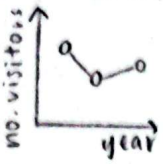
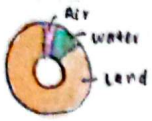
IDEA

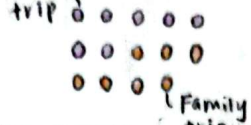
Title : Data Visualization 2 FDS
Author : Ong Li Ching
Date : 01/10/2024
Sheet : 01
Task : Brainstorming

① 

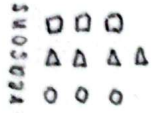
② Line Chart


③ Donut Chart


④ Sunburst Chart


⑤ Dot matrix Chart


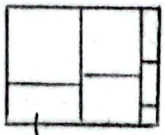
⑥ Pie Chart

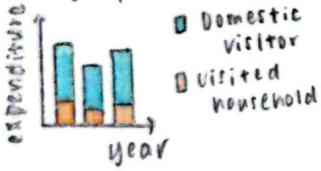

⑦ Pictogram


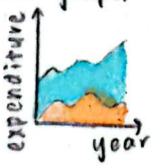
⑧ Choropleth map

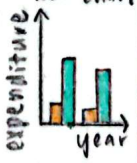

⑨ Bubble map

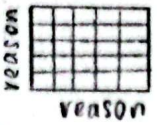

⑩ Bubble Chart


⑪ Treemap


⑬ Stacked bar graph


⑭ Stacked area graph


⑮ Multi-set Bar Chart


⑯ Heatmap


⑰ Butterfly Chart


FILTER

⑯ → heatmap can become hard to interpret, especially when there are many states → heatmap may become cluttered and overwhelming the viewer

⑪ → treemap are designed for hierarchical data → less suitable for showing non-hierarchical information like expenditure

CATEGORIZE

Visitor trends : ① & ②
Mode of transport : ③ & ④
Type of trip : ⑤
Reasons of travel : ⑥ & ⑦
Map : ⑧ & ⑨
Visitors' spending : ⑩
Expenditure trends : ⑬, ⑭ & ⑮
Visitors by gender : ⑰

COMBINE + REFINE

⑤ can refine by using one-person icon to represent individual trip and family icon for family trip

⑦ can also be refined by using icons that represent the reasons

①, ⑬, ⑮ can be refined by adding the year-over-year growth rate

② and ③ can be combined to show the pattern between visitor number and expenditure

QUESTION

→ Will the bubbles clutter the map and reduce readability ?

→ Will sunburst chart add unnecessary complexity for comparing the mode of transport ?

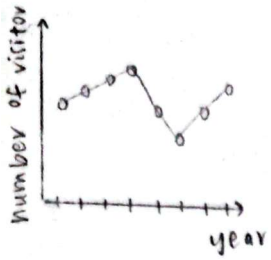
→ How effectively do the visualizations communicate the trends in the data ?

→ How easy is it for users to interpret the visualizations and make comparisons ?

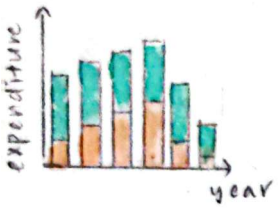
LAYOUT

Title : Data visualization 2 FDS
Author : Ong Li Ching
Date : 01/10/2024
Sheet : 02
Task : Initial Design

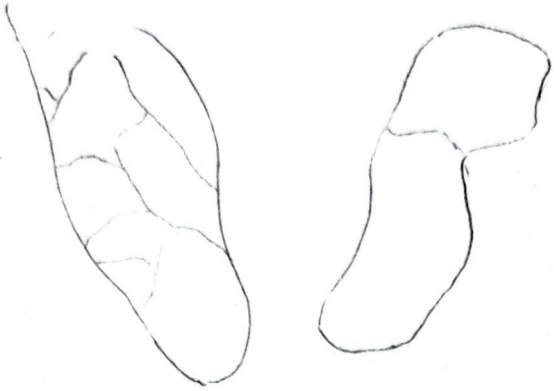
Visitor Trend



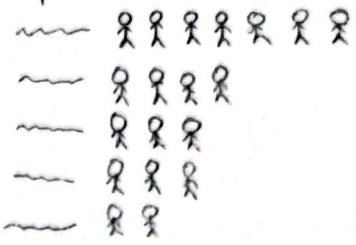
Expenditure Trend



Domestic visitor Distribution

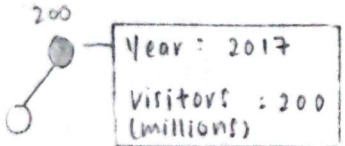


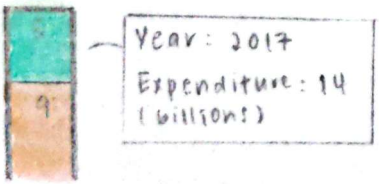
Top 5 Activities

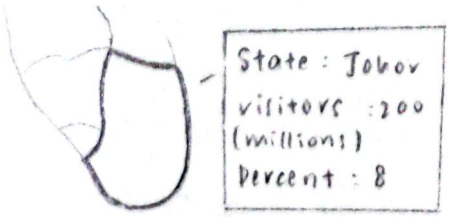


Type of trip

FOCUS







→ When hover over a point in the line graph, the point changes colour and tooltip appears.

