



**COLLEGE OF COMPUTING AND INFORMATICS  
PUTRAJAYA CAMPUS**

**CLASS PROJECT REPORT**

**SEMESTER 1 2024/2025**

SUBJECT CODE: CGMB4113

SUBJECT: Information Visualisation

STUDENT ID: IS01081779

STUDENT NAME: Ayman Fikry bin Asmajuda

SECTION: 01A

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**Note:**

This report template provides a brief outline of what to include, but detailed explanations are available in the project instruction document. Please refer to it for guidance on what to write in each section and subsection.

## SECTION 1: CONTEXTUAL PLANNING

### a) Project Introduction

The topic of my project is on “Post-Pandemic Malaysia: Analyzing COVID-19's Impact on Economy, Business, Environment, and Social Lifestyle”. Due to the nature of this project, the main theme is primarily centered on Health. In a general sense, this project aims to explore the overall impact related to the Covid-19 pandemic on how it affected the many facets of life, from the perspective of business and economic settings to the social and environmental aspects. These impacts, depending on the circumstances, have shown themselves in both positive and harmful ways in this post-pandemic period. This project looks at the various viewpoints in an effort to seek better understanding on the pandemic's long-term impacts and Malaysia's capability to adapt and flourish in its wake.

To successfully accomplish this project, I have conducted a thorough research and discovered distinct datasets and sources of reference to acquire the data needed to create the required five graphs that are relevant and appropriate for this project. Basically, two of the datasets come from reputable websites that are associated with the Malaysian government which provides data that are open for the general public. One of the datasets was acquired from a news media website that features its own graph, while another dataset was obtained through an open access data repository. The final dataset is made up of hypothetical data with reference on an infographic that consists of data from a Health Priority Survey. For the most part, the datasets are highly relevant to this project as it contains the latest data to date.

The outcome of this project will be the development of two visualization outputs for the sole purpose of presenting these visualizations to effectively engage with the target users. The first one is a comprehensive presentation deck that features five professionally constructed graphs with detailed storytelling elements to provide clear insights enabling thorough analysis on the sophisticated data. The second one is an infographic poster that is both visually appealing and highly educational in providing a clear and concise overview of the current state of Malaysia during this post-pandemic period, making the topic easily understandable for a wide audience.

b) Communication goal and message.

i. Overall communication objective and impact

The overall communication objective of this project is to present on the current post-pandemic state of Malaysia, showcasing the trend of COVID-19 cases after the pandemic while highlighting the various impacts that comes along with it, be it positive or negative, in hopes to spread awareness and educate the public on how different individuals, groups or businesses are affected during the post-pandemic.

ii. Messages and insights

Message/Insight #1: Post-Pandemic COVID-19 Cases Trend in Malaysia (2022–2025)

Brief description: Present a graph showcasing the Covid-19 cases during the post-pandemic, which is from 2022 up to 2025, emphasizing on the sudden rise or drops in numbers of cases while looking at the direction of trend. The direction of the trend whether it be upwards or downwards will give a strong indication on how well Malaysia is adapting in its recovery attempts to reduce COVID-19 cases after the pandemic.

Message/Insight #2: Post-Pandemic Producer Price Index (PPI) Rate in Malaysia (Jan - Nov 2024)

Brief description: Develop a graph to monitor the PPI index rate throughout the current year, from January to November 2024, ensuring that it is in a stable rate as it gives of a clear indication on whether the economy sector of the country is in a healthy level of growth or otherwise. If the PPI index rate is too high or low from its predefined baseline, it could lead to detrimental impact to the economy of the country.

**Message/Insight #3: E-Commerce Value Trend in Malaysia (2019 – 2024)**

Brief description: Create a graph to examine the trend of the E-Commerce value throughout the years, from mid-pandemic to post-pandemic, showcasing its growth and advancements due to the unexpected event of the pandemic. This helps to further demonstrate on how businesses survive during the pandemic by taking advantage of the digital endeavors while at the same time consumer behaviors also shift towards the online initiatives.

**Message/Insight #4: Air Pollution Trends in Malaysia: Analyzing CO<sub>2</sub> Emission Rates (2019 - 2023)**

Brief description: Illustrate a graph to observe the annual CO<sub>2</sub> Emission Rates, from 2019 to 2023, highlighting the effects of human activities on the overall air pollution in Malaysia. This helps to provide a correlation between human activities and CO<sub>2</sub> Emission rates especially when comparing the values during mid-pandemic and post-pandemic.

**Message/Insight #5: Malaysians Post-Pandemic Health Lifestyle and Habits**

Brief description: Incorporate a graph to demonstrate the health lifestyles and habits of most Malaysians during the post-pandemic. After the pandemic, many people have begun to engage in various activities and actions to improve their overall health as they become much more self-aware on the importance of their health and well-being. This indicates that the pandemic leads to a positive impact on Malaysians by giving a new goal of leading towards a healthier lifestyle accompanied with better habits in their own journey of self-improvement.

c) Target user analysis

One of the main target users for this project is focused on the general public which consist of Malaysian citizens from various background, ethnicity, demographics and age groups. In regards to the diverse capabilities and needs of the public, the visualizations will utilize appropriate color contrast that also supports people with color visual deficiencies. With proper labeling, explanation on the graphs, use of non-technical terms or jargons, these types of users will be able to easily familiarize with the visualization elements which in a general sense will be consider as user-friendly visualizations.

Other target users may involve researchers. To ensure clarity and usability, each visualization will include annotations that are detailed yet concise while also implementing markers and shaded areas to further highlight on the disparity during the mid-pandemic and post-pandemic period.

## **SECTION 2: DATA PREPARATION**

a) Link to each data source and a brief description of what the data is about

The data used are from reputable websites such as government websites or new websites such KKMNOW, OPENDOSM, GlobalData and Our World in Data for 4 of the first graphs.

For the final graph, the data is specifically hypothetical with reference of a survey from Herbalife to made the logical and educated assumptions on the data creation.

b) Data preparation activities (including screenshots of key activities)

The data preparation only involves data transformation such as transforming raw data into aggregated and structured data so they could be used for graph creation.

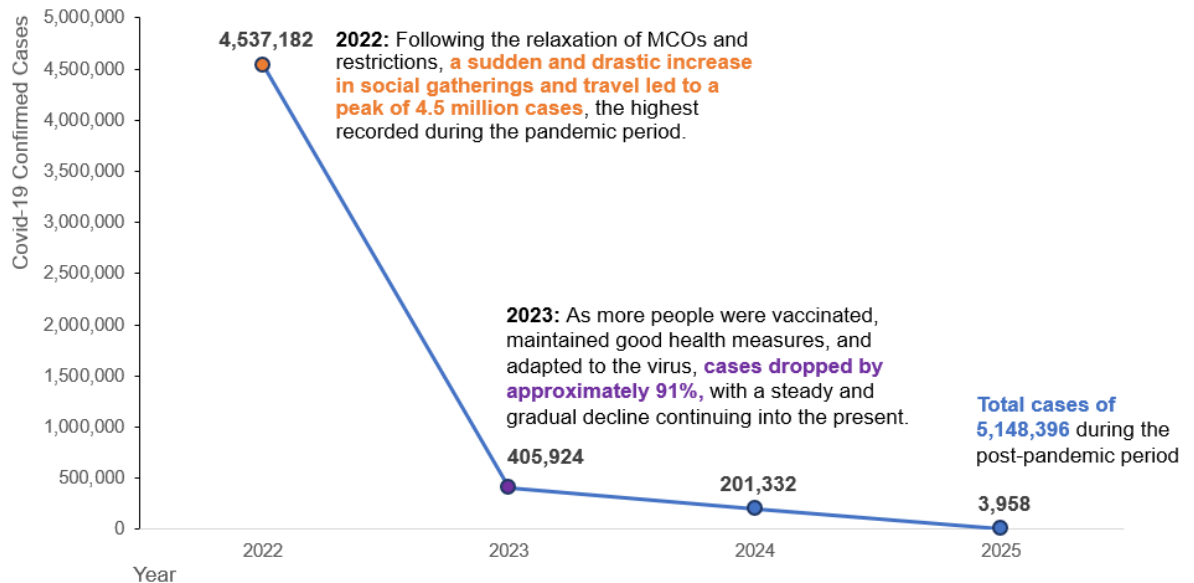
## SECTION 3: SOLUTION DEVELOPMENT

### PRESENTATION DECK

Graph 1:

#### Post-Pandemic COVID-19 Cases Trend in Malaysia (2022–2025)

Over the years, COVID-19 cases have significantly declined, showcasing Malaysia's resilience during the post-pandemic recovery.



Data Source: KKMNOW, Ministry Of Health (MOH) Malaysia, Accessed at [https://data.moh.gov.my/data-catalogue/covid\\_cases](https://data.moh.gov.my/data-catalogue/covid_cases)

a) Justification of the selection of graph.

Graph 1 utilizes a line chart. Line chart is suitable for this insight as it shows the trend of direction of either moving upwards or downwards which in this case is highly essential to understand on whether the cases will increase or decrease throughout the years during the post-pandemic. Not to mention, it is also ideal with presenting time series data which will be useful in highlighting specific trends or patterns when analyzing the data.

b) Discussion on the design decision for graph presentation, inclusive of storytelling elements.

- The continuous lines of the line chart emphasizes the pattern and trend of COVID-19 cases throughout the 4 years (2022-2025) during post-pandemic,

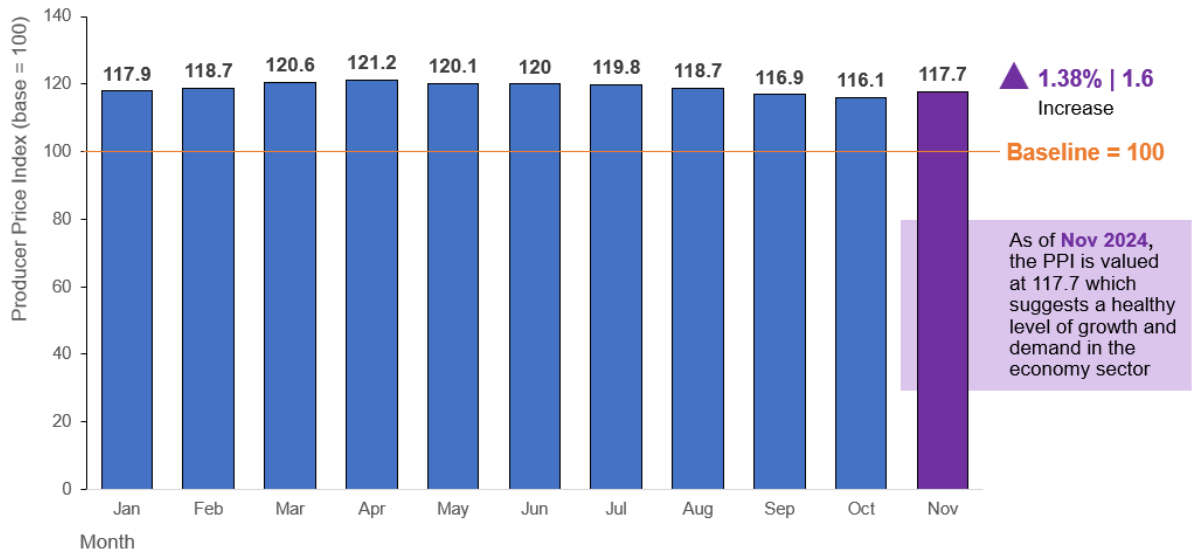
thus ensuring users could effectively analyze the direction of the line when it either rises or drops over the pre-defined time intervals.

- Based on the **Gestalt Principles of Visualization**, the line chart features **Similarity** and **Emphasis** to connect the colours (orange,purple,blue) with their own meanings, and **Proximity** to indicate that near callouts and data points are related.
- There are also a few **Storytelling Elements** implemented into the line chart:
  - The first elements being used are such as an engaging **Main Descriptive Title** and a **Statement Secondary Title** to maximize impact.
  - Secondly, are informative **Callouts** that helps to emphasize on the key events and provide necessary insights.
  - Finally, a **Footnote** as a source of reference.

Graph 2:

### Post-Pandemic Producer Price Index (PPI) Rate in Malaysia (Jan - Nov 2024)

Overall stable PPI rate in 2024, remaining above the baseline of 100, highlights Malaysia's balanced economy and manageable inflation during the post-pandemic



Data Source: OpenDOSM, Department of Statistics Malaysia, Accessed at <https://open.dosm.gov.my/data-catalogue/ppi?visual=overall>

a) Justification of the selection of graph.

Graph 2 uses a column chart. Although, there are time series data such as the months involved, column chart in this case is suitable to compare the values rather than to observe the trends or patterns, especially since the PPI rate of values are almost similar thus trend does not play an important role but more towards looking into how the current values differ from previous months.

b) Discussion on the design decision for graph presentation, inclusive of storytelling elements.

- The column chart emphasizes values rate of PPI when comparing between the 11 months (Jan-Nov) in 2024, ensuring users could effectively analyze the current rate with previous ones with consideration of the baseline of 100 as a guide point.
- Based on the **Gestalt Principles of Visualization**, the column chart features **Similarity** to connect the colour purple with its own meanings, **Emphasis** on both the colour purple and orange for enhance clarification, **Proximity** to indicate that near callouts and columns are related and **Enclosure** to indicate a common area within the purple-coloured column and shaded area.

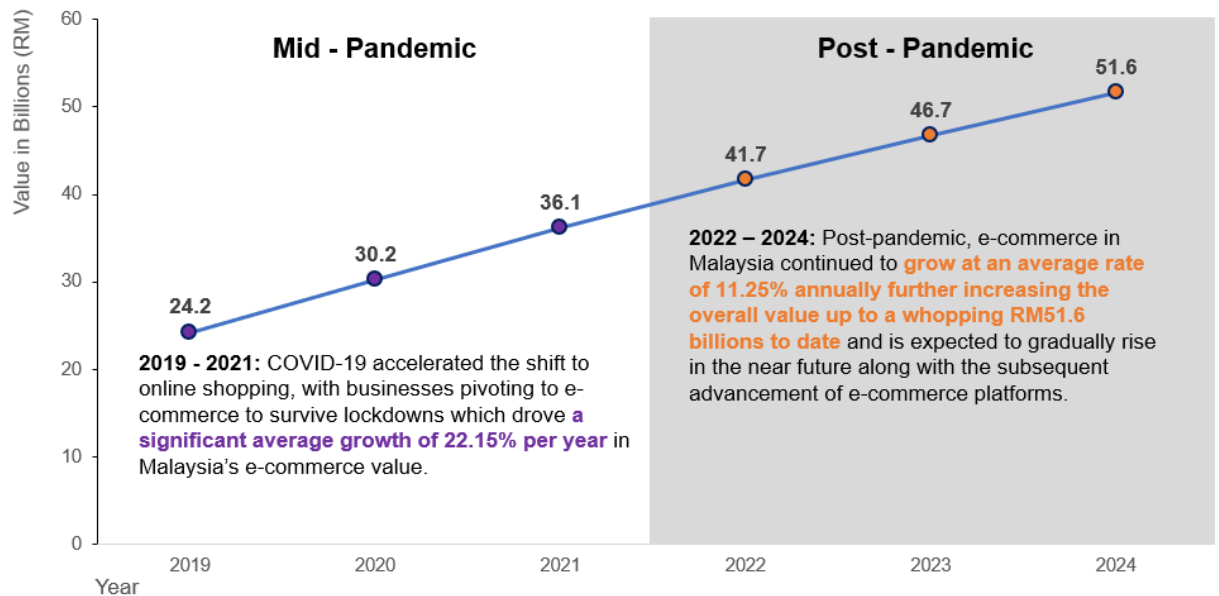


- There are also a few **Storytelling Elements** implemented into the column chart:
  - The first elements being used are such as an engaging **Main Descriptive Title** and a **Statement Secondary Title** to maximize impact.
  - Secondly, are informative **Callouts** that helps to emphasize on the key events and provide necessary insights.
  - Thirdly, appropriate **Highlighting** to indicate certain areas especially column related to the current rate of PPI.
  - Finally, a **Footnote** as a source of reference.

Graph 3:

### E-Commerce Value Trend in Malaysia (2019 – 2024)

Rise in E-Commerce from Mid to Post-Pandemic Fueled by Online Shopping Growth, Government Support, and New Opportunities for SMEs to Thrive in the Digital Economy



Data Source: GlobalData, Published by MalaysiaNOW.

Accessed at <https://www.malaysianow.com/news/2021/01/27/big-future-for-e-commerce-despite-retail-tycoons-doubts>

a) Justification of the selection of graph.

