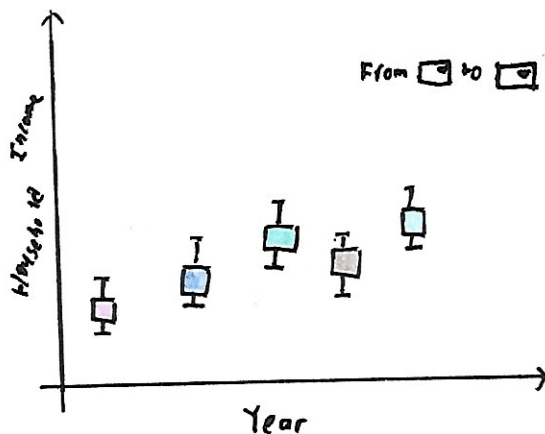
- User can customise years to view

Negatives (-)

- Poverty rate is not visualized

- Lack of contrast between bubble & map colour can cause confusion

Layout

Total Fertility Rate

Year: 2022 ▽

Household Income

Poverty Rate

⊙	5%	Year: ◁
◉	10%	
◉	15%	

Employment Rate

Total Fertility Rate

From ▽
to ▽

Household Income

From ▽ to ▽

Year

● Births
● Deaths

Year: ▽

Rate (%)

State

Operation

- First map is a chloropleth using colour hue to show difference in fertility rates across states

- Second map is also chloropleth to sh household income disparity, with poverty rates highlighted using bubb sizes

- 2D histogram heatmap shows correlati between employment & fertility

- Boxplot shows the changes in hous income over the years

- Lollipop chart shows disparity betwe number of deaths & live births in each state

- Year (specific/range) can be adjusted i each chart

Details

- Dependencies
  - data.gov.my for datasets
  - Js + Vega-lite
  - HTML + css

  - Time to build: 18 hours

- Data must be normalised to populatio number for maps & lollipop

- Allows Malaysian residents to find corre and spread awareness on need for potential changes

Focus

Map tooltips

State: Pahang
Total Fertility Rate: 7.6%
Population: 9,000,000

State: Pahang
Median Household Income: RM 2,900
Poverty Rate: 5%
Population: 9,000,000

Year Select

① Range, from & to

② Specific Year

2020 ▽

2018
2019
2020
2021

Boxplot tooltip

Q1:
Q2:
Median:
Q3:
Qa: