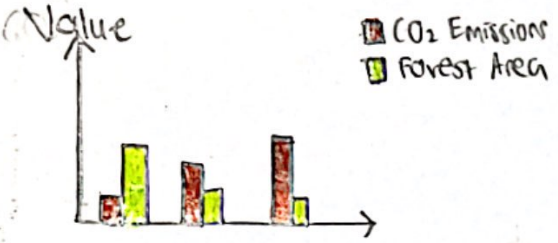
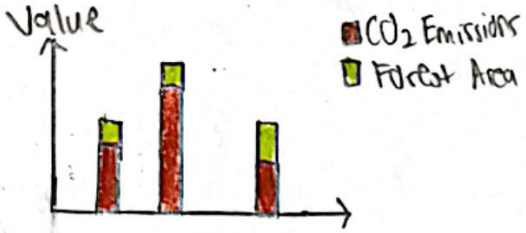
IDEAS

① Grouped Bar Chart



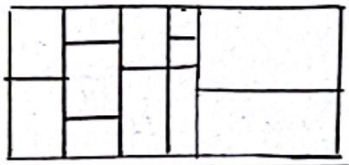
② Stacked Bar Chart



③ Clustered Force Layout

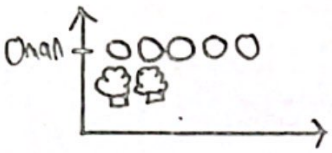
* Top 10 countries for CO2 emissions *

④ Treemap



* World Electricity Access *

⑤ Pictorial Unit Chart



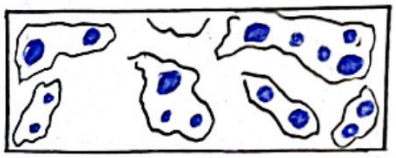
⑥ Butterfly Chart

Top 10 countries CO2 Emissions vs Forest Area

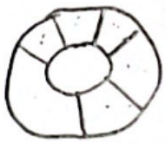
⑦ Choropleth map

* World Electricity Access

⑧ Proportional Symbol map



⑨ Donut Chart * Annual Freshwater Retrieval by Continent



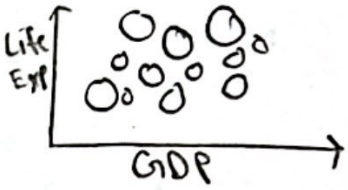
• Africa • Asia • Europe ...

⑩ Sankey Diagram

* Top 5 countries for freshwater retrievals *

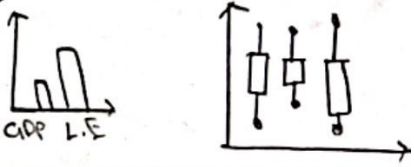
⑪ Sunburst Chart

⑫ Scatter plot

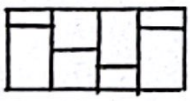


* Life Expectancy vs GDP by Continent

⑬ Pair Bar Chart ⑭ Boxplot



FILTER

④ Treemap 

- There are a lot of countries
- Treemap will be really compact
- World map charts does a better job

⑪ Sunburst Chart

- Not suitable for this data as I want to show which continents face water scarcity and not countries.

CATEGORISE

Top 10 countries for most CO2 Emissions Vs Forest Area

↓

Top 10 Countries for most Forest Area Vs CO_2 Emissions

↓

World Electricity Access

↓

Annual Freshwater Retrieval

↓

Life expentancy vs GDP

COMINE & REFINE

- ① Bar Chart, ② Stacked Bar Chart, ⑥ Butterfly Chart, ③ Clustered Force Layout, ⑤ Pictorial Unit Chart
- ⑦ Choropleth map, ⑧ Proportional Symbol map
- ⑨ Donut Chart, ⑩ Sankey Diagram
- ⑫ Scatter plot, ⑬ Pair Bar Chart, ⑭ Boxplot

QUESTION

- Is CO2 and Forest Area related?
- Can the general audience understand which continent is lacking?
- Is the visualisation bias?

Author: Lakxment a/l Saravanan

Date: 10/10/2024

Sheet: 1

Task: Planning of Visualisations

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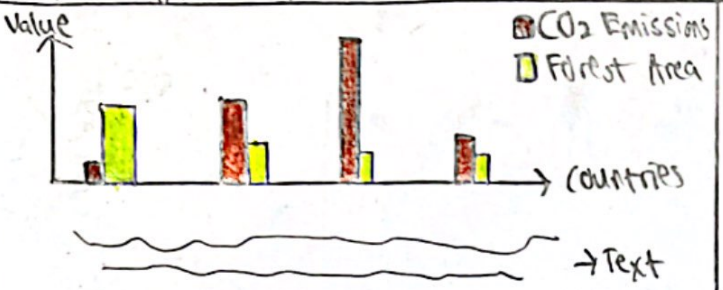
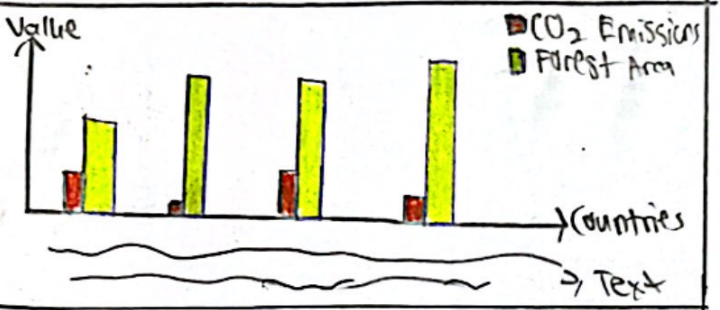
LAYOUT

World Environment Indicators (2020)

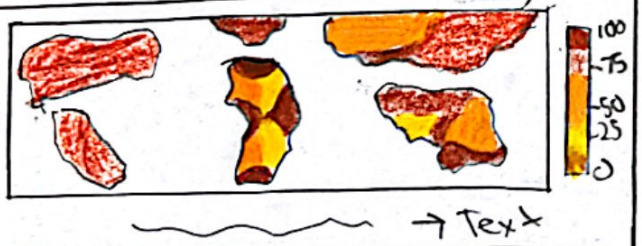
Top 10 highest CO_2 Emissions Vs Forest Area



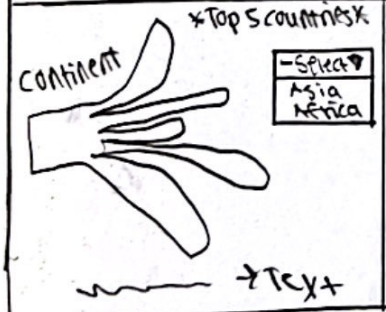
Top 10 highest countries Forest Area Vs CO_2 Emissions



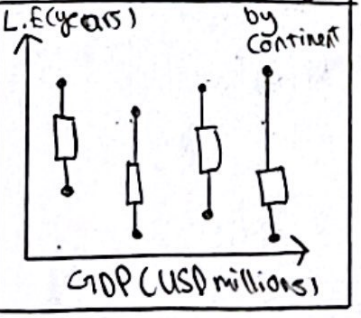
World Access to Electricity (%)



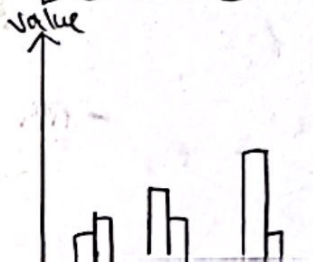
Annual Freshwater Retrieval



Life expectancy Vs GDP



FOCUS



CO_2 Emissions
Forest Area

* Group Bar Chart is easy for side-by-side comparison
* The legend is a clickable filter to see trends

Title: World Environment Indicator Overview (2020)

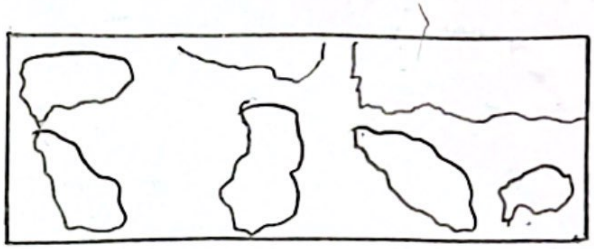
Author: Lekxment a/l Saravanan

Date: 10/10/2024

Sheet: 2

Task: Design a scrollable-page with narrativ

OPERATIONS



*Chloropeth map

↳ No normalisation needed as it is already presented as percentage

↳ Add tooltips over each country when user hovers over them to show electricity access

↳ Tooltip must also show that the data of that country is not present if a user hover over the "grey" colour country.

↳ Diverging Orange colour scale is used to show "electricity" and emphasize main continents that are lacking

DISCUSSION

Advantages:

↳ Visualisations are huge and can be easily clicked

↳ Annotations can be added clearly

↳ User just as to scroll down

↳ Clear subtitles

Disadvantages:

↳ Tough to maintain side lines.

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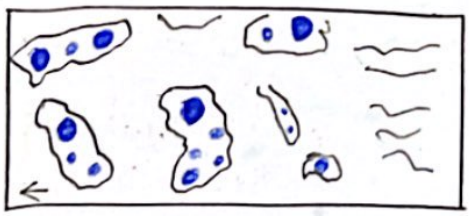
LAYOUT

1. Top 10 Countries for highest CO_2 Emissions Vs Forest Area
2. Top 10 countries for highest Forest Area vs CO_2 Emmissions
3. World Access to Electricity
4. Annual Freshwater Retrieval
5. Life Expantancy Vs GDP

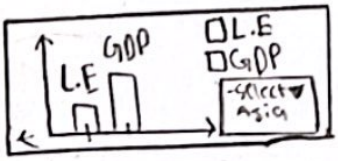
① and ②

③



④

⑤



Title: World Environment Indicators

Author: Lekxment a/l Saravanan

Date: 10/10/2024

Sheet: 3

Task: Designing webpages for each indicator

OPERATION

- This are all buttons to go to different indicators

↳ Need separate Html files for each indicator

↳ in the main page, index.html, need to provide the the links of the HTML Files

↳ A back button is used to go back to the main page (←).

↳ Or can use React framework from Javascript and create separate components for each navigator

FOCUS

- Asia
- Africa
- North America
- South America
- Europe
- Oceania

↳ Tooltips is added to show the continent that retrieves most Freshwater annually

↳ Group by Continent and divide it by total Freshwater and times 100%

↳ Annotation for most conti nents

DISCUSSION

Advantages:

↳ Organized well into pages

Disadvantages:

↳ Can't do direct comparison between indicators

↳ May have too much of whitespace in page.

