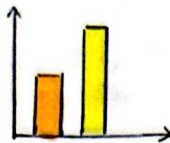


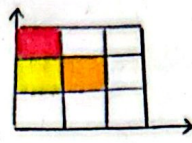
Pie Chart



Bar Chart

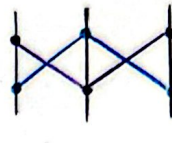


Heatmap



Ideas

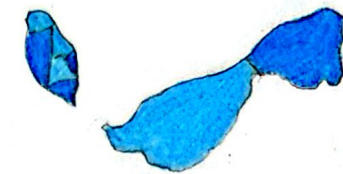
Bump Chart



Dot Plot



Choropleth Map



Lollipop Chart



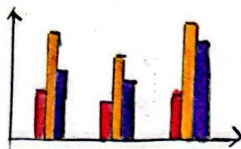
Proportional Symbol Map



Cartogram



Grouped Bar Chart



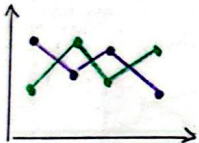
Slope Chart



Stacked Area Chart



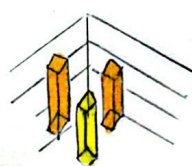
Multiline Chart



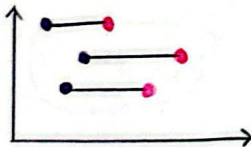
Bivariate Choropleth Map



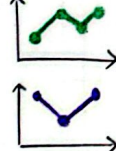
3D column chart



Dumbbell Plot



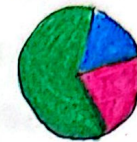
Small Multiples



Dot density map

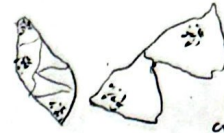


Pie Chart



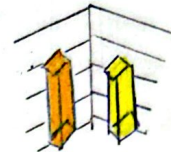
difficult to compare when percentages differ only slightly

dot density map



emphasizes spatial distribution rather than precise value comparison; making interpretation less accurate for rate data

3D column chart



increases cognitive load & distorts perception of height & distance, making value comparison difficult

Comparison

bar chart, grouped bar chart, lollipop chart, dot plot, dumbbell plot

Categorize

Change / Trend

slope chart, stacked area chart, multiline chart, bump chart

Spatial

choropleth map, proportional symbol map, cartogram, bivariate choropleth map, dot density map

Distribution / Intensity

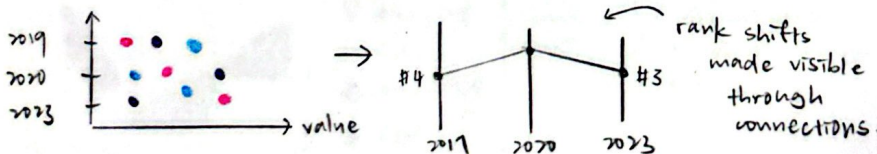
Heatmap

Small Multiples / Panel

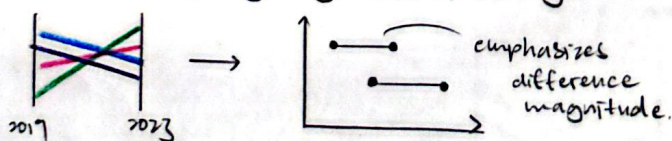
small multiples.

### Combine & Refine

Dot plot x bump chart can be refined → showing both rank shifts & category-level comparisons more clearly across years.



slope x dumbbell charts can be refined → comparing before and after periods while highlighting magnitude of change



bar x line can be paired? → showing how overall economic output trends align with employment changes over time.

### Question.

1. For slope → dumbbell, is the change magnitude obvious enough without clutter.
2. Should bar x line combination stay together or will it confuse scales between GBR & unemployment?
3. Does the bump chart clearly show rank shifts, or do overlapping lines make it messy?



