

Monash University: Assessment Cover Sheet

Student name	Tan	Per Hoong	
School/Campus		Student's I.D. number	29940893
Unit name	FIT3179 Data visualisation - S2 2021		
Lecturer's name		Tutor's name	
Assignment name	Data Visualisation II Report	Group Assignment: No Note, each student must attach a coversheet	
Lab/Tute Class:	Lab/Tute Time:	Word Count:	
Due date: 18-10-2021	Submit Date:	Extension granted <input type="checkbox"/>	

If an extension of work is granted, specify date and provide the signature of the lecturer/tutor. Alternatively, attach an email printout or handwritten and signed notice from your lecturer/tutor verifying an extension has been granted.

Extension granted until (date):/...../..... Signature of lecturer/tutor:

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- I have read the university's Student Academic Integrity [Policy](#) and [Procedures](#)
- I understand the consequences of engaging in plagiarism and collusion as described in Part 7 of the Monash University (Council) [Regulations](#) (academic misconduct).
- I have taken proper care to safeguard this work and made all reasonable efforts to ensure it could not be copied.
- No part of this assignment has been previously submitted as part of another unit/course.
- I acknowledge and agree that the assessor of this assignment may, for the purposes of assessment, reproduce the assignment and:
 - i. provide it to another member of faculty and any external marker; and/or
 - ii. submit to a text matching/originality checking software; and/or
 - iii. submit it to a text matching/originality checking software which may then retain a copy of the assignment on its database for the purpose of future plagiarism checking.
- I certify that I have not plagiarised the work of others or participated in unauthorised collaboration or otherwise breached the academic integrity requirements in the Student Academic Integrity [Policy](#).

Date:/...../..... Signature:..... *

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DATA VISUALISATION 2

FIT3179

Name: Tan Per Hoong

Student ID: 29940893

Tutorial Group: 5

Tutor: Dr Grace Ting

[[Visualisation URL](#)]

1.0 Introduction

For this assignment, I have chosen tuberculosis (TB) datasets as the domain to visualise the infection rate and the treatment effectiveness of tuberculosis for different countries over the years.

2.0 Rationale

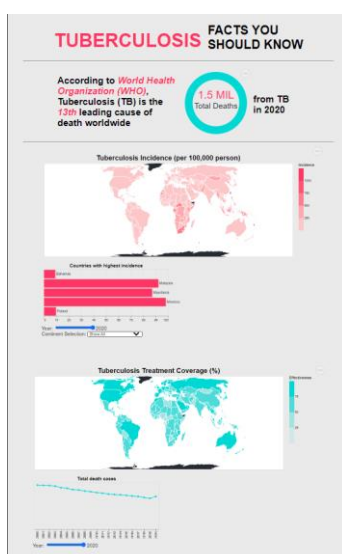
2.1 What

The datasets used for the visualisations in this assignment are from the Global Health Observatory (World Health Organization, 2021). The relevant dataset attributes that I have used for my visualisation are as follows:

1. Continent (categorical attribute)
2. Country (categorical attribute)
3. Year (ordinal attribute)
4. TB incidence per 100,000 population (quantitative)
5. TB treatment coverage (%) (quantitative attribute)
6. Total death cases per 100,000 population (quantitative attribute)

2.2 Why and How

In my data visualisation (Figure 1.0), I have chosen to use dashboard with infographic layout so that information that can be conveyed under one page as well as readers can have an easier time trying to understand and learn without clustering the visualisation with data.



[Figure 1.0]

The table idioms that used in this dashboard are the following:

1. Choropleth map
2. Line chart
3. Bar chart

Different visual channels applied:

1. Colour lamination
2. Spatial
3. Length
4. Position

2.3 Design principles applied

- Layout
 1. Viewing path from top to bottom for both dashboard and tooltip
 2. Clear sight lines where the text is aligned along the border of the visualization.
 3. Proximity gestalt principle is used to provide enough white space to differentiate between different components in the dashboard.
- Typography
 1. Consistent combinations of typeface and font size used to define title, subtitle, text, diagram, as well as the tooltips for the map and the diagram.
 2. Only one typeface is used, Arial for sans serif.
 3. Varying font weights used to emphasize keywords in texts.
- Colour
 1. Data visualisation uses a fixed colour palette with only 4 colours (Color Hunt, 2016).
 2. Map uses a sequential colour scheme to better represent increasing quantitative value.
 3. Applied figure-ground principle by using desaturated colours for the dashboard background.
- Storytelling
 1. Anointed chart genre is used for this dashboard
 2. Partitioned poster genre is used for this dashboard

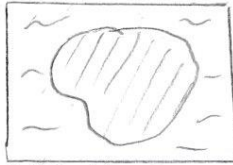
3.0 Reference

1. World Health Organization. (2021). *Cases and deaths*. Retrieved from <https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/cases-and-deaths>
2. *Color Hunt*. (2016). Retrieved from <https://colorhunt.co/palette/08d9d6252a34ff2e63eaeaea>
3. Di. (2020). *Donut Chart in Vega-Lite*. Retrieved from <https://observablehq.com/@didoesdigital/18-may-2020-donut-chart-in-vega-lite>

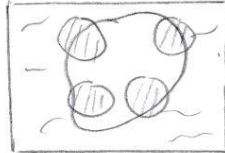
4.0 Appendix

IDEAS

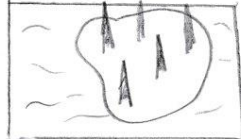
Region (To represent countries) \Rightarrow ①, ②, ③



① Choropleth map

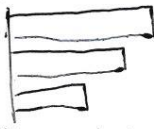


② Proportional symbol map with circle mark

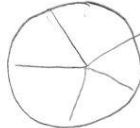


③ Proportional symbol map with line mark

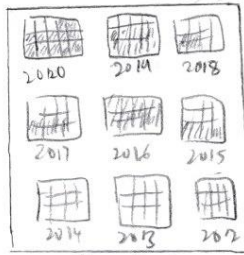
Number of TB incidents \Rightarrow ④, ⑤, ⑥



④ Bar chart
★ shows top 5 TB incidents



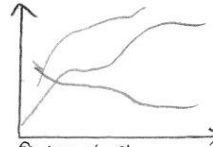
⑤ Pie chart
★ shows which country has higher incidents



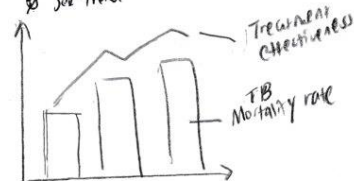
⑥ Waffle chart
★ shows incidents over time
★ Needs country filter

TITLE : Idea sheet
AUTHOR : Tan Per Hoong
DATE : 5/10/2021
SHEET : 1
TASK : Brainstorm ideas

TB Treatment Effectiveness \Rightarrow ⑦, ⑧



⑦ Line chart
★ compare effectiveness between countries
★ see trend

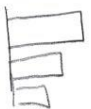


⑧ Line and bar chart
★ need to confirm if the data is correlated
★ More data shown in one space

FILTER



① Choropleth map
★ Requires less data, positional coordinate not needed
★ can be used to display quantitative data

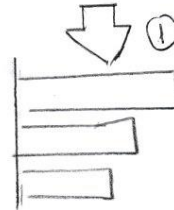
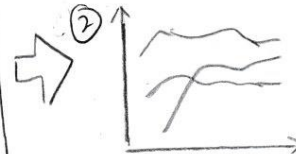
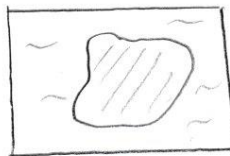


② Bar chart
★ Used for showing top 5 incidents
★ can be filtered to show incidents in different year
★ Easy to compare



③ Line chart
★ Used to compare effectiveness/mortality between countries
★ can also be filtered to show incidents in diff. year

COMBINE & REFINE



① Choropleth map is used to show number of TB incidents, after that, bar chart is used to filter out top 5 countries with the highest incident.

② Choropleth map is used to show treatment effectiveness in respective countries, line chart is then used to show mortality rate, show that there is a connection.

CATEGORIZE

Map

relies on

OTHER IDIOMS

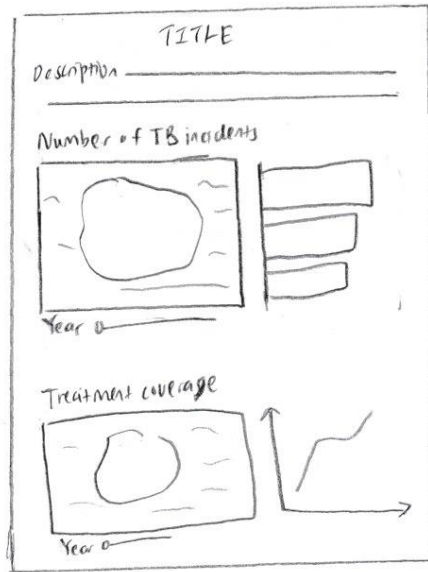
\Rightarrow ★ Used to show qualitative data from different countries
★ Show trend with a time filter

\Rightarrow ★ Other idioms are used to filter/aggregate data shown by the map idiom to prevent change blindness

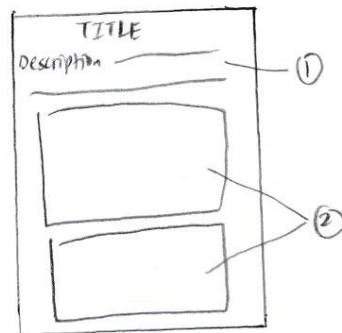
QUESTION

1) Is there really a connection between treatment effectiveness and mortality rate of the country?

LAYOUT



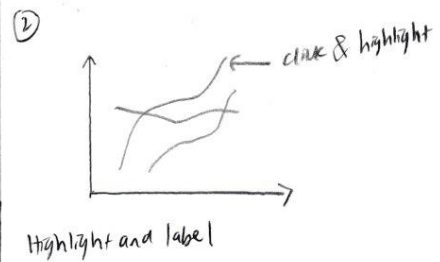
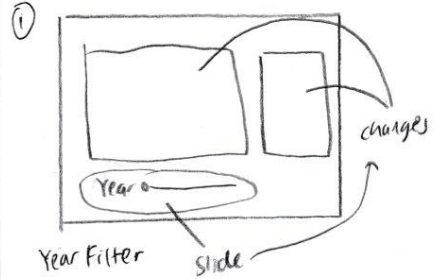
FOCUS



- ★ Descriptions can be used as a section to add small visualisation in ①
- ★ Enough space to add more annotations to the visualisations in ②
- ★ Not alot of space is used as not much paragraph text is present.

TITLE = Infographic
 AUTHOR : TAN PER HONG
 DATE : 5/10/2021
 SHEET : 2
 TASK : Infographic for TB

Operations

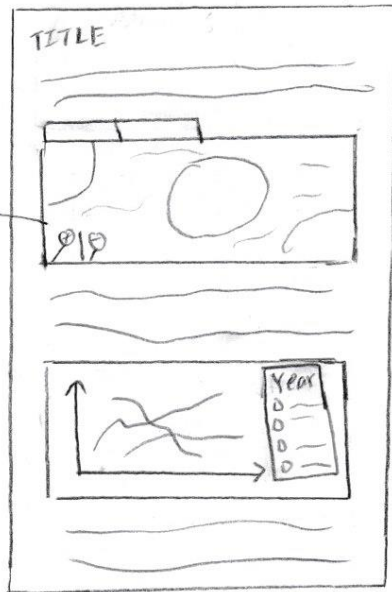


DISCUSSIONS

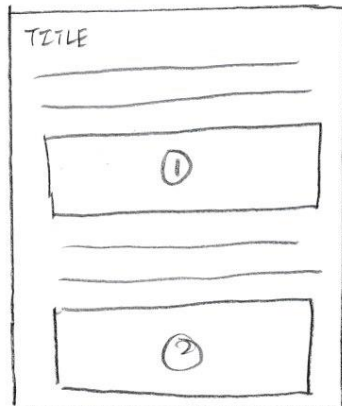
- + Easy to understand
- + Information can be conveyed in one page
- + Can use multiple annotations to show results
- Not alot of information can be provided in detail.
- Not much interactions for the user