Graph 3 incorporates a line chart. Line chart is suitable for this insight as it shows the trend of direction of either moving upwards or downwards which in this case is highly essential to understand on whether the e-commerce value will increase or decrease throughout the years from mid-pandemic to post-pandemic. Not to mention, it is also ideal with presenting time series data which will be useful in highlighting specific trends or patterns when analyzing the data.

b) Discussion on the design decision for graph presentation, inclusive of storytelling elements.

- The continuous lines of the line chart emphasizes the pattern and trend of e-commerce value throughout the 6 years (2019-2024) from mid to post-pandemic, thus ensuring users could effectively analyze the direction of the line when it either rises or drops over the pre-defined time intervals.
- Based on the **Gestalt Principles of Visualization**, the line chart features **Similarity** and **Emphasis** to connect the colours (orange, purple) with their

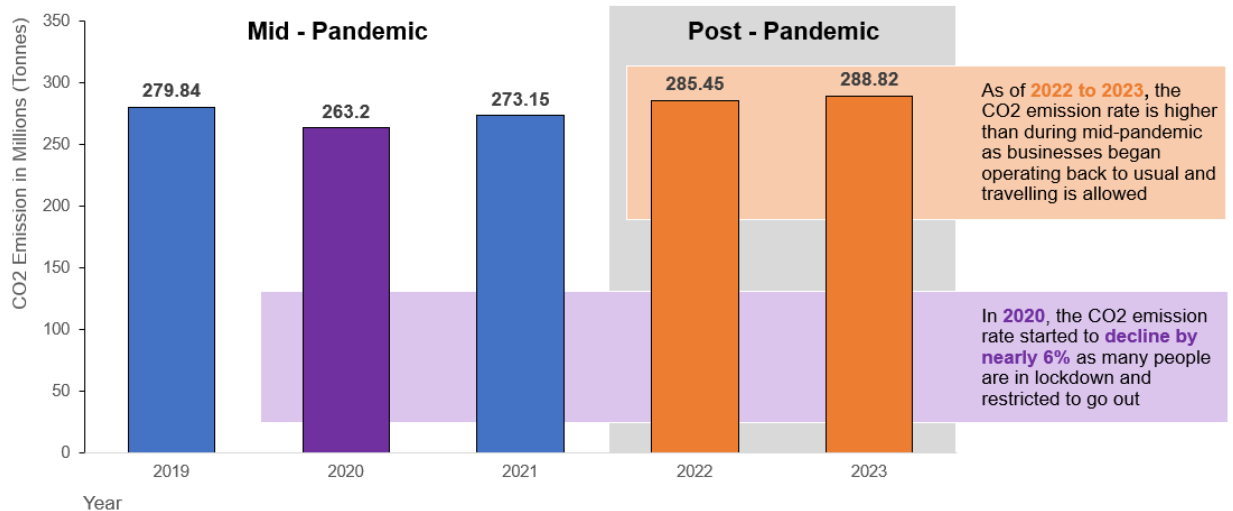
own meanings, **Proximity** to indicate that near callouts and data points are related and **Enclosure** to indicate the COVID-19 timeline period during the 6 years.

- There are also a few **Storytelling Elements** implemented into the line chart:
  - The first elements being used are such as an engaging **Main Descriptive Title** and a **Statement Secondary Title** to maximize impact.
  - Secondly, are informative **Callouts** that helps to emphasize on the key events and provide necessary insights.
  - Thirdly, appropriate **Highlighting** to indicate certain areas especially during the post-pandemic of the COVID-19 pandemic stages.
  - Finally, a **Footnote** as a source of reference.

Graph 4:

### Air Pollution Trends in Malaysia: Analyzing CO<sub>2</sub> Emission Rates (2019 - 2023)

As the post-pandemic began, emissions started to rise again, highlighting the significant impact of human activities on air pollution



Data Source: Our World in Data, Global Change Data Lab, Accessed at <https://ourworldindata.org/co2/country/malaysia>

a) Justification of the selection of graph.

Graph 4 uses a column chart. Although, there are time series data such as the years involved, column chart in this case is suitable to compare the values rather than to observe the trends or patterns, especially since the CO<sub>2</sub> Emission rates are almost similar thus trend does not play an important role but more towards looking into how the current values during mid and post-pandemic differ from each other and the reason behind the sudden difference.

b) Discussion on the design decision for graph presentation, inclusive of storytelling elements.

- The column chart emphasizes values rate of CO<sub>2</sub> Emission when comparing between the 5 years (2019-2023) from mid to post-pandemic, ensuring users could effectively analyze the differing values during mid and post-pandemic.
- Based on the **Gestalt Principles of Visualization**, the column chart features **Similarity** and **Emphasis** to connect the colours (orange, purple) with their own meanings, **Proximity** to indicate that near callouts and columns are

