- **Messaging.**
  I would like to use real life data to analyze the relationship between happiness changes and weight changes. I collected data points on weight and how happy the candidate was (categorized into five levels), from my family and friends (i.e., myself, my friend Yudu, and my pet Pika). Plotting the weight and happiness level in a time series shows the trend in a clear way.
  The dataset used for this project is uploaded to src/weight_happiness_data.csv.

- **Narrative Structure.**
  This visualization uses a martini glass. There are three parameters (i.e., the three candidates I collected data from). The author-driven contents are three scenes, to which user can navigate to by clicking the buttons. The three scenes use the same chart type and format. The chart is configured based on the parameter – the parameter decides which candidate's data to render to the graphs.
  For the user driven contents, the user can use the date dropdown to filter for the data of interest – only the data in the date range are included in the graph. In addition, the user can hover over the datapoints for further details – the weight, happiness level and the image supporting the weight and happiness level will be displayed. The annotation (i.e., the summary at the bottom of the charts) also updates based on the parameters (i.e.,, the candidate of interest, the date range parameter).

- **Visual Structure.**
  Visually, going from the top to the bottom of the webpage:
  1. The scenes of the visualization share the common header, description, and instructions, which are situated at the top of the screen. It is natural for users to start reading from the top, and they will be able to obtain good context around the background, the purpose of this visualization, and then obtain the instructions on how to explore and interact with the data.
  2. There are three scenes (each scene corresponds with one candidate), and each scene has with two graphs – one for weight and the other for the happiness level, both plotted in a time series. To navigate to one candidate's scene, the user clicks the button with the candidate's name, which button is then highlighted while the graphs render the candidate's data. This makes it noticeably clear to the user which candidate's data he/she is reviewing now.
  3. Both graphs of the candidates have titles that highlight the context of the graph. The Weight Change/The Happiness Level Change), which makes it noticeably clear for the user to understand what the data he/she sees from the graph.
  4. At the bottom of the scene is a summary around the weight/happiness level change. This gives a good recap of the scene.

  The highlights:
  1. The graphs are situated in the center of the webpage. At each graph:

a. The data points are highlighted circles, which color and shape stand out from the background and invite the users to hover over to explore further.
b. The first data point and the last data point of the data in scope are bigger circles with annotation. Making the first and last data point stand out makes it easier to compare them to better analyze the trend.
c. The data points connect through trend lines, making the trend more obvious.
d. The tooltips show further details of data point – the date, weight, happiness level, and a picture supporting the weight and happiness level, as good supplementary information.

The transition between the scenes:
1. The instructions at the top of the webpages give clear instruction on how to navigate from one scene to another.
2. The scenes share the same graph layout – the same title, header, and axis, making it easy to compare the data cross scenes.
3. The annotation and tooltip template are consistent cross different scenes – making it easy for user to explore the data cross scenes (as the way to explore the data is consistent cross the scenes)
4. The navigation is easy – one just needs to click the button to transition to/from the other scenes.

- **Scenes**
  There are three candidates – Pika, Wendy, and Yudu, from whom I collected the data on weight and happiness level. Correspondingly, there are three scenes, each has two graphs – one for weight and the other for the happiness level, both plotted in a time series – for one candidate.

  Wendy's and