# Resilient Malaysia

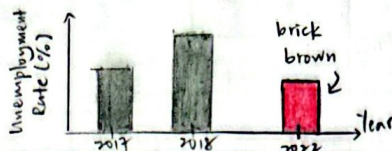
The economic journey before, during and after COVID-19

Malaysia's GDP Growth Rate.



text

National Unemployment Rate.



text

Mean Unemployment Rate by State (2020 - 2021)



text

State GDP Growth Before and After COVID-19 (2019 vs 2023)

strong at 2019  
strong at 2023



text

Changes in Consumer Price Index Categories (2019 vs 2020 vs 2023)



text

Malaysia's exports & imports.



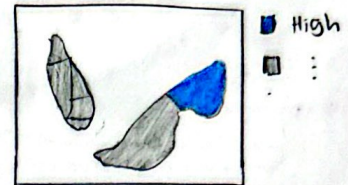
text

layout

Title: FIT3179 Data Visualisation 2  
Author: Doi Pei Shuen  
Date: 14/10/2025  
Sheet: 2

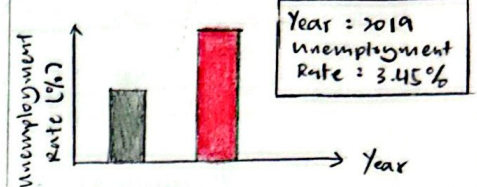
## Operations

### 1. Filter on Legend.

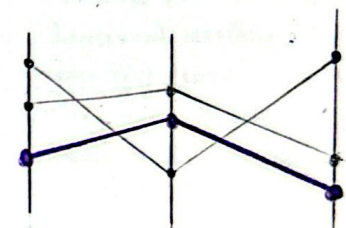


when High is pressed, the states within that category is highlighted.

### 2. Tooltip on Hover.



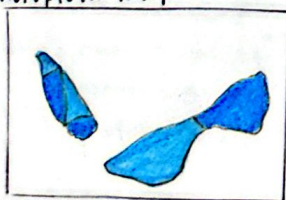
### 3. Highlight on click.



② & ③ applied to all charts.

Main Focus: Story telling (each idiom builds on the previous one)  
choropleth map

Focus



reveals uneven labour impacts across Malaysia during COVID-19

Low  
Lower-Mid  
Mid  
Upper-Mid  
High

classify into 5 categories

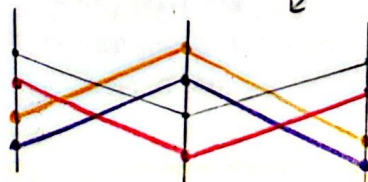
sequential colour scale

reveals how CPI categories rankings change over time

choose only top 7 categories to avoid cluttering.

Eg. restaurants & accommodation (#4 → #5 → #1)

highlight 3 obvious rank shifts



## Discussion

### Advantages

1. Equal straightlines (one row layout gives each chart equal importance).
2. Choropleth map (clearly shows regional unemployment disparities).
3. bump chart (effectively reveals shifts in inflation categories rankings).

### Disadvantages

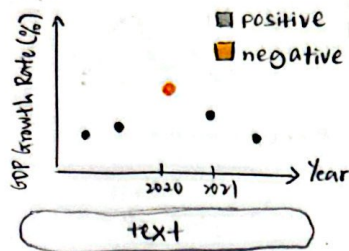
1. bar chart hard to show unemployment trend smoothly over time
2. bivariate map (growth shifts not easily read, a bit confusing)



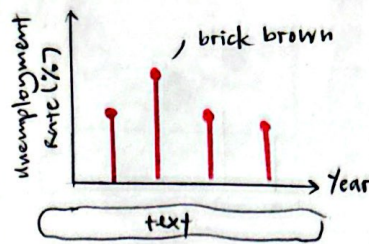
# Resilient Malaysia.

The economic journey before, during & after COVID-19

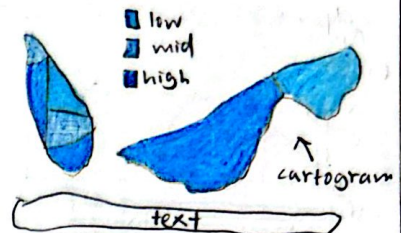
Malaysia's GDP Growth Rate



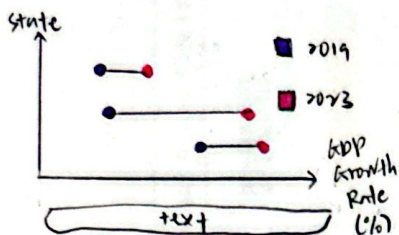
National Unemployment Rate



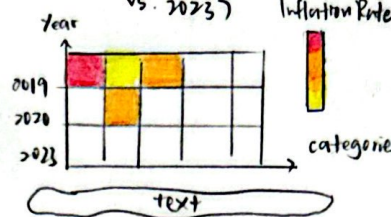
Mean Unemployment Rate by State (2020-2021)