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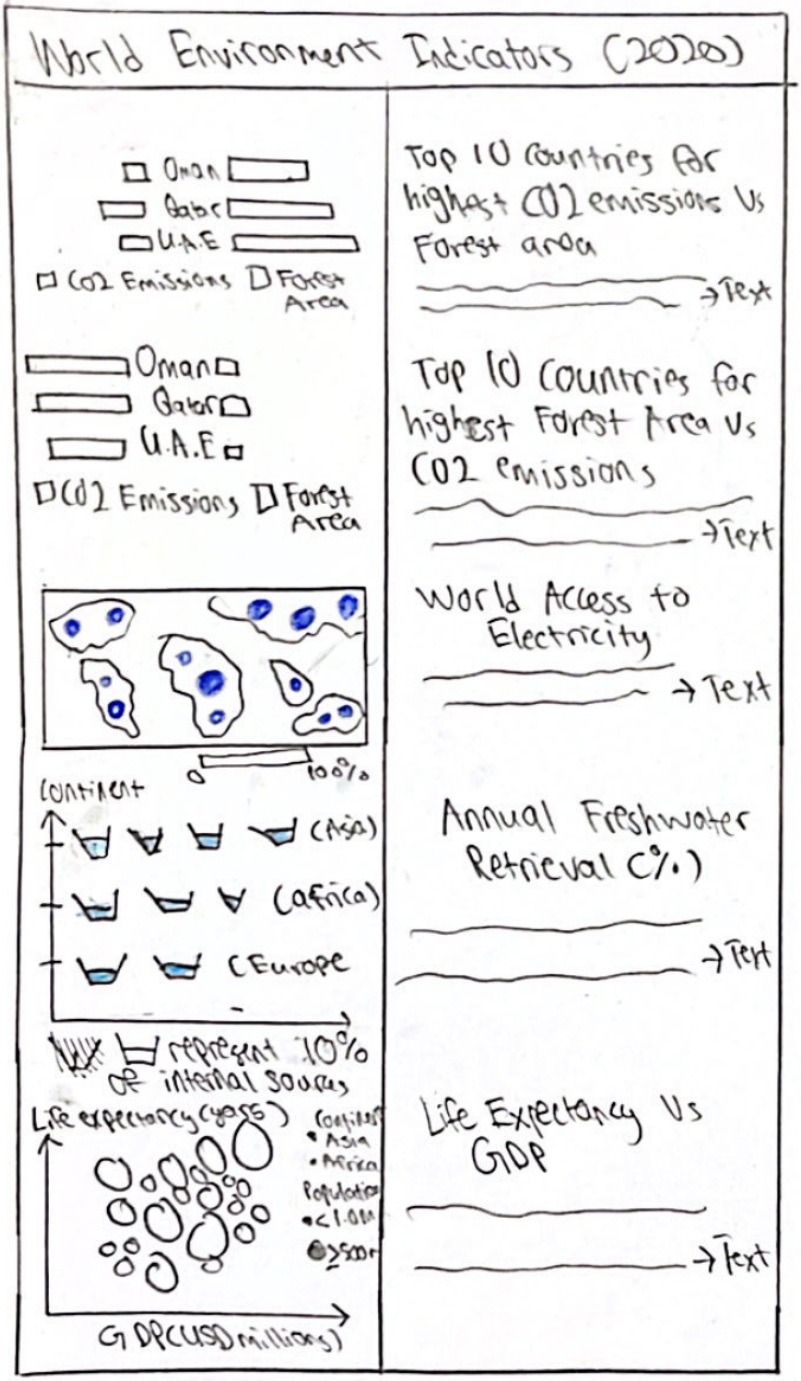
LAYOUT



Title: World Environment Indicators (2020)

Author: Lekxmeni a/l Saravanan

Date: 10/10/2024

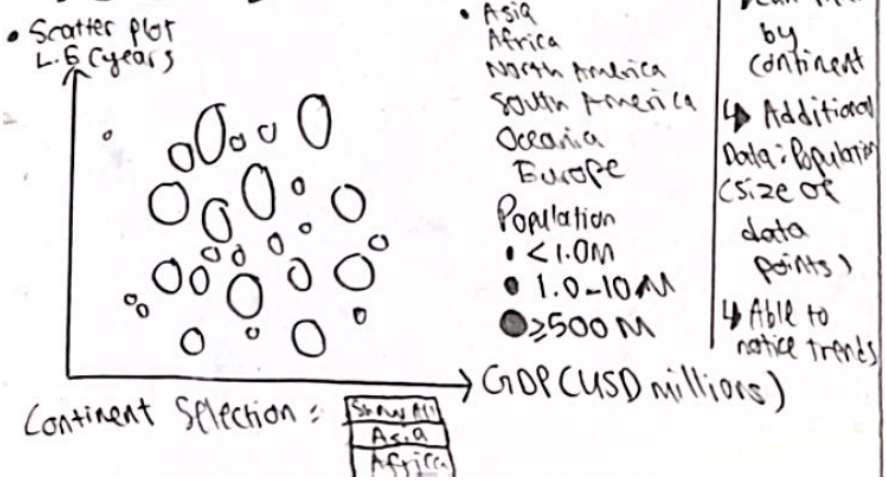
Sheet: 4

Task: Design left-aligned scrollable poster

OPERATION

- Tooltips for butterfly charts
- Legends in butterfly chart are clickable

FOCUS



DISCUSSION

Advantages:

