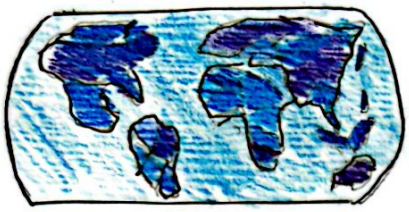
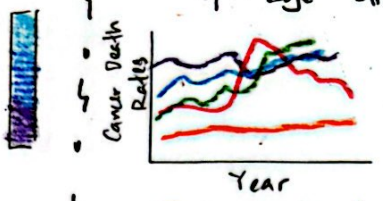
# IDEAS

## (1) Cancer Deaths Worldwide

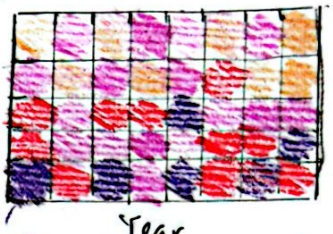


(a) Chloropleth map

## (3) Cancer Death Rates by Age Group

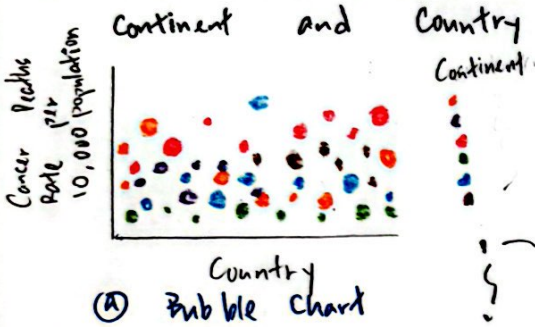



(a) Line chart

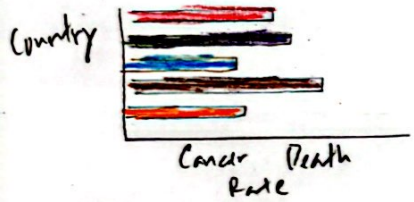



(b) Heat Map

## (2) Cancer Death Rates: Continent and Country




(a) Bubble Chart

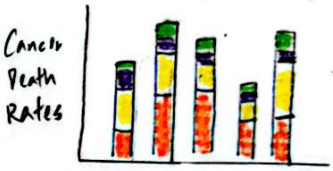



(b) Bar Chart

## (i) Donut Chart

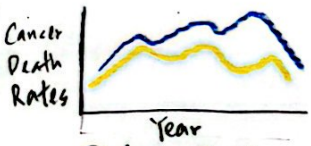
## (4) Cancer Death Rates by Cancer Types


(a) Area Chart

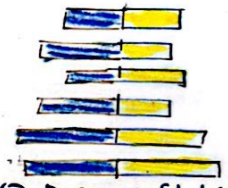



(b) Stacked Bar Chart

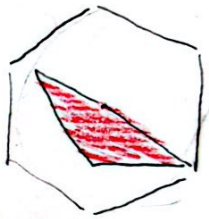
## (5) Cancer Death Rates By Gender




(a) Line Chart



(b) Diverging Stacked Bar Chart



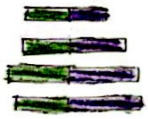
(c) Radar Chart

## FILTER

(2b) Bar Chart

→ The dataset covers a large country, challenging to capture trends.

(5b) Diverging Stacked Bar Chart

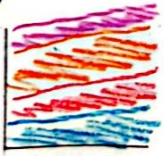


→ The large number of rows required represent large country world

(3a) Line Chart

→ Having too many age groups, result in numerous overlapping lines.