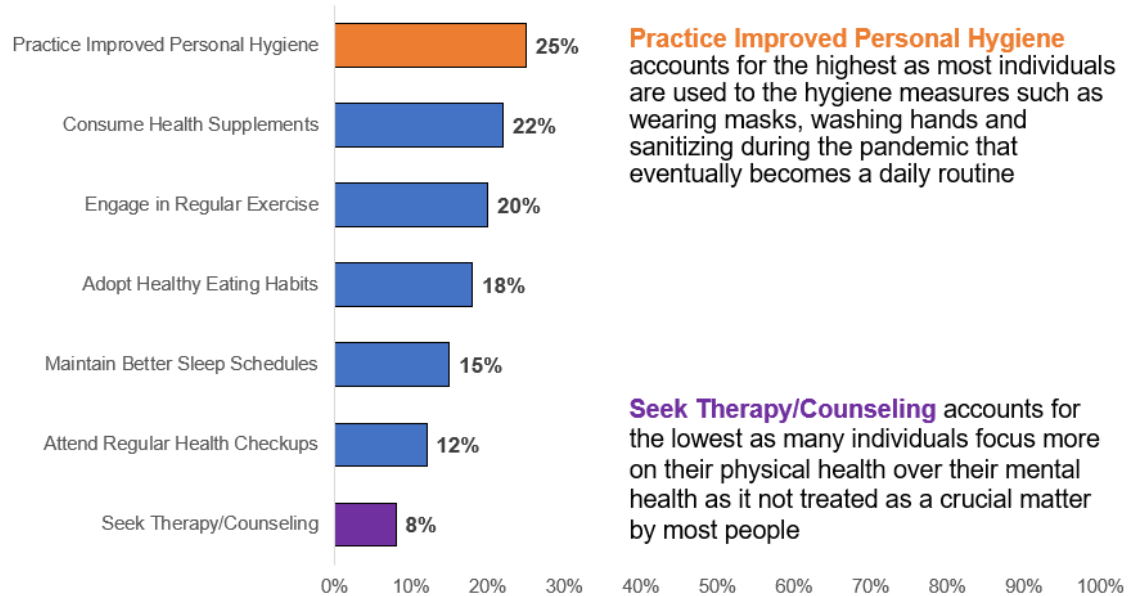
related and **Enclosure** to indicate a common area within the colours (orange,purple) columns and shaded area.

- There are also a few **Storytelling Elements** implemented into the column chart:
  - The first elements being used are such as an engaging **Main Descriptive Title** and a **Statement Secondary Title** to maximize impact.
  - Secondly, are informative **Callouts** that helps to emphasize on the key events and provide necessary insights.
  - Thirdly, appropriate **Highlighting** to indicate certain areas especially column related to the current rate of PPI.
  - Finally, a **Footnote** as a source of reference.

Graph 5:

### Malaysians Post-Pandemic Health Lifestyle and Habits

The pandemic has led to significant changes in Malaysians health lifestyles and habits, with more individuals adopting healthier choices and prioritizing well-being in hopes to improve overall health



**Data Source:** The data presented in this graph is hypothetical with reference from Herbalife, 2023 Asia Pacific Health Priority Survey.

a) Justification of the selection of graph.

Graph 5 features a bar chart. Bar chart is useful in this case as there are many and also long elements names for the y-axis which helps to prevent clutter and appear in an organized manner. Not to mention, just as the column chart it prioritizes on value comparison as such in this case it could sort between the highest and lowest values in terms of percentage.

b) Discussion on the design decision for graph presentation, inclusive of storytelling elements.

- The bar chart emphasizes values of percentage when comparing between the 7 post-pandemic health lifestyle and habits of Malaysians from highest to lowest, ensuring users could effectively analyze the differing values.
- Based on the **Gestalt Principles of Visualization**, the bar chart features **Similarity** and **Emphasis** to connect the colours (orange, purple) with their own meanings, and **Proximity** to indicate that near callouts and columns are related.
- There are also a few **Storytelling Elements** implemented into the bar chart:

- The first elements being used are such as an engaging **Main Descriptive Title** and a **Statement Secondary Title** to maximize impact.
- Secondly, are informative **Callouts** that helps to emphasize on the key events and provide necessary insights.
- Finally, a **Footnote** as a source of reference.

## INFOGRAPHIC POSTER

- a) Discussion on the design decision for OVERALL design layout, composition, and storytelling approach.

The overall layout and composition follow a structured narrative flow where users could read from left to right and down to bottom. It includes appropriate information blocks that consist of an introduction, the key information and conclusion for the infographic. As such, it has a visual cue which allows users to read the information blocks accordingly. On top of that, the infographic has a visual anchor at its title of a graphic of a COVID-19 test kit to appeal to the audience and tell them it is related to COVID-19 pandemic. The colours used are also user-friendly for all kinds of people especially the ones who have color visual deficiency as there are no red or green colours utilized in the infographic. Storytelling approaches include highlights such as the colour orange and purple to further later on clarify on their meanings and what the colours are related to.

## THE FINAL VISUALIZATION OUTPUT

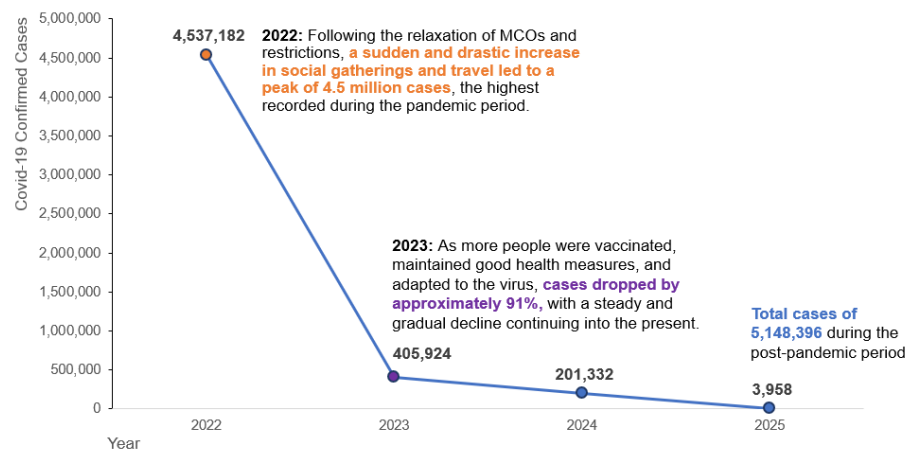
Presentation deck:

# Class Project Presentation Deck

Name:	Ayman Fikry bin Asmajuda
ID:	IS01081779
Section:	Section 01A

### Post-Pandemic COVID-19 Cases Trend in Malaysia (2022–2025)

Over the years, COVID-19 cases have significantly declined, showcasing Malaysia's resilience during the post-pandemic recovery.

