IDEAS

Choropleth Map

attribute

Bar Chart

attribute
state

* attribute
= rate
(coverage
penetration
...

Proportional Symbol Map

attribute

Tree map
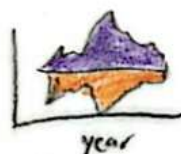
by attribute

Bump Chart

rank
categories

Area Chart

attribute
year
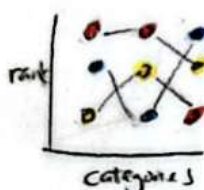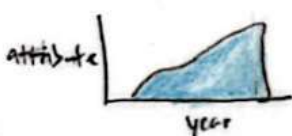
Line Chart
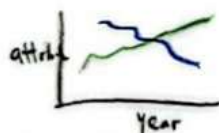
attribute
year

Streamgraph

color = state
area = rate
year

Sankey Diagram

countries
states
attribute

Bubble Plot

attribute
year
color = countries
size = attribute

Heatmap

color = usage %
quater

Radar Chart

device usage

Isotype

state

Pie Chart

color = state
area = attrib
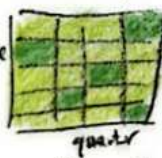
FILTER

Pie Chart

→ not feasible, we have 13 states, and the rate doesn't have significant attrues, hard to compare

Radar Chart

→ small multiples might be better to visualize comparison, some close data is not easy for audience to link

Isotype

state
countries
→ not feasible, 13 states and 4 device type, too many icon, hard for views to interpret, need to count a lot.

CATEGORIZE

rectangle shape	circular / radial
- Bar Chart	- Pie Chart
- Tree Map	- Bubble Plot
- Heatmap	- Radar Chart

geospatial shape	Icon
- Choropleth map	- Isotype
- Proportional Symbol map	

line / point / area	
- Line Chart	- Bump Chart
- Area Chart	- Streamgraph - Sankey

COMBINE & REFINE
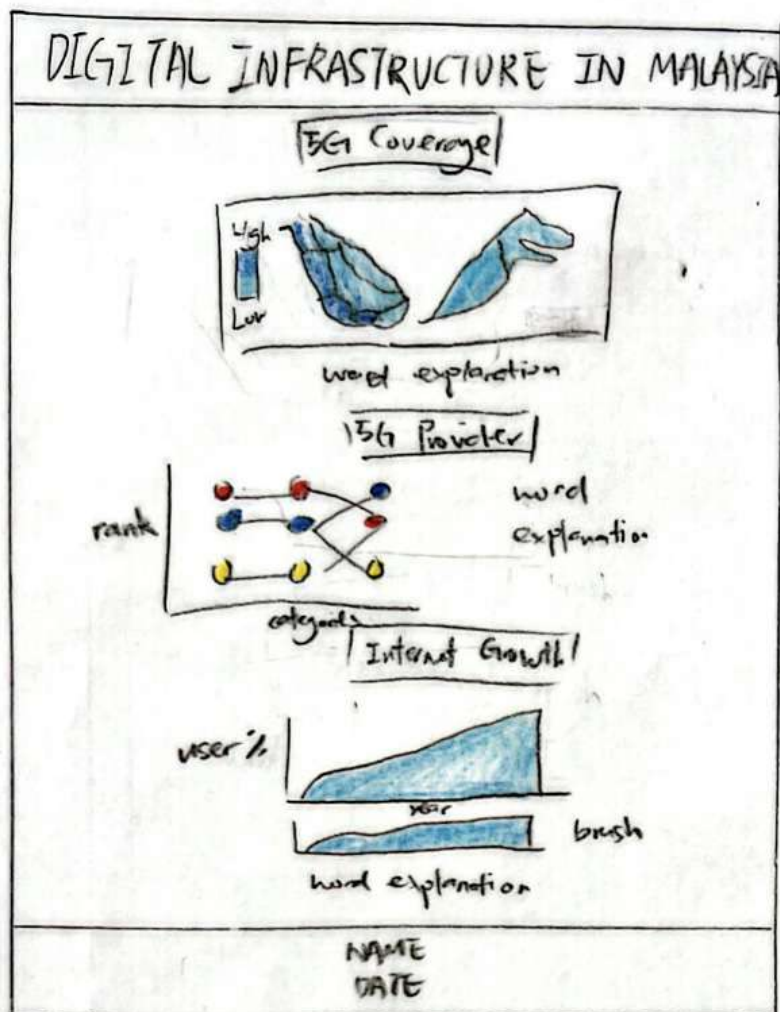
Bar Chart + Line Chart

=>

This combination provides a more informative chart, helps in showing trend and comparison

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QUESTIONS

- Does Vegalite support Sankey Diagram implementation?