→ When hover over a bar in the stacked bar chart, the stroke width of the bar increases and tooltip appears. Same goes to the choropleth map

OPERATION

→ Hovering over each point in the line graph will display a tooltip with year and number of visitors.

→ Hovering over each bar in the stacked bar chart will display a tooltip with year and expenditure.

→ Hovering over each state in the choropleth map will display a tooltip with state name, number of visitors and percent of total visitors.

→ The points in the line graph changes colour & the stroke width of the bar and state increases when hover over.

DISCUSSION

+VE

→ Tooltips provide additional information without cluttering the visual, allowing users to get detailed insights when needed.

→ Changing colour and stroke width when hover over makes the visualizations more interactive and helps users to quickly identify which point they are examining.

-VE

→ Inconsistent visual flow may cause users to struggle with navigating the information in logical order.

→ Limited space for each idioms.

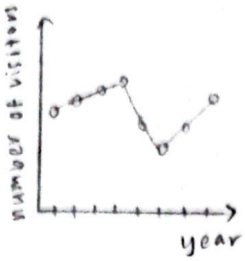
→ For users viewing on smaller devices like tablets, this layout may not scale well and may appear distorted.

LAYOUT

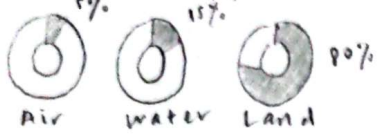
Title: Data Visualization 2 FDS
Author: Ong Li Ching
Date: 01/10/2024
Sheet: 03
Task: Initial Design

Domestic visitor Distribution

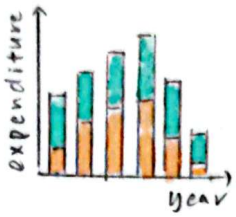
Visitor Trend



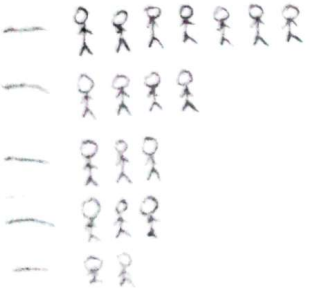
Mode of transport



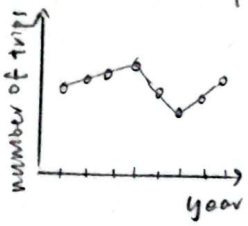
Expenditure Trend



Top 5 Activities



Number of Trips



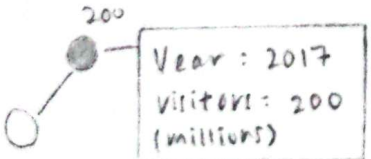
OPERATION

→ Hovering over each point in the line graph will changes the colour of the point and display a tooltip with year and number of visitors.

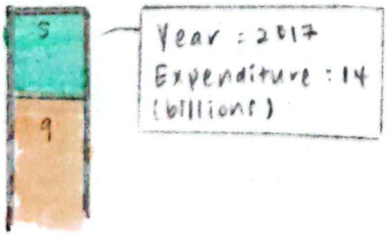
→ Hovering over each bar of the stacked bar chart will increase the stroke width of the bar and display a tooltip with year and expenditure

→ Hovering over each state of the choropleth map will increase the stroke width of the state and display a tooltip with state name, number of visitors and percent of total visitors.

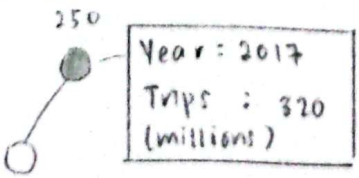
FOCUS



→ when hover over a point in the line graph, it changes colour and tooltip appears.



→ when hover over a bar in the stacked bar chart, the stroke width of the bar increases and tooltip appears. same goes to the choropleth map.



DISCUSSION

+VE

→ Tooltips provide additional information without cluttering the visual, allowing users to get detailed insights when needed.

→ Changing colour and stroke width when hover over makes the visualizations more interactive and helps users to quickly identify which point they are examining.

→ Clear separation of the data types with all the trend charts on the right side.

-VE

→ Inconsistent visual flow may cause users to struggle with navigating the information in logical order

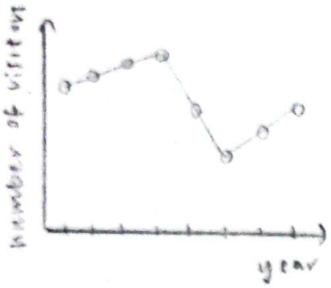
→ Users might find it overwhelming to process the visualization in its entirety as there are a lot of information on both side

LAYOUT

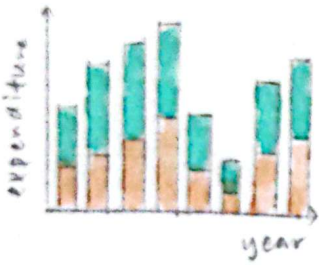
Domestic Visitor Distribution

Title : Data Visualization 2 FDS
Author : Ong Li Ching
Date : 01/10/2024
Sheet : 04
Task : Initial Design