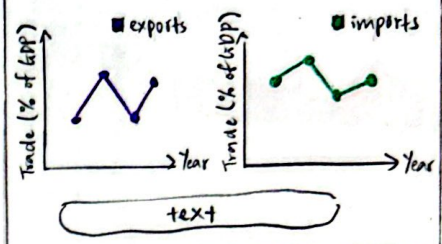
State GDP Growth Before and After COVID-19



Changes in Consumer Price Index Categories (2019 vs. 2020 vs. 2023)

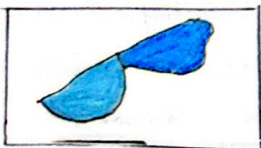
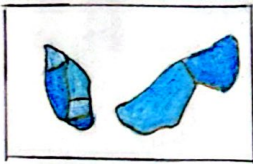


Malaysia's Exports & Imports



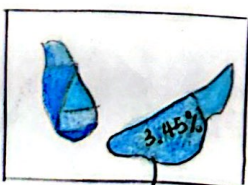
## Operations.

### Zoom



directs the viewer's focus toward specific regions (eg. East Malaysia)

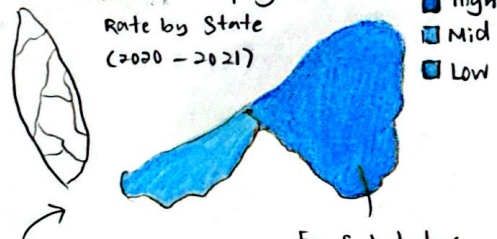
### Label on map



directly label unemployment rate on

## Focus.

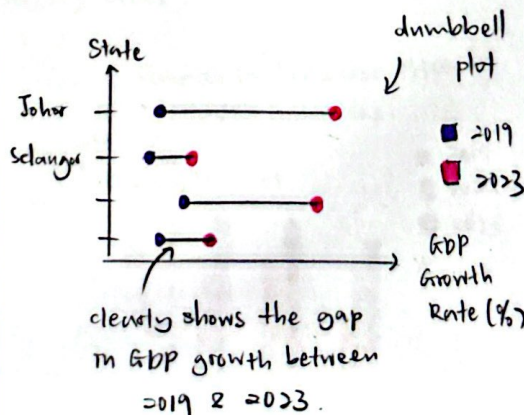
Mean Unemployment Rate by State (2020-2021)



Cartogram.

- high job loss states appear larger, highlighting uneven regional impacts.

Eg. Sabah has the highest unemployment rate, Sabah enlarged.



- highlighting how some states rebounded strongly while others lagged behind

## Discussion.

### Disadvantages

1. 3 charts per row (risk of horizontal scrolling, layout can feel dense, each chart may shrink in size, making labels & details harder to read).
2. Cartogram (distortion of shapes may confuse viewers unfamiliar with Malaysia's geography)
3. Heatmap (colour differences can be misread; exact ranks are less precise without clear annotations)

### Advantages

1. dumbbell plot (shows before after gaps clearly and highlight state differences effectively)

Title: FI13179 Data Visualisation

Author: Ooi Pei Shuen

Date: 14/10/2025

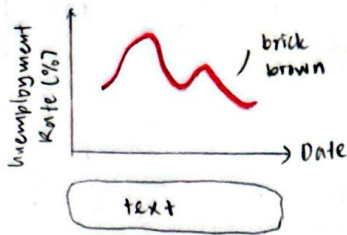
Sheet: 3



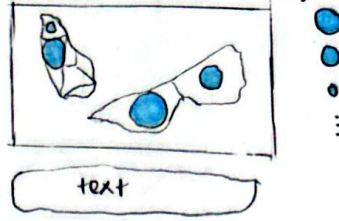
## Resilient Malaysia.