LAYOUT

Already zoomed in to show relevant data



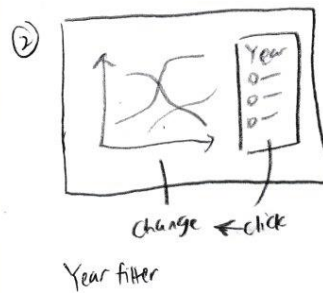
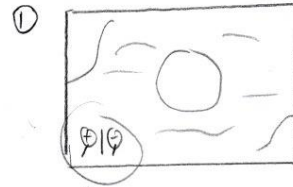
FOCUS



- ★ ① is the map which shows the quantitative data.
- ★ ② is the idiom where it's related to ①.
- ★ Page can be scrolled down for more info
- ★ After ②, the paragraph can contain analysis based on the results seen.

TITLE : Magazine
AUTHOR : Tan Per-Hoong
DATE : 5/10/2021
SHEET : 3
TASK : Magazine about Tuberculosis.

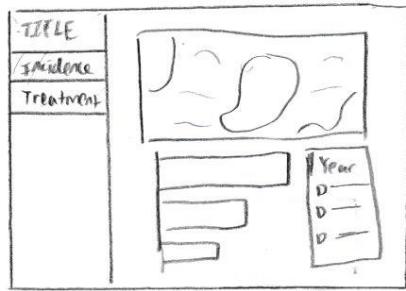
OPERATIONS



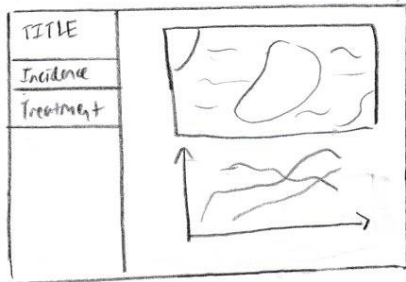
DISCUSSION

- + Detailed information can be provided
- + Analysis of the data visualisations can be written
- Interactions does not make much of an impact on a magazine.
- Analysis of the data must be accurate.

LAYOUT



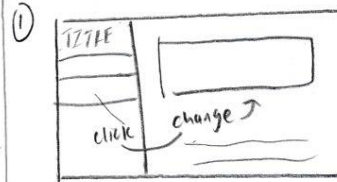
① Idioms for showing TB incidence



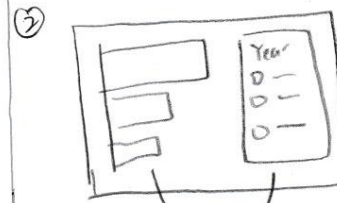
② Idioms for showing TB treatment coverage

TITLE: Dashboard with navigation
AUTHOR: Tan Per Hoang
DATE: 5/10/2021
SHEET: 4
TASK: Dashboard with navigation

OPERATIONS

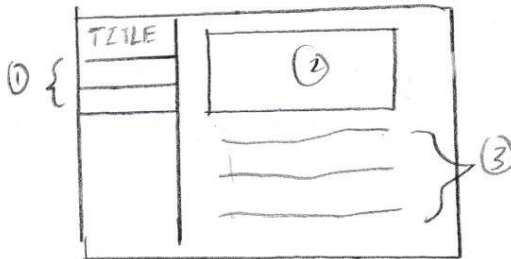


navigate between information



Year Filter.

FOCUS



is responsible for

- ★ ① Changes the idioms responsible for showing the respective information
- ★ ② are the idioms that would change based on the ① chosen
- ★ ③ contains small paragraphs about data analysis.

DISCUSSION

- + Prevents clutter of information shown to the reader
- + Allows reader to choose which information to read.
- + Information about data analysis can be provided in a paragraph text
- Reader might get confused on the layout
- Not much information can be shown currently.