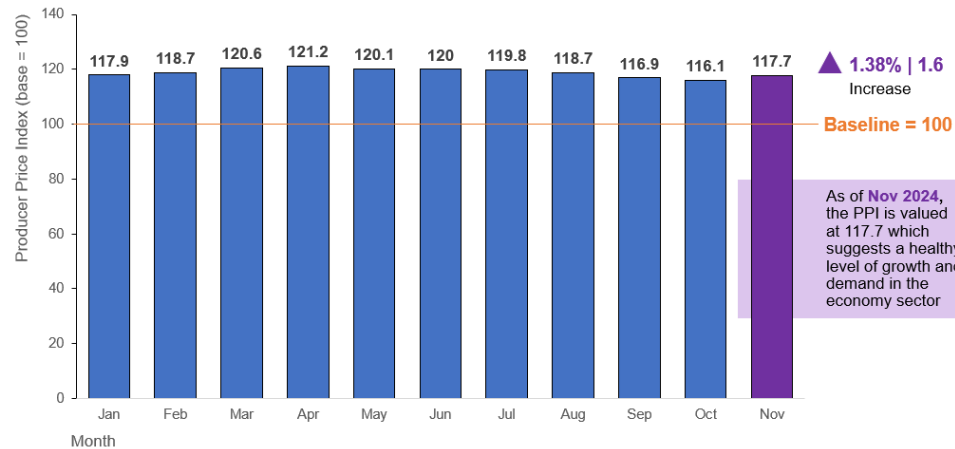


Data Source: KKMNOW, Ministry Of Health (MOH) Malaysia, Accessed at [https://data.moh.gov.my/data-catalogue/covid\\_cases](https://data.moh.gov.my/data-catalogue/covid_cases)



### Post-Pandemic Producer Price Index (PPI) Rate in Malaysia (Jan - Nov 2024)

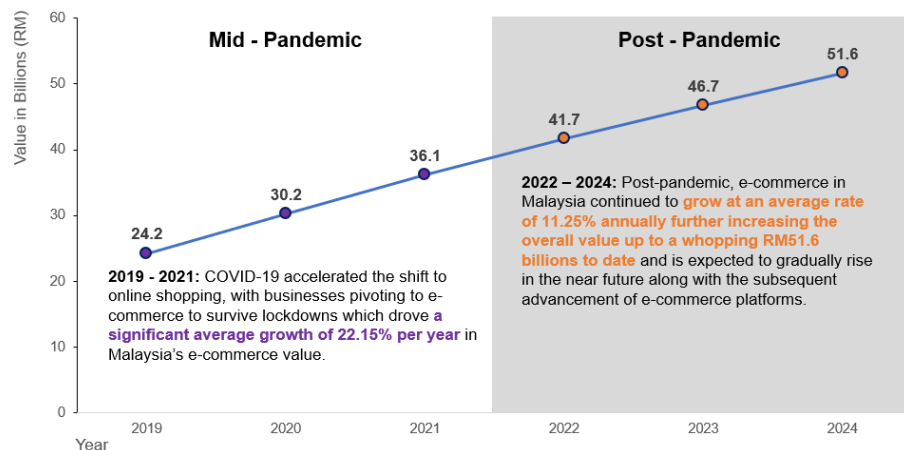
Overall stable PPI rate in 2024, remaining above the baseline of 100, highlights Malaysia's balanced economy and manageable inflation during the post-pandemic



Data Source: OpenDOSM, Department of Statistics Malaysia, Accessed at <https://open.dosm.gov.my/data-catalogue/ppi?visual=overall>

### E-Commerce Value Trend in Malaysia (2019 – 2024)

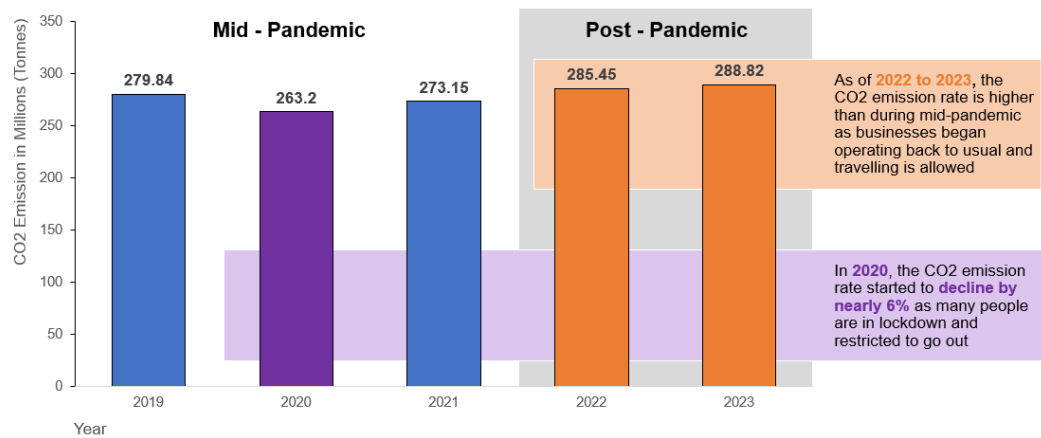
Rise in E-Commerce from Mid to Post-Pandemic Fueled by Online Shopping Growth, Government Support, and New Opportunities for SMEs to Thrive in the Digital Economy



Data Source: GlobalData, Published by MalaysiaNOW.  
Accessed at <https://www.malaysianow.com/news/2021/01/27/big-future-for-e-commerce-despite-retail-tycoons-doubts>