The economic journey before, during and after COVID-19

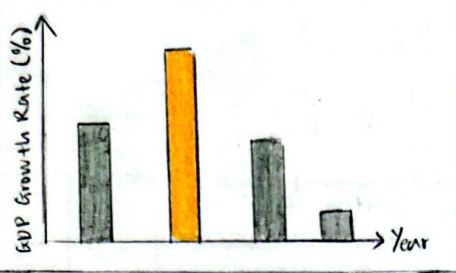
National Unemployment Trend



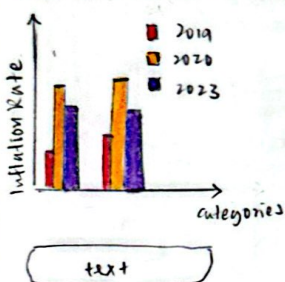
Mean Unemployment Rate by State (2020 - 2021)



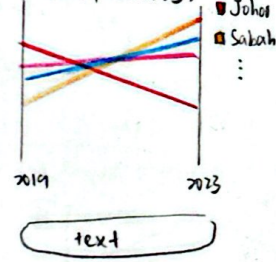
Malaysia's GDP Growth Rate



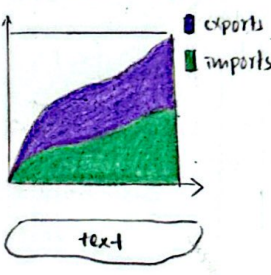
Changes in Consumer Price Index Categories



State GDP Growth Before and After COVID-19 (2019 vs. 2023)

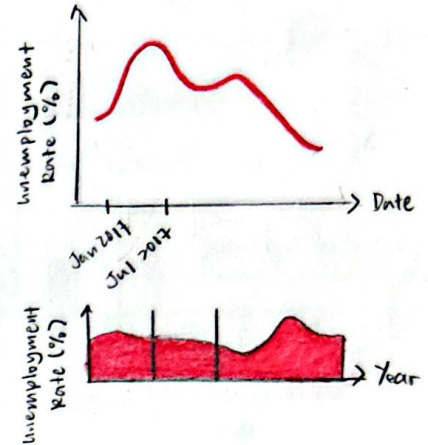


Malaysia's Exports and Imports



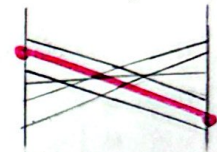
### Operations

#### 1. Brushing Interaction.

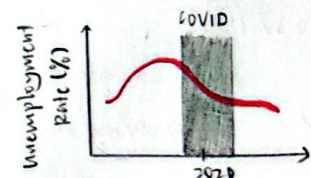


#### 2. Highlight on Click.

Eg. State GDP Growth



#### 3. Annotations.

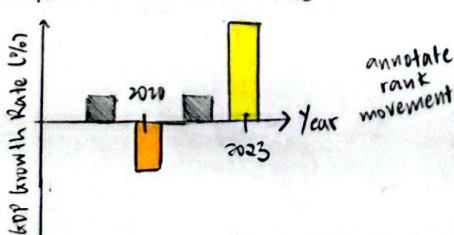


Main Flow is linear (top - bottom) in 3 bands.

Focus

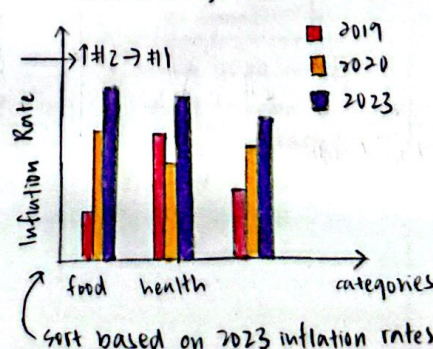
- band 1 (context): labour market impact.
- band 2 (core): GDP contraction & rebound
- band 3 (outcome): post-recovery effects.

Malaysia's GDP Growth Rate



- shows Malaysia's sharp economic collapse & rebound
- core turning point linking all other indicators.

Changes in Consumer Price Index Categories.