- Does all the visualizations lead to clear story?

- Is it answering the viewer's questio

LAYOUT

DIGITAL INFRASTRUCTURE IN MALAYSIA

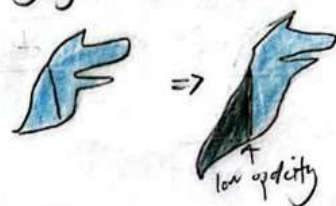### 5G Coverage

High / Low

word explanation

5G Provider

rank

category

word explanation

Internet Growth

user %

year

brush

word explanation

NAME
DATE

OPERATIONS

① highlight item when hover

=>

low opacity

=>

② Brush to zoom in for certain range

=>
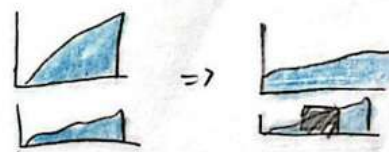
FOCUS

focus on giving overview information

comparison	compare 5G provider (Bump Chart)
	coverage in msia (Choropleth Map)
trend	showing internet growth trend with area chart, allow user to view certain range of time

---

DISCUSSION

Advantages

· Good and engaging user interaction

· white space are well used to create organized website

Disadvantages

· Limited information
  ↳ only cover 5G related info & internet

· Limited visuals
  ↳ Lack of advanced idioms

LAYOUT

Internet Growth

countries ∨
Year #

word explanation

word explanation
device usage

state

device type

Penetration Rate
rate
year
word explanation

5G experience
...
quarter
word explanation

NAME
DATE

TITLE : Digital Infrastructure

AUTHOR : Jocelyn Tan

DATE : 24/09/2024

SHEET : 3
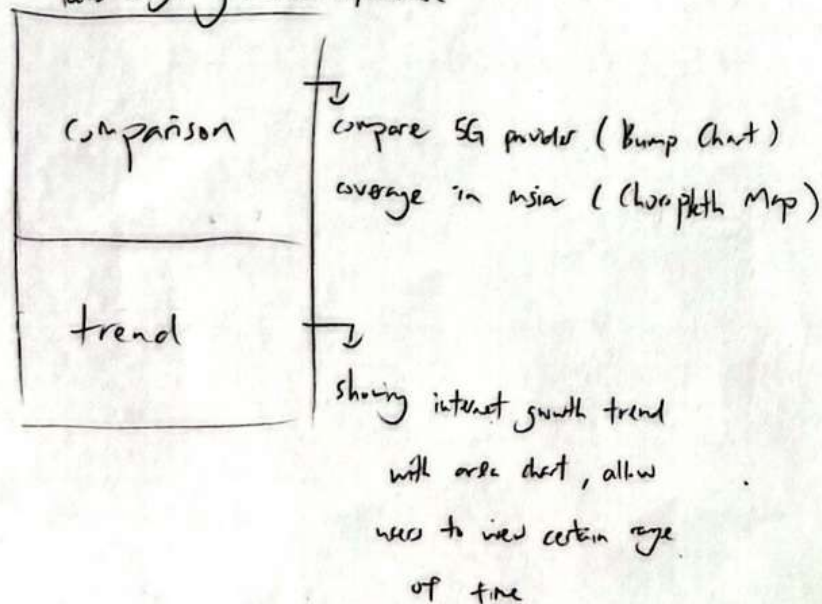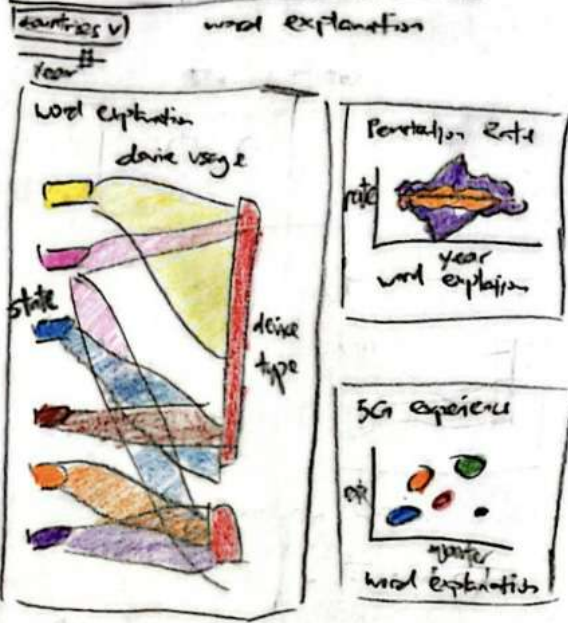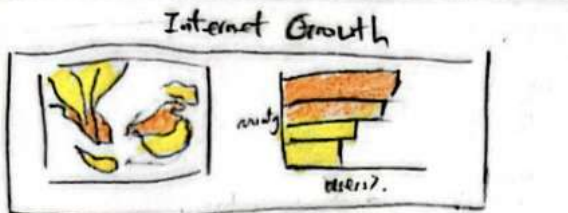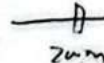
TASK : FIT3179 Assignment 2

OPERATIONS

① When hover to map / bar, updated both visuals

update
<=>

②
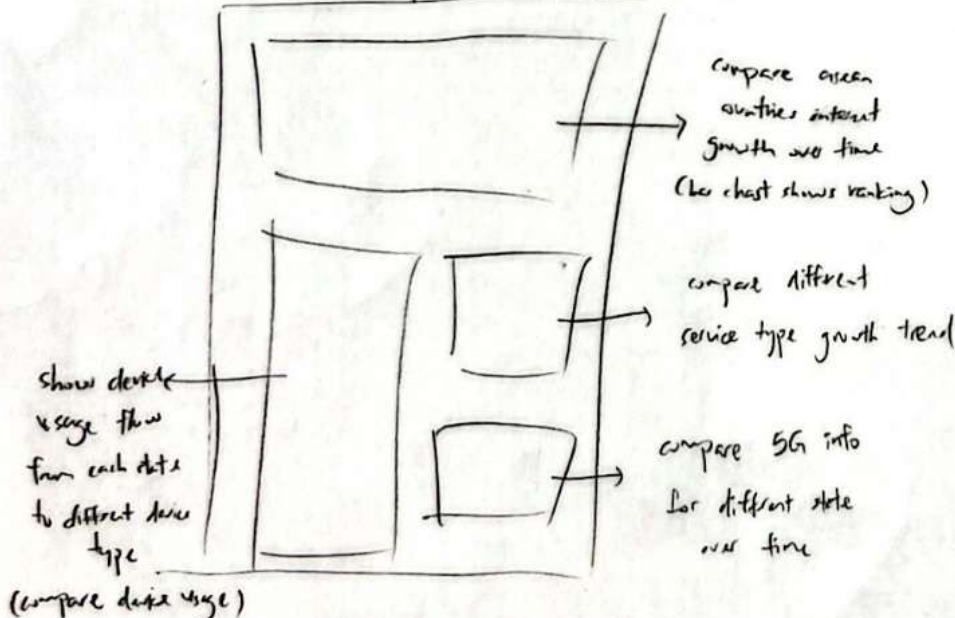2021

users can use time slider to filter the year

③
All ∨
Malaysia ∨
Singapore ✓

users can use dropdown menu to center certain country

FOCUS

focus on comparison of data

compare asean countries internet growth over time (bar chart shows ranking)

compare different service type growth trend

show device usage flow from each state to different device type (compare device usage)

compare 5G info for different state over time
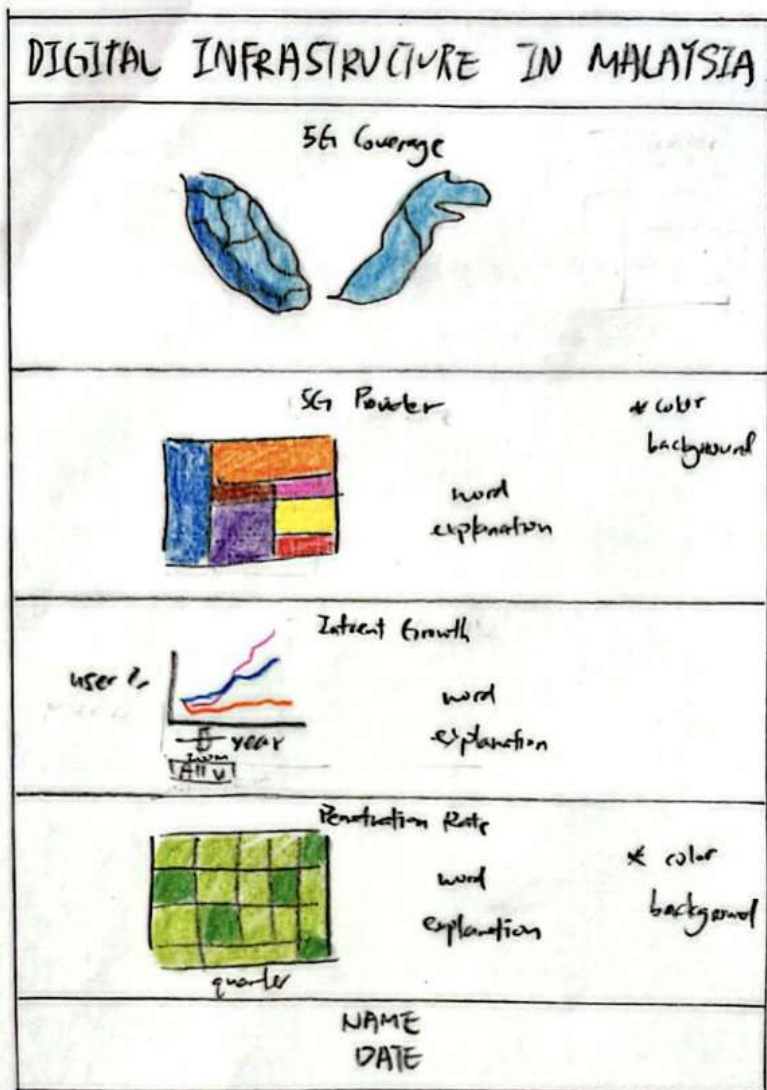
DISCUSSION

Advantages

- Employs mix of data visualizations make it fun for audience.

- Clear visual hierarchy, important data / visual is emphasized

Disadvantages

- The layout might not be optimized for different screen size

- No clear visual hierarchy for visuals beside sankey diagram.
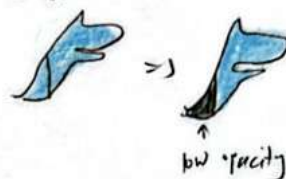
LAYOUT

DIGITAL INFRASTRUCTURE IN MALAYSIA

5G Coverage

5G Power

* color background

word explanation

Internet Growth

user %

year

All v

word explanation

Penetration Rate

word explanation

* color background

quarter

NAME
DATE

OPERATIONS

① highlight item when hover

=>

bw opacity

② ———
zoom

slider for audience to enter data

③

All v
Malaysia
Singapore

users can use dropdown menu to filter countries

FOCUS

3 focuses: one for each section of the story

5G Info

① Map
→ darker color higher coverage

② Treemap
→ bigger area value higher (rank higher)