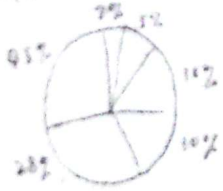
Visitor Trend



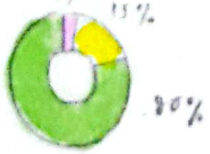
Expenditure Trend



Expenditure



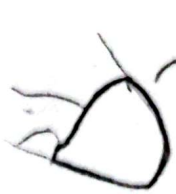
Mode of transport



FOCUS

Year : 2017
Visitors : 200 (millions)

Year : 2017
Expenditure : 111 (billion)



State : Johor
Visitors : 15 (millions)
Percent : 8

→ When hover over a point in the line graph, it changes colour and tooltip appear.
→ When hover over a bar in the stacked bar chart, the stroke width of the bar increases and tooltip appear.
Same goes to the choropleth map.

OPERATION

→ Hovering over each point in the line graph will change its colour and display a tooltip with year and number of visitors.
→ Hovering over each bar in the stacked bar chart will increase its stroke width and display a tooltip with year and expenditure.
→ Hovering over each state of the choropleth map will increase its stroke width and display a tooltip with state name, number of visitors and percent of total visitors.

DISCUSSION

+VE

→ Tooltips provide additional information without cluttering the visual, allowing users to get detailed insights when needed.
→ Changing colour and stroke width when hover over makes the visualizations more interactive and helps users to quickly identify which point they are examining.
→ Sequential arrangement of the charts helps guide the users through the data in a step-by-step manner, which is beneficial for storytelling
→ Users can focus on individual charts

-VE

→ Require more scrolling
→ Users may find it challenging to see the overall messages.

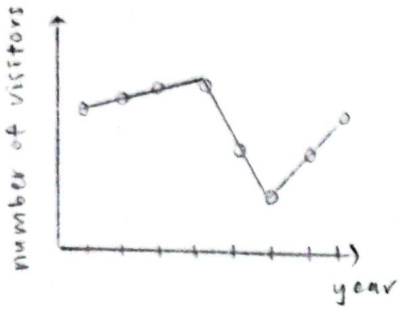
LAYOUT

Title : Data Visualization 2 FDI
Author : Ong Li Ching
Date : 01/10/2024
Sheet : 05
Task : Realization

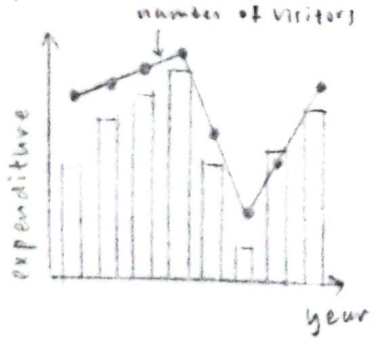
Domestic Visitor Distribution

Year : 2023

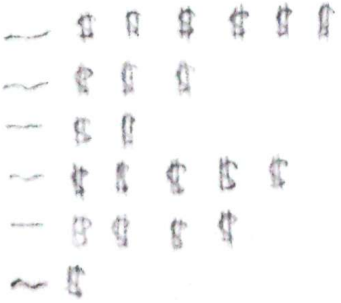
Visiter Trend



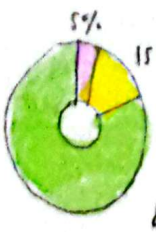
Expenditure Trend



Expenditure



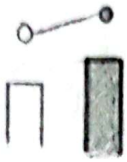
mode of Transport



FOCUS

Year : 2017
Visitors : 200 (millions)

→ When hover over a point in the line graph, it changes colour and tooltip appears.



Year : 2017
Expenditure : 14 (billions)

→ When hover over a bar in the bar-line chart, the bar and the point changes colour and tooltip appears.

Type : Shopping
Expenditure : 5.1 (billions)

→ When hover over an icon in the pictogram, tooltip appears.

State : Johor
Year : 2023
Visitors : 15 (millions)
Percent : 8

→ When hover over a state in the map, tooltip appears.

OPERATION

→ Hovering over each point in the line graph will change its colour and display a tooltip with year and number of visitors.
→ Hovering over each bar in the bar-line chart will change the colour of the bar and its corresponding point in the line, and display a tooltip.
→ Hovering over each state in the map will increase its stroke width and display a tooltip.
→ When sliding the year selection slider, the map will dynamically display the distribution based on the selected year.

DETAIL

- Visual Studio Code will be used as the primary code editor, employing the Vega-Lite library to define and implement the charts.
- Live Server extension is used to view changes in real-time.
- GitHub is used to keep track of changes and manage version control.

Time Estimates

Total : 2 weeks
→ Data cleaning : 1 day
→ Charts implementation
* Line graph : 2 days
* Bar-line graph : 2 days
* Pictogram : 3 days
* Pie chart : 1 day
* Map : 3 days