### Discussion.

#### Advantages.

- Unemployment line chart shows temporal shock clearly.
- GDP bar chart allows clear visual of Malaysia's economic contraction & rebound.

#### Disadvantages.

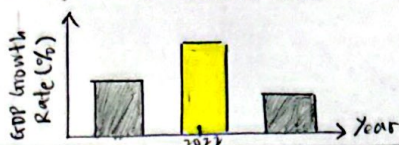
- uneven visual weight (band 1 & 3 might appear secondary even though they contribute equally to the story).
- grouped bar chart limits ranking clarity (bars can crowd & make rank shifts hard to see)



# Resilient Malaysia

The economic journey before, during and after COVID-19.

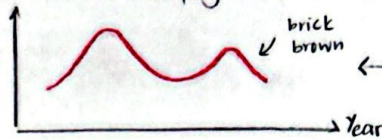
Malaysia's GDP Growth Rate



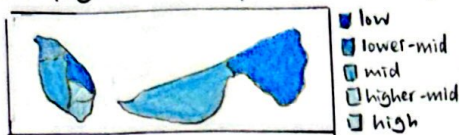
Text

Text

National Unemployment Rate

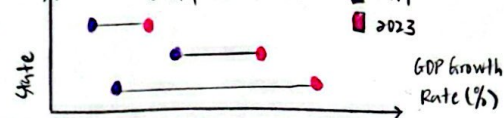


Mean Unemployment Rate by State (2020 - 2021)



Text

State GDP growth Before and After COVID-19 (2019 vs. 2023)

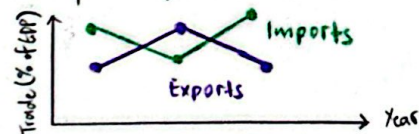


Changes in Consumer Price Index (2019 - 2023)



Text

Malaysia's exports & imports

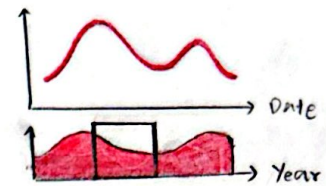


Text

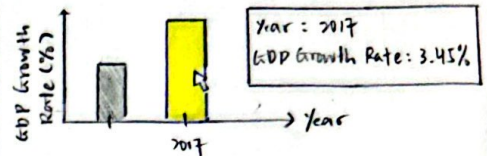
Layout

## Operations.

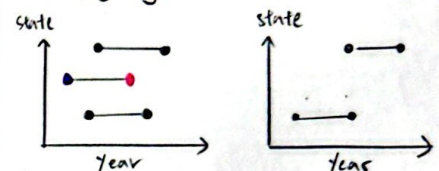
### 1. Brushing Interaction



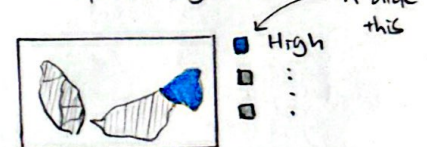
### 2. Hover Tooltips.



### 3. Highlight on Click / Hovers



### 4. Clickable Legend.



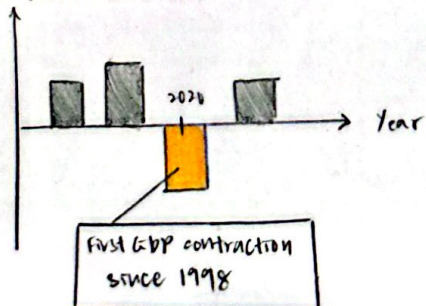
### 5. Annotations.

### 6. Filter on Slider?

- no main chart focus (all charts are equally important)
- main focus is on storytelling (connecting all idioms & visuals into one narrative)
- emphasis on annotations & texts beside the idioms to guide the viewers.

Eg.

GDP Growth Rate (%)



from Slowdown to Comeback

when 2020, strict lockdowns froze domestic activity .....

## Dependencies

Github (publish)  
VegaLite (visualisation framework)  
HTML, CSS (interface design)  
Python (data cleaning & preprocessing)

## Estimated Time Effect

4 days → build 6 idioms  
1 day → design layout (web page)  
2 days → refine

## Specific Requirement

vertical scrolling only  
consistent colour scheme  
fit well in small screen

## Details