Internet

→ x-axis: year

→ y-axis: users percentage

→ color: countries

→ size: population

Penetration Rate

→ x-axis: quarter

→ y-axis: Penetration service type

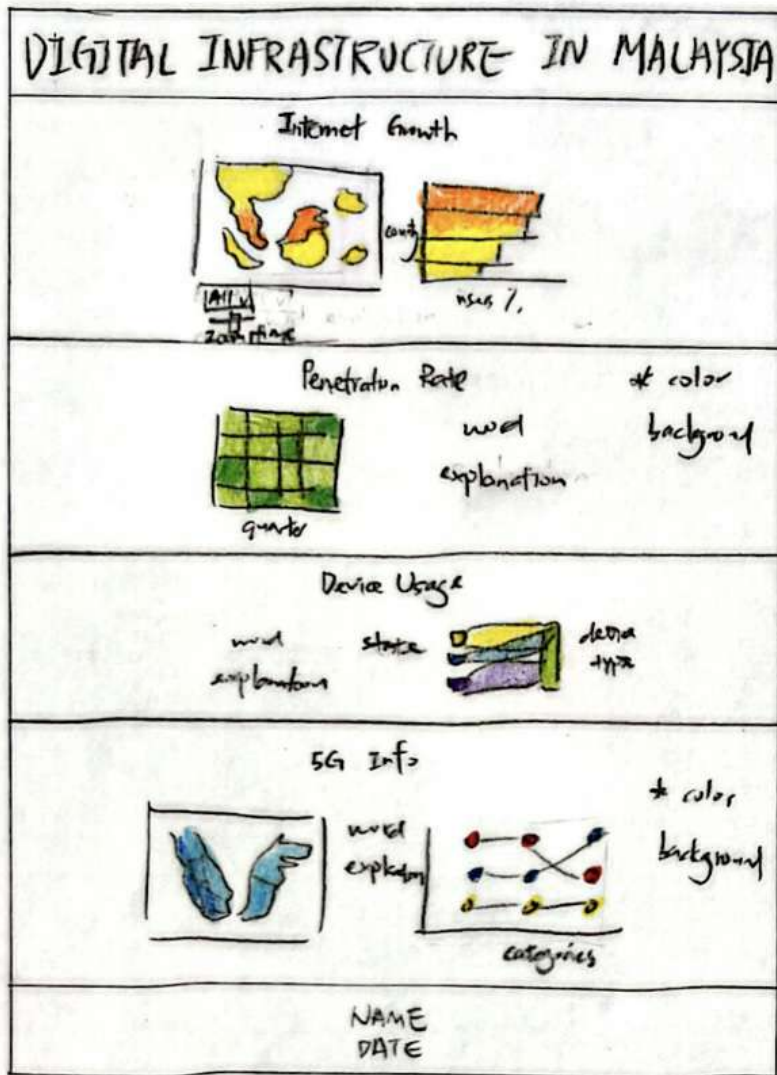→ darker color represent higher rate % value

DISCUSSION

Advantages

• Well structured, each section has clear topic

• simple design, high data ink ratio

Disadvantages

• The layout has no main focus info, visualization, not attractive for audience

• Everything cluttered on the side, not balanced

LAYOUT

DIGITAL INFRASTRUCTURE IN MALAYSIA

Internet Growth

count

usas %.

[All v / zom in line]

Penetration Rate

\# color
used
background
explanation

quarter

Device Usage

used
explanation

state

device
type

5G Info

used
explain

\# color
background

categories

NAME
DATE

FOCUS

Focus on storytelling and guiding audience

Global Scope → compare / see trend of internal growth over time between msia and neighbouring countries

Malaysia Scope → compare / see trend of Malaysia for different aspects

(5G, penetration etc.)
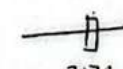
OPERATIONS

① When hover to map / bar, update both visuals

 update <=>
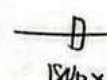
②

2021

Use time slider to filter years

③

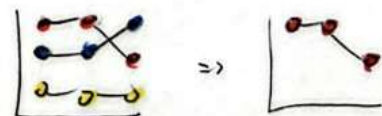| All v |
| Malaysia |
| Singapore |

Use dropdown menu to centre countries

④

15000x

Use slider to zoom certain country

⑤ highlight item when hover

 =>

DETAILS

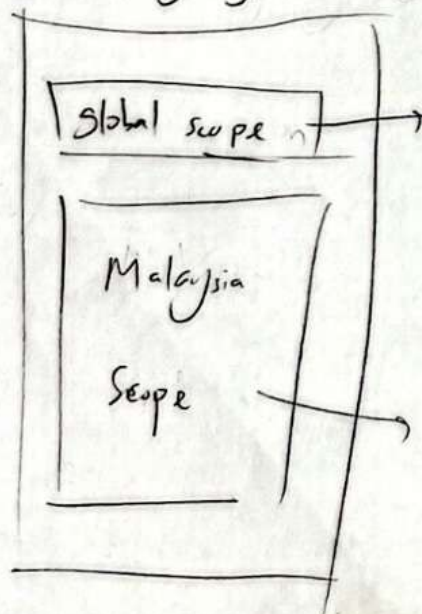→ Collect existing datasets, web scraping, R and Excel to clean and format data

→ Time to implement:
3 days for build charts
5 days for web building / design