Diary:

1. Styling

I have chosen to use a color palette that primarily consists of blue and red shades. The specific colors I have selected are #283150, #535B72, #7E8396, #A9ADB9 for blue, and #F05340, #F05340, #F6988C, #FABBB4 for red. I pick the color from an image. This particular color combination will help to create a visually cohesive and appealing design for the entire project.

To improve the clarity of overlapping chart areas, I then opted to convert the color hex codes to RGB values and incorporate transparency as the final digit. By using a semi-transparent diagram, the overlapping regions can be viewed more distinctly, resulting in a more visually appealing presentation.

Text

Description automatically generated

1. First diagram:

In order to illustrate changes in the cumulative amount of waste generated, recycled, and disposed over time, I added a stacked area chart to my presentation. This approach is more effective than displaying data for individual years because waste filling up in Semakau landfill accumulates over time.

Chart

Description automatically generated

Challenges I faced: firstly, I don’t have dataset of cumulative waste generated / recycled / disposed, so I need to create such dataset from exisiting data. I make use of for loop and array to do so:

//DATA

const year = [2017, 2018, 2019, 2020];

const totalWasteGenerated = [7704, 7759, 7278, 5880];

const totalWasteRecycled = [4724, 4790, 4293, 3040];

const totalWasteDisposed = [2980, 2969, 2984, 2841];

//CHART1

// Calculate cumulative values for waste generated, recycled and disposed

const cumulativeWasteGenerated = [];

const cumulativeWasteRecycled = [];

const cumulativeWasteDisposed = [];

let totalGenerated = 0;

let totalRecycled = 0;

let totalDisposed = 0;

for (let i = 0; i < year.length; i++) {

  totalGenerated += totalWasteGenerated[i];

  totalRecycled += totalWasteRecycled[i];

  totalDisposed += totalWasteDisposed[i];

  cumulativeWasteGenerated.push(totalGenerated);

  cumulativeWasteRecycled.push(totalRecycled);

  cumulativeWasteDisposed.push(totalDisposed);

}

Chart, funnel chart

Description automatically generated

I then transformed the area diagram into a stacked area diagram. This decision was made due to the fact that the sum of waste recycled and waste disposed is nearly equivalent to waste generated. By adopting this approach, the red area above, the blue area below, and their combined area all indicate something.

Chart

Description automatically generated

Text

Description automatically generated

The tooltip has been designed in such a way that whenever the mouse hovers over a particular area, information regarding waste generated, recycled, and disposed will be displayed. In order to achieve this goal, I extracted the relevant data from the array using their respective index, and subsequently generated the tooltip message via string slicing.

1. Second Diagram

Chart, bar chart

Description automatically generated

I enhanced my stack bar chart by transforming it into a dual-axis chart, where stacked bars are plotted on different sides of the x-axis and a line plot is overlaid on top.

The reason behind this modification is to provide a more effective visualization of the trend in waste recycled and generated, and facilitate comparisons across different years. The inclusion of a plotted line representing recycling rate provides an accurate representation of the ratio of waste recycled / recycled + disposed.

Challenges:

Text

Description automatically generated

Text

Description automatically generated

In order to plot waste disposed below the y-axis, I first mapped all instances of waste disposed to a negative value. However, for tooltip display purposes, I converted these negative values back to their original positive values.

1. Third Diagram

Chart, line chart

Description automatically generatedChart, line chart

Description automatically generated

I remove the total recycling rate since it has already been presented in the second diagram. Then I incorporate the domestic and non-domestic recycling rates of Finland into this diagram, so that readers can better understand Singapore’s performance. To further enhance the user's experience, I also include an interactive button alongside the diagram. When clicked, the diagram will display the specific statistics for Finland.

The newly added statitstis come from the following data source: https://www.hsy.fi/en/waste-and-recycling/waste-statistics/. This information has been carefully curated and is up-to-date, ensuring its reliability and accuracy.

Implementation:

Text

Description automatically generated

I set the initial state of the Finland domestic and non-domestic data to be hidden, with their 'hidden' property set to 'true'. This ensures that when the user first accesses the website, only the Singapore data will be displayed.

However, upon clicking the button, the state of the Finland data will be updated to the opposite state (e.g. from 'true' to 'false' and vice versa). This allows the user to easily switch between viewing the Singapore data and the Finland data with just a single click.

Here are some cool animations and effects I might refer to next week:

<https://plotly.com/javascript/filled-area-animation/>

<https://codepen.io/amcharts/pen/gbLpMR>

Special Thanks to : ChatGPT

Prompts being used include:

1. ‘I am documenting my web design project, help me with phrasing: ’
2. ‘This is my code and here is my error message. Help me debug.’
3. ‘I wish to plot lines on different sides of y-axis in chart.js, how should I do so?’