(4a)



Area Chart

Radar Chart

→ Obscure precise comparisons between types, especially multiple types

## CATEGORISE

Cancer Death Rates

- Worldwide (1b)
- Continent and Country (2b) (2a)
- Age Group (3b)
- Cancer Types (4b)
- Gender (5a)

**Worldwide**
→ Visualizes global cancer death trends

**Continent And Country**
→ Focus on different Continent and country

**Age**
→ Differences across various age groups

**Cancer Types**
→ Break down into different cancers

**Gender**
→ Compares between males and females

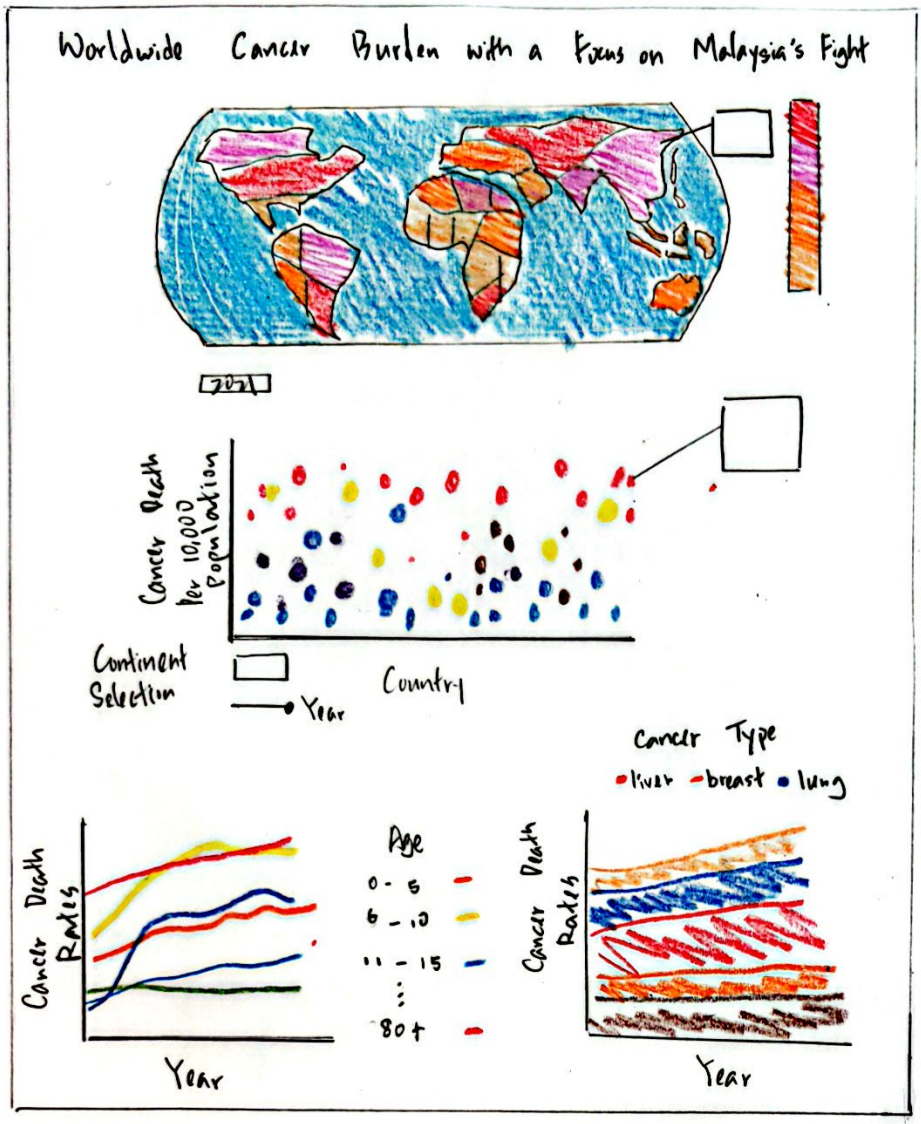
## COMBINE & REFINE

- Visualization Forms: Combine bubble chart and donut chart to visualize cancer death rates across countries and continents.
- Multiple Views: These two chart complement each other by offering a detailed country-level view alongside a high-level summary for continents.

## Questions

1. Is the visualization clearly showing the Cancer death rates from worldwide and Malaysia from age, cancer types and Gender perspective?
2. Can it effectively used by professionals for analysis and decision making?

# LAYOUT




Author : Chan Chi Heng
Date : 1 - 10 - 2024
Sheet : 2
Task : FIT 3179 A2

## OPERATION

Choropleth map

- Year Selection
  - Allow users to select specific year from 2000 to 2021.
- Hover Tooltip
  - When users hover a specific region on the map, a tooltip appears providing additional information.

Scatter plot

- Continent Selection
  - Users can filter the scatter plot by continent, allowed for focused comparisons of cancer death rates across countries within the selected continent.

- Line Chart
  - Annotations at Highest Cancer Rate, displays the trend of cancer death rates over time.

## FOCUS

Focus on the choropleth map, which serve as the primary visualization. This map provides a geographic representation of cancer death rates, allowing users to visually compare the burden of cancer across different countries or region.

Key Features :

- Color Saturation : 
  → Intensity of the map's colors reflects the cancer death rate in each country. Darker shades represent higher death rates.
- Year Selection Feature : 2021
  → Users can choose any year from 2000 to 2021, which updates the map accordingly.

## DISCUSSION

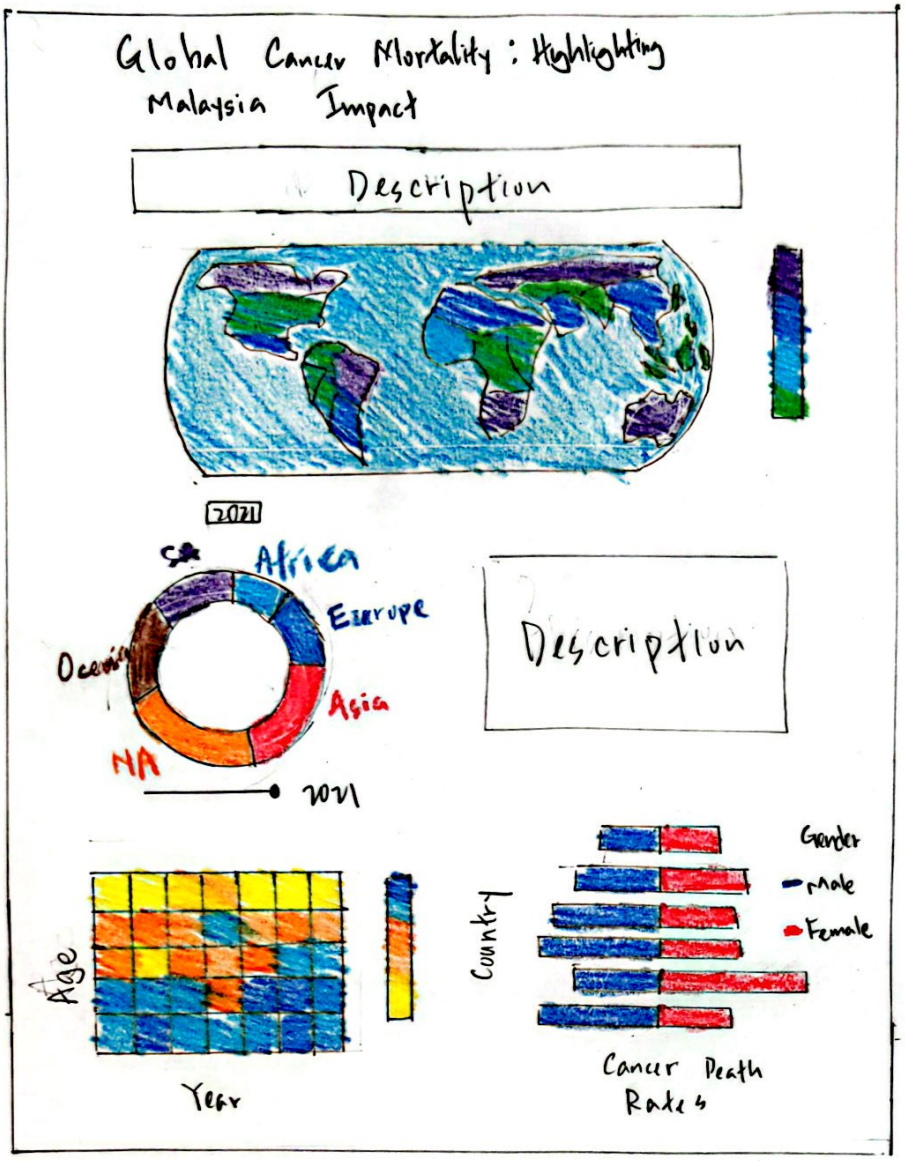
Advantages :

- Comprehensive Overview: The combination of different visualization types provides a holistic view of cancer mortality data from multiple perspectives.
- Interactivity: Features like hover tooltips, year sliders, and continent selection enhance user engagement.

Disadvantages :

- Complexity : The variety of visualizations may overwhelm users, making it challenging to extract clear insights without careful glance.

# LAYOUT

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# OPERATION

Choropleth map

- Year selection feature to filter data from 2000 to 2021

- Donut Chart
- Year Slider from 2000 to 2021 for visualizing changes in mortality rates by continent.

Heatmap

- Tooltips that show detailed cancer death rates when hovering over specific cells.
- Potential filtering options for specific age groups.

Diverging Stacked Bar Chart

- Annotations to highlight significant differences in cancer death rates between genders over time.

# FOCUS

Focus on heatmap, which serve as primary visualization to illustrate cancer death rates across different age groups - This heatmap uses a color gradient to represent mortality rates, with darker shades indicating higher rates, allowing for quick visual comparisons.

Key Features :

- Color Gradient
  → Color gradient to represent cancer death rates across various age group.

- Yearly Comparison
  → Represent data across multiple years, allowing users to observe trends and fluctuations in cancer mortality rates.

# DISCUSSION

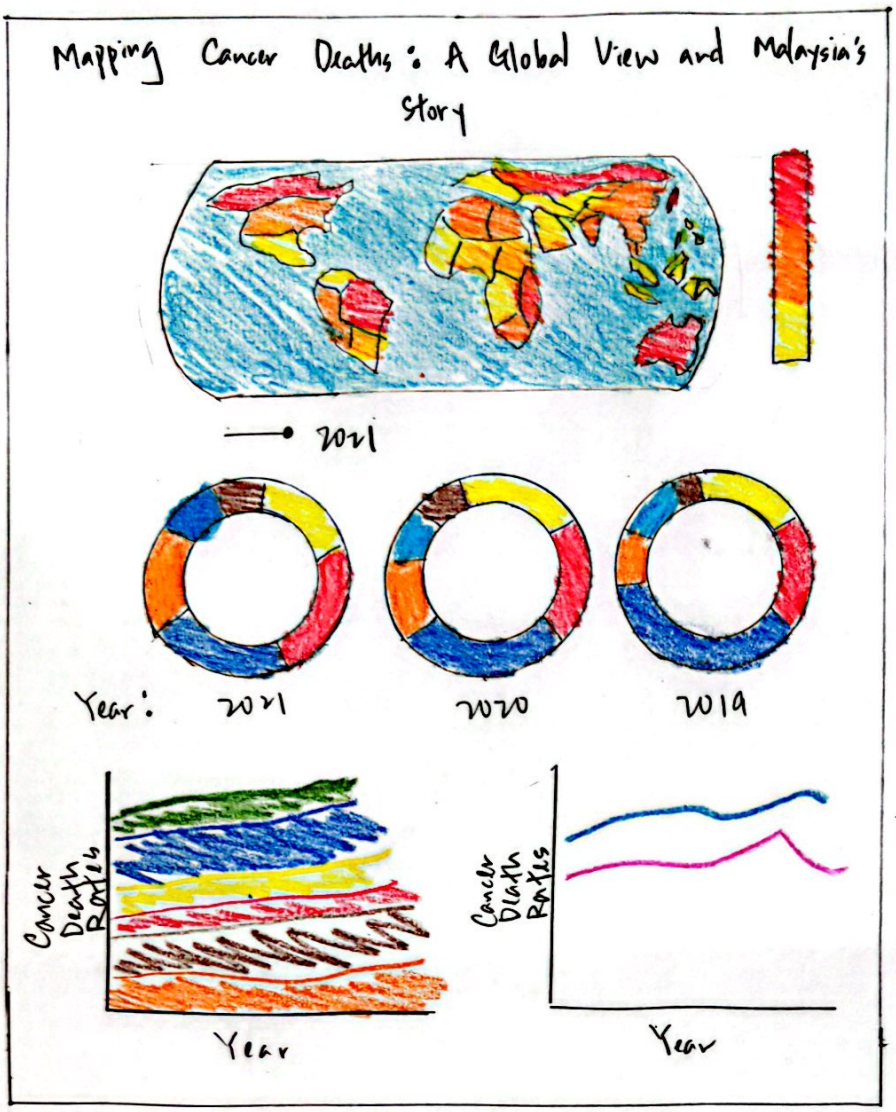
Advantages :

- Clear Comparisons :
  The different visualization facilitate easy comparisons across region, age groups, and gender, helping to identify disparities and focus areas for public health interventions.

Disadvantages :

Potential Overcrowding : If not carefully designed, the visualizations may become cluttered with too much information, making it difficult for users to discern key messages or trends.

# LAYOUT

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# OPERATION

Choropleth map

- Year slider that allow users to view cancer death rates from 2000 to 2021.

Donut Chart

- Three donut charts representing cancer mortality data for the years 2021, 2020 and 2019.

Area chart

- Tooltips that display detailed information about cancer types and corresponding death rates when hovering over specific areas of the chart.

Line Chart

- Annotations added at significant peaks in cancer death rates for both genders, highlighting critical data points for easy reference.

# FOCUS

Focus on the line chart, which illustrates cancer death rates for both genders over time.

Two distinct lines represent male and female mortality rates, allowing for direct comparison of trends between two groups.

Key Features :

- Annotations:
  Key data points are annotated at the peaks of cancer death rates, providing context and highlighting
- Time Series Analysis: significant changes or events in the timeline.
  The line chart spans multiple years, allowing for rates over
  comprehensive analysis of trends and shifts in cancer mortality time.

# DISCUSSION

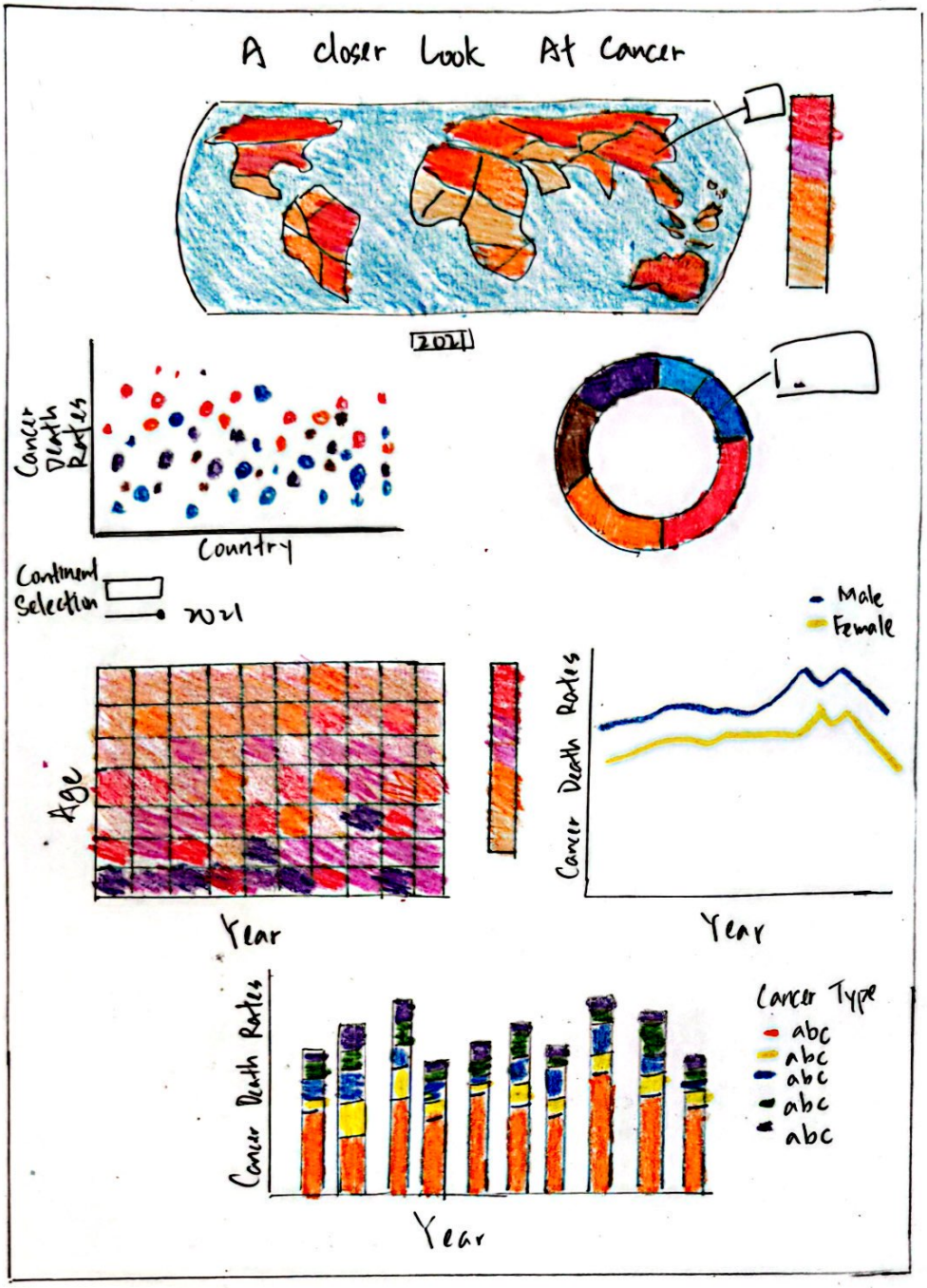
Advantages:

- Effective Comparison Across Years: The use of multiple donut charts for different years allows for straightforward comparisons of cancer mortality data over time.

Disadvantages:

- Limited Depth of Analysis:
  While the visualizations provide a broad overview, they may lack the depth needed for more detailed analysis.

# LAYOUT

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# OPERATION

Choropleth Map
- Year Selection to view global cancer mortality rates from different years.

Bubble Chart
- Continent selection - focus on specific regions.
- Year slider
  - enables explorations of data across different years.

Donut Chart
- Tooltips display the percentage breakdown of cancer deaths by continent, providing an easy comparison of the proportion of deaths across regions.

Line Chart
- Annotations mark the peak cancer death rates for each gender, highlighting significant trends over time.

Stacked Bar Chart
- Tooltips provide specific details for each cancer type's contribution to the overall mortality rate, allowing for a clear comparison across types.

# FOCUS

Focus on the analysis from a worldwide perspective, gradually narrowing down to continent-specific insights and finally to Malaysia. Utilizes various visualization, starting with choropleth map for global data, followed by a bubble chart to compare continent and country. Next, the heatmap reveals age group trends within Malaysia, while the line chart highlights gender disparities in cancer deaths. Finally, the stacked bar chart provides an in-depth look at distribution of cancer types.

# DETAILS

Algorithms :
→ Use R to aggregate cancer death rates.

Estimated Time :
↳ 2 day for data preparation
↳ 1 idioms per day
↳ Testing 2 days

Specific Requirements: Ensure do not have missing values.