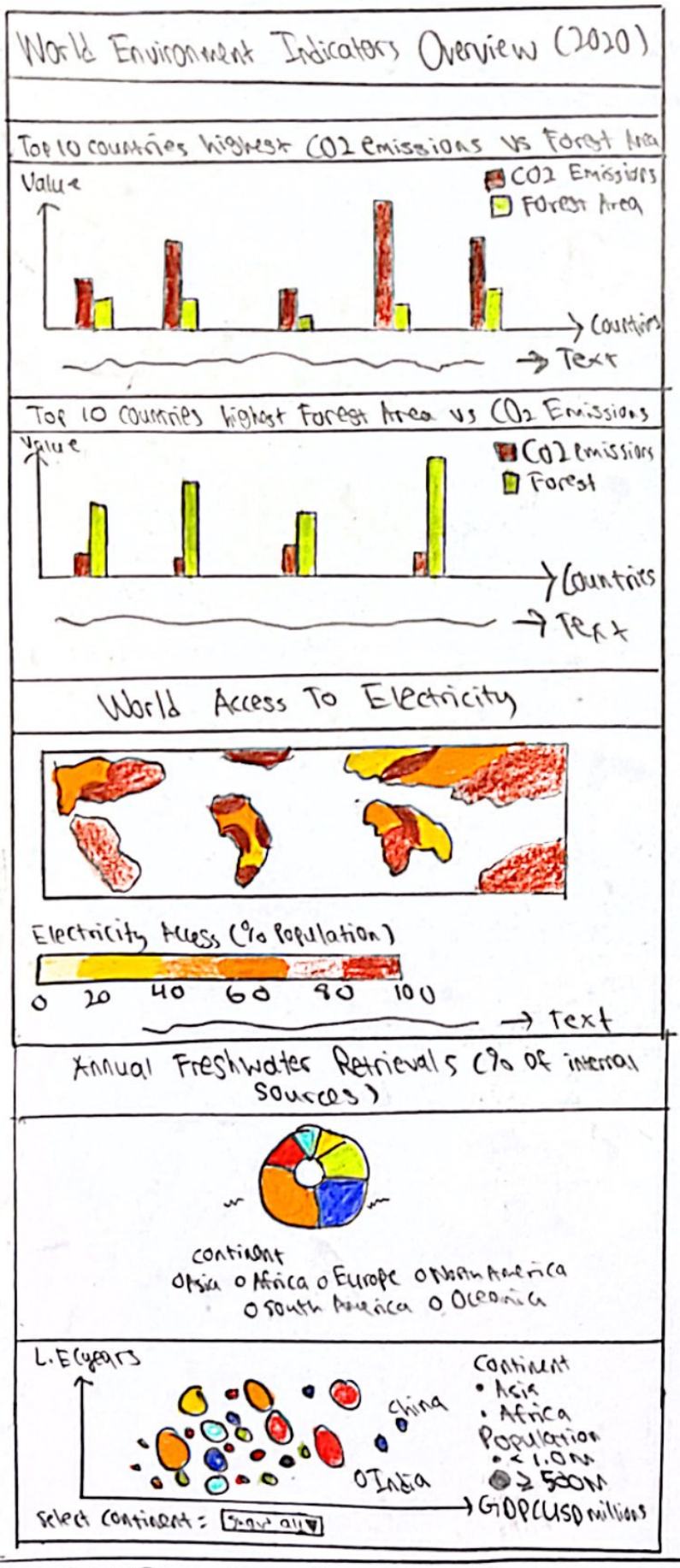
- Good sight lines
- Quite clean look

Disadvantages:

- Some visualisations like the map needs bigger space so may disrupt visual hierarchy
- This may lead to a lot of whitespaces on the texts on the

Scanned with CamScanner

LAYOUT



FOCUS: - All charts here are important for users to understand the environmental conditions
- Emphasis on annotation and tooltips

Title: World Environment Indicators Overview (2020)

Author: Lekkrent a/l Sarawanan

Date: 10/10/2024

Sheet: 5

Task: Design final scrolable webpage

OPERATION

Filtering:

- Selecting on legends for group bar charts
- Drop-down for continent filtering in chart

Tooltips:

- Used for all charts
- Bolded values

Annotations:

- Highest values in donut chart
- Country names in scatter plot

DETAILS

- Data transformation: Using pandas library(python) to get top 10 countries
- Data Cleaning: Remove countries which have no data or indicate in chart

Estimated Time and Effort: 5 days

- One day for data collecting, transformation and cleaning
- 2 days for group bar charts
- 3 days each for rest of the charts

Specific Requirements:

- Subheaders must be clear
- Colours of continents must be clear

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