### Air Pollution Trends in Malaysia: Analyzing CO<sub>2</sub> Emission Rates (2019 - 2023)

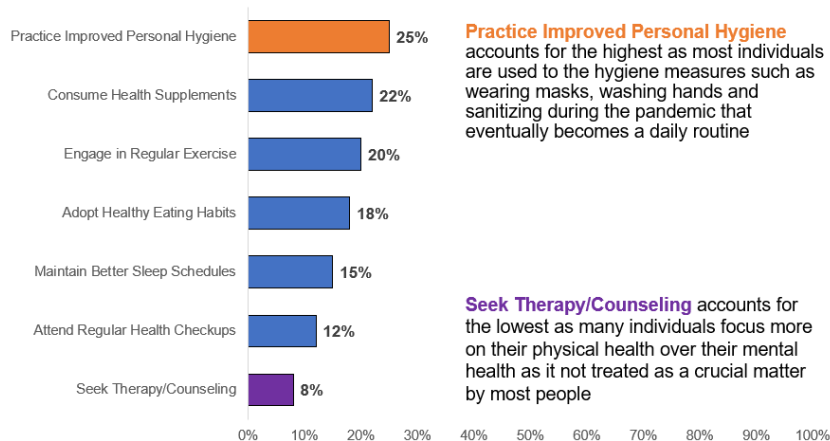
As the post-pandemic began, emissions started to rise again, highlighting the significant impact of human activities on air pollution



Data Source: Our World in Data, Global Change Data Lab, Accessed at <https://ourworldindata.org/co2/country/malaysia>

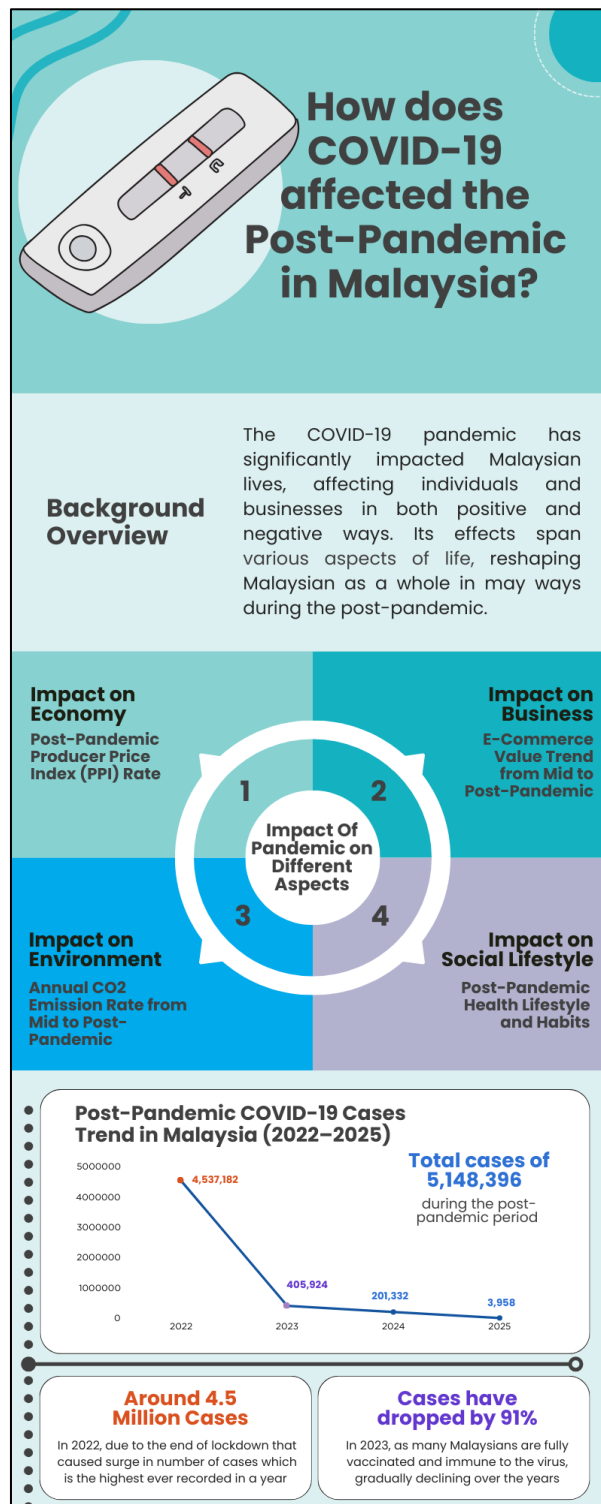
### Malaysians Post-Pandemic Health Lifestyle and Habits

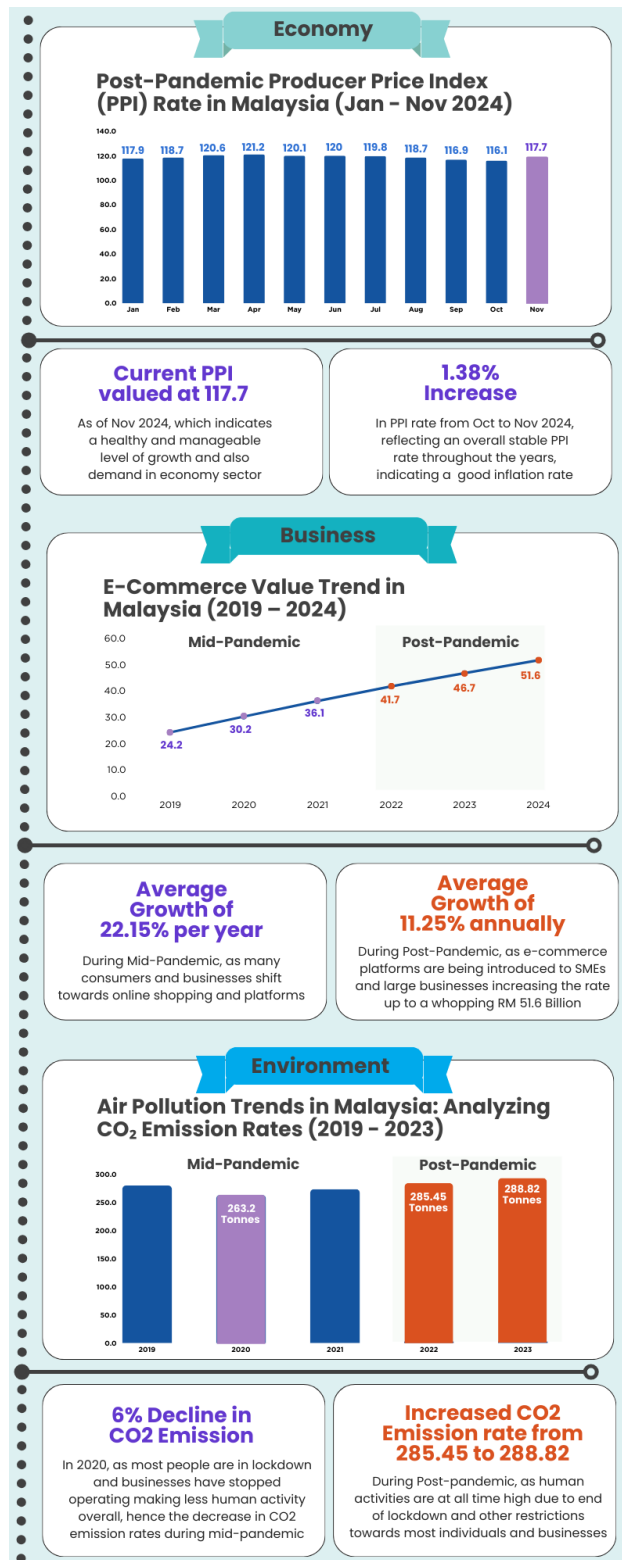
The pandemic has led to significant changes in Malaysians health lifestyles and habits, with more individuals adopting healthier choices and prioritizing well-being in hopes to improve overall health

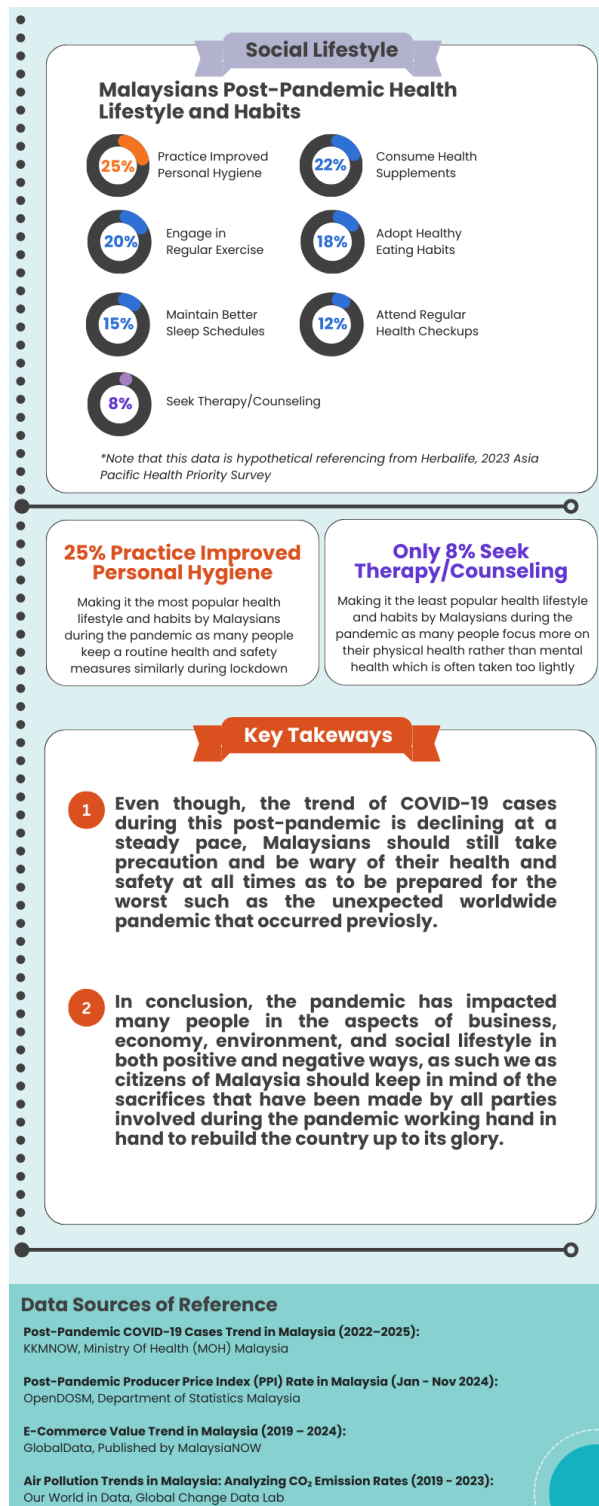


Data Source: The data presented in this graph is hypothetical with reference from Herbalife, 2023 Asia Pacific Health Priority Survey.

## Infographic:







The Canva Link can be accessed here:

[https://www.canva.com/design/DAGcK8xdP30/3t1023aXZhHdzJXl\\_XYfSQ/edit?utm\\_content=DAGcK8xdP30&utm\\_campaign=designshare&utm\\_medium=link2&utm\\_source=sharebutton](https://www.canva.com/design/DAGcK8xdP30/3t1023aXZhHdzJXl_XYfSQ/edit?utm_content=DAGcK8xdP30&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton)