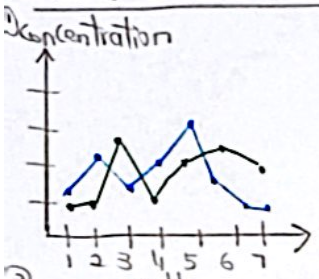
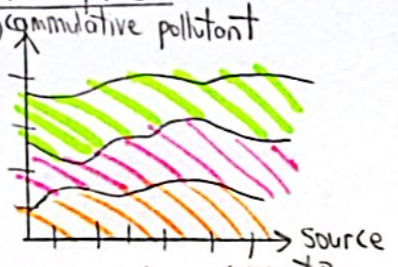
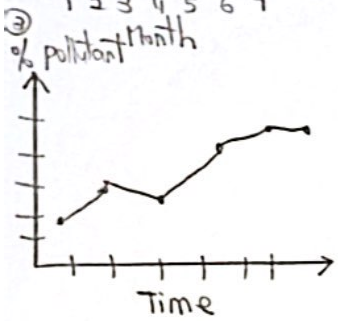
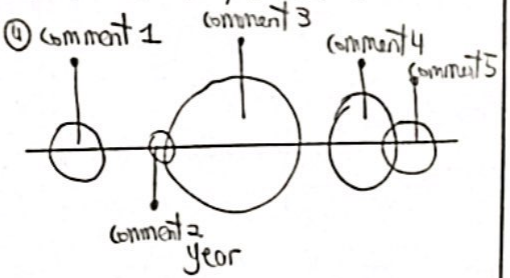
IDEAS

① Time-based / Trend Graphs

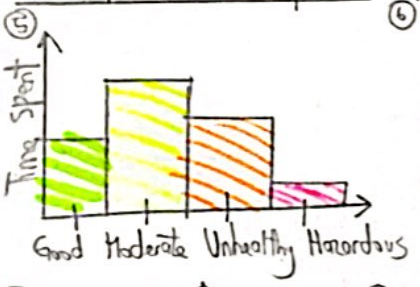


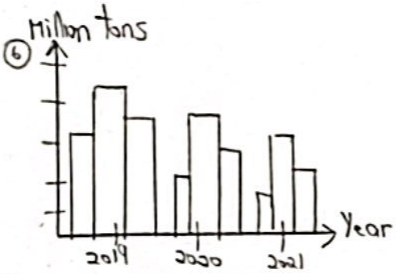


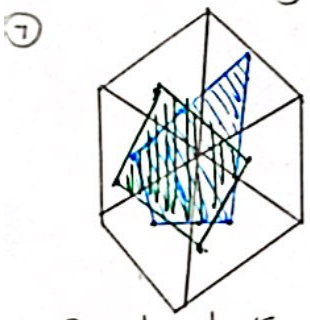


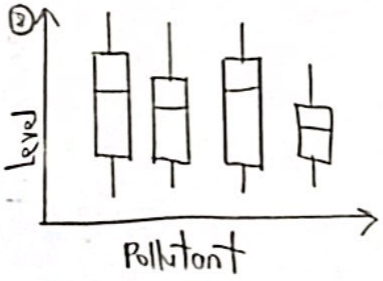


② Comparison Graphs

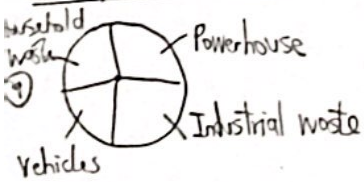




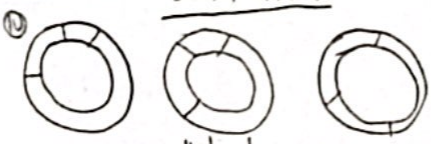




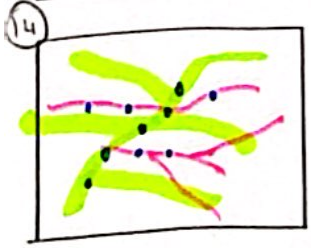
③ Proportional / Source Breakdown



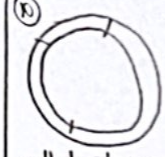
donut chart

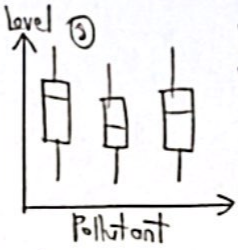


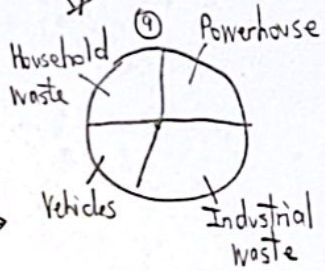
④ Maps



FILTER







CATEGORIZE

① Trends Over Time
② Comparisons
③ Distribution
④ Proportions / Sources
⑤ Geographic

COMBINE & REFINE

① Map idiom & Time-series trend
→ Combine a choropleth map with a line chart.
→ tells a story how air pollution moves & evolves around through geography and time

② Heatmap calendar overlay on map
→ Combine a heatmap overlaid on a map pin for each city.

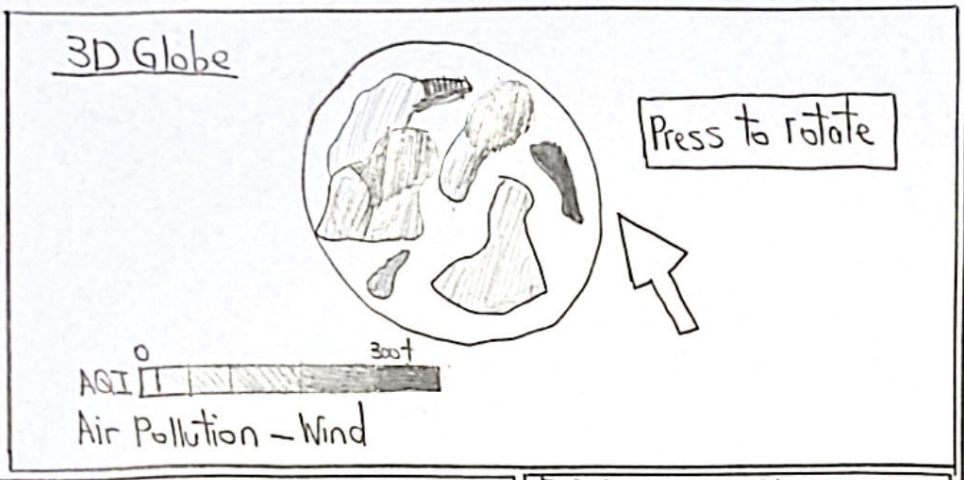
QUESTION

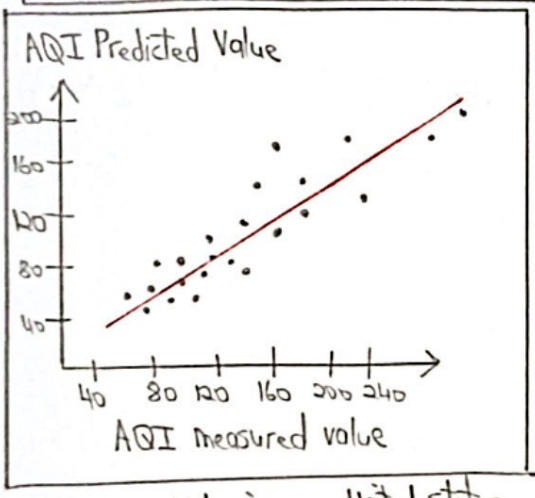
① What is the main story the user should understand?
② Who is the audience?
③ Which pollutants or data points are most relevant?
④ Which graph type best shows the information?

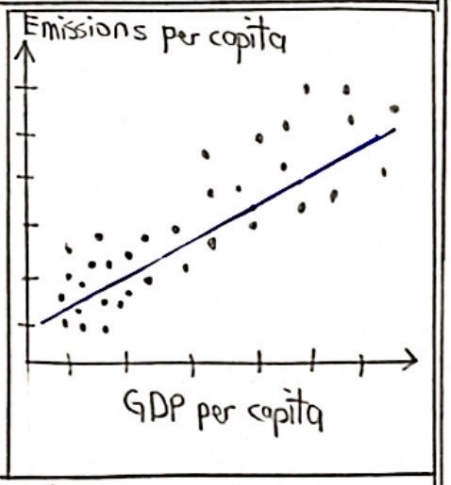
LAYOUT

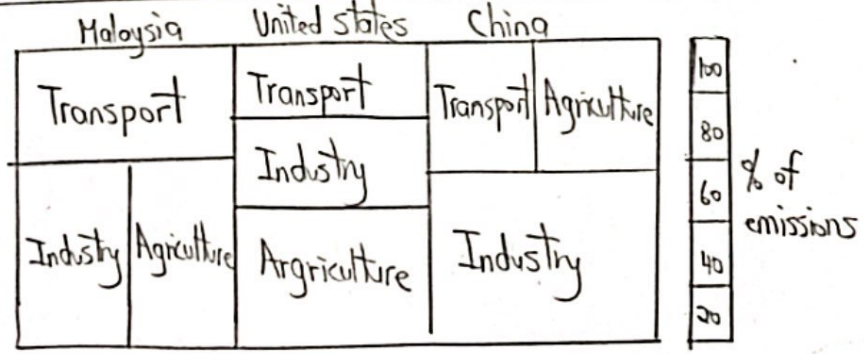
Planet Under Pressure

Global Comparison and Prediction









Summary

FOCUS

1. Comparative storytelling & predictive analysis
2. Show how data science can project environmental futures.
3. Interactive, viewer can see 3D globe.

INFO

Title: Global Comparison and Prediction

Author: Ee Gwen Ching

Date: 11/10/2025

Sheet: 2

Task: A global level interactive visualisation in terms of pollution sources and forecasting future trends.

OPERATIONS

→ Rotate globe to view different regions.

→ Hover over a country. Pollution summary.

→ Time slider. See 5-year forecast.

→ Filter by pollutant or sector.

DISCUSSIONS

Pros:

1. Strong visual appeal. 3D globe, big picture insights.
2. Comparative and predictive. Deep analytical storytelling.
3. Supports learning through exploration.

Cons:

1. High computational demand. 3D rendering, model computation.
2. Might overwhelm users without proper narrative guidance.

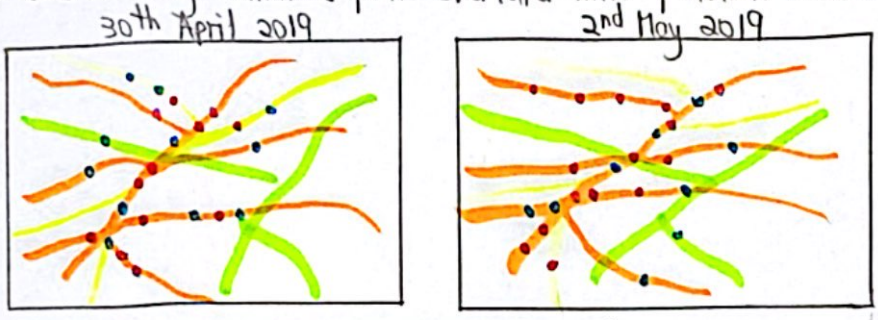
LAYOUT

Air & You

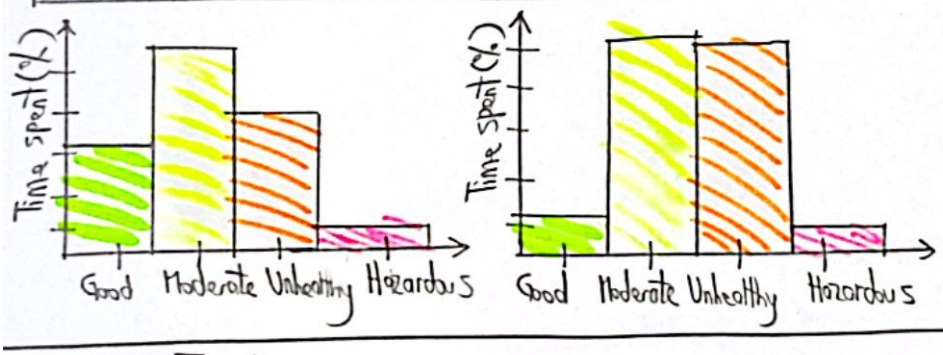
Personal Exposure Journey

Interactive Map Route

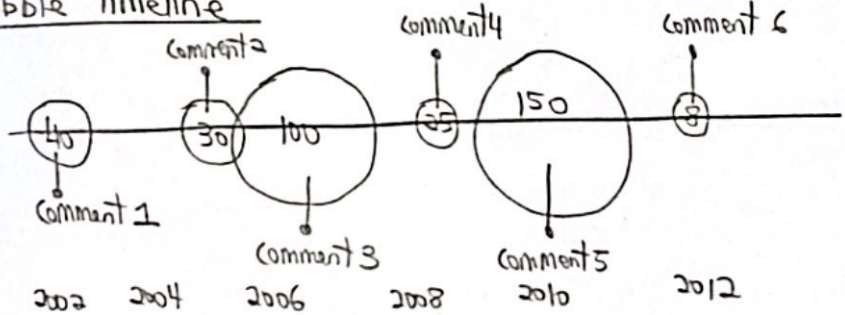
→ User's daily commute path overlaid with pollution levels.



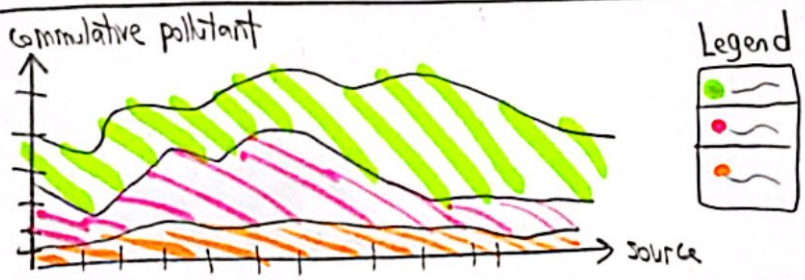
PM2.5 • 0-12 • 12.1-35.4 • 35.5-55.4



Bubble Timeline



- Bubble size = intensity of air pollution



FOCUS

→ Focus on personalisation and storytelling through interactivity.

→ Uses human-centric narrative design rather than only aggregate data.

INFO

Title: "Air & You" - Personal Exposure Journey

Author: Ee Gwen Ching

Date: 11/10/2025

Sheet: 3

Task: User experiences how daily life activities contribute to personal exposure.

OPERATIONS

→ Input your daily route

Home ⇒ Work ⇒ Gym

→ Hover on timeline. See pollutant spikes by time

→ Slider. Simulate different transport modes (car, bike, wal and their exposure differences

DISCUSSIONS

Pros:

① Strong personal relevance. Highly user engagement.

② Narrative flow promotes learning through exploration

③ Effective for education campaigns.

Cons:

① Needs user input or simulator engine. More complex backend

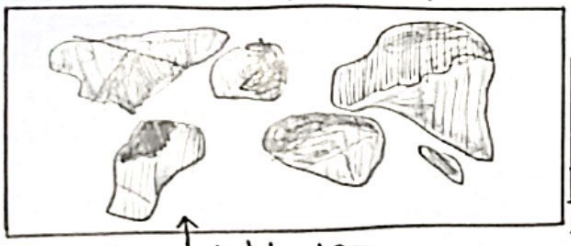
② Map route visualisation can become more cluttered with long commutes.

LAYOUT

Air Pollution Across Malaysia

"The Breathable City" — Real Time Air Quality Dashboard

① Interactive Choropleth Map

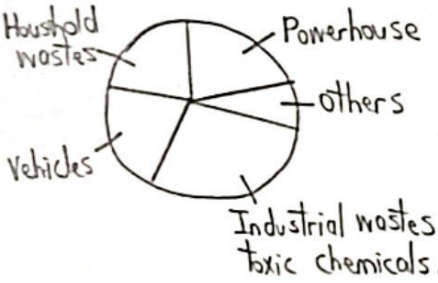


Air Quality Index

0-50	
51-100	
101-200	
201-300	
300+	

colour-coded by AQI

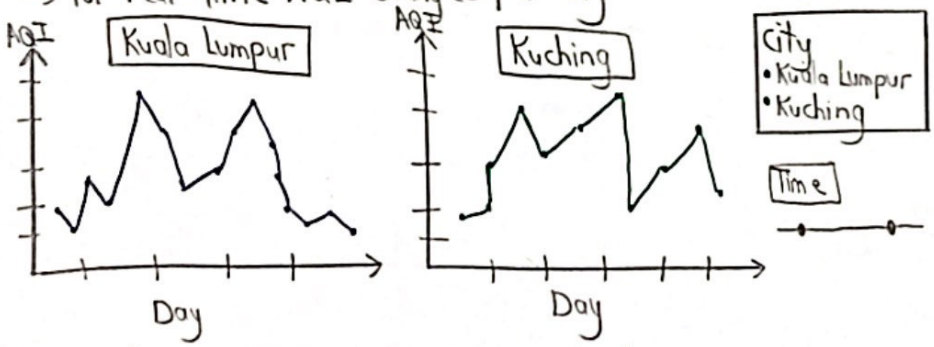
② Breakdown of pollutant sources (traffic, industry, etc.)



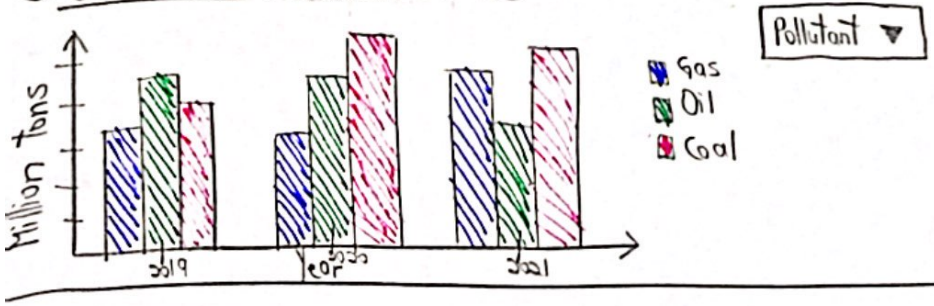
Descriptions

③ Time-Series Line Chart

→ for real-time AQI changes per city



④ Bar Chart → emission sources



FOCUS

→ Real-time storytelling of changing air quality

→ Strong data-ink ratio (minimal clutter, strong colour semantics)

INFO

Title : Air Pollution Across Malaysia

Author : Ee Gwen Ching

Date : 11/10/2025

Sheet : 4

Task : Poster-style dashboard to show the significance of air pollution in Malaysia

OPERATIONS

→ Hover over city. Shows pop-up AQI details.

→ Time slider. Adjust the date or time to view AQI trends.

→ Dropdown. Filter by pollutant type.

→ Toggle switch. Switch between city view and region view.

DISCUSSIONS

Pros :

① Highly engaging, real-time data appeals to public interest.

② Multi-view visualisation shows macro and micro insights.

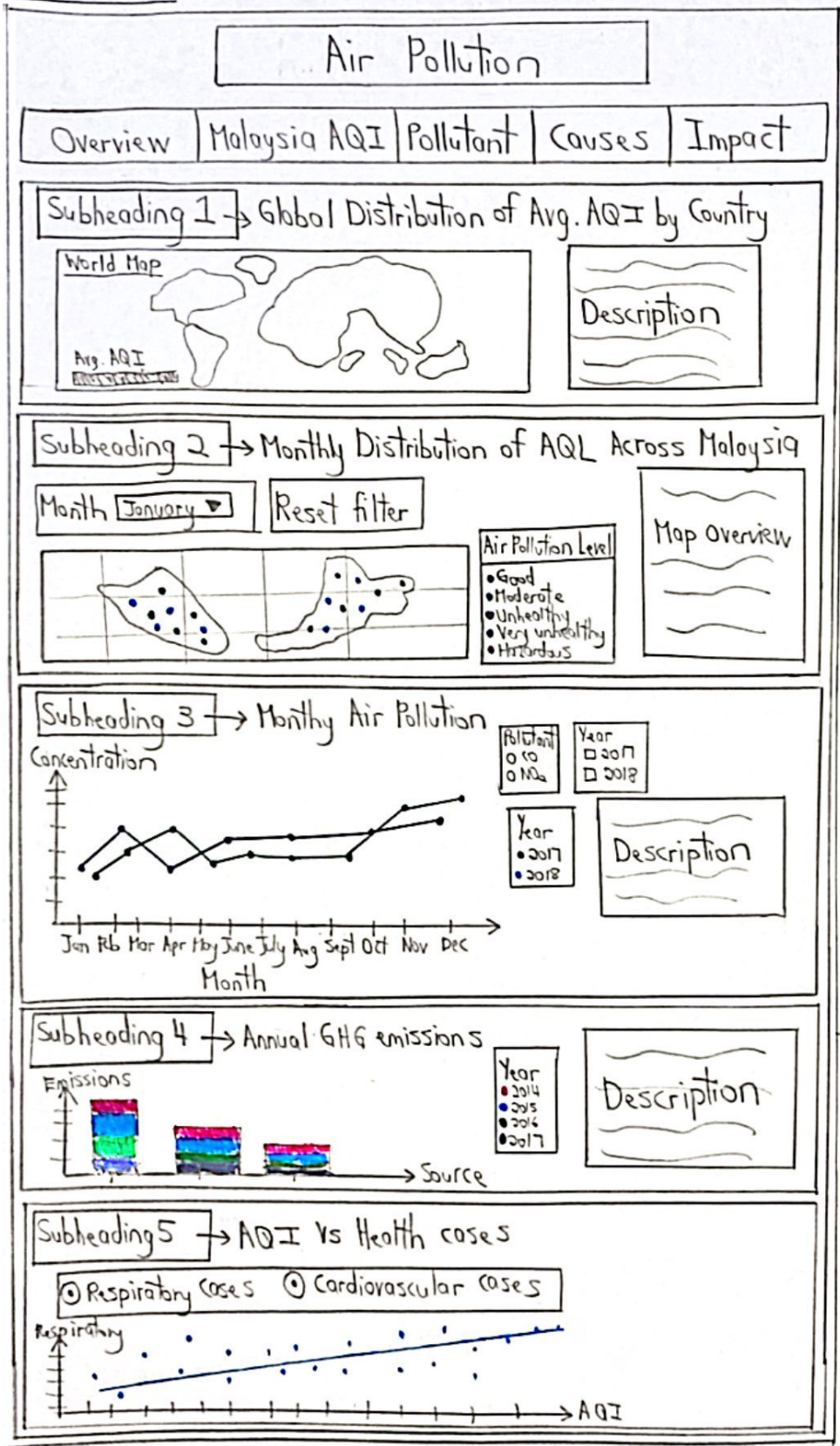
③ Interactive controls enhance exploration.

Cons :

① High data dependency (needs real-time feeds)

② May be too complex for casual users if not simplified visually.

LAYOUT



INFO

Title : Final Design Sheet
Author : Ee Gwen Ching
Date : 11/10/2025
Sheet : 5
Task : Final Webpage Design

OPERATIONS

→ Navigation tabs for each graph. Shortcut so that viewer can directly go to the graph by clicking on the tab.

→ Filter panels, slim vertical bar with dropdown menu, rounded pills, and compact labels.

- Respiratory cases
- Cardiovascular cases

Month

→ Reset filter

→ Tooltip when hover over each point.

DETAILS

① Algorithms / Analytical Methods

→ data cleaning using R code.

② Dependencies

→ HTML, Vega-Lite, Javascript, R for data cleaning.

③ Estimate Time

→ 3 days for data cleaning and preparations.

→ 2 weeks to create the webpage using HTML and Vega-Lite.

④ Specific Requirements

→ Dataset size consideration

→ Software.

FOCUS

→ Show a good storytelling about air pollution topic. Firstly, showing the overview of worldwide air pollution index, Malaysia AQI, pollutant distribution, causes of air pollution, and its impact on health.

→ all graphs and maps are equally important. Each graphs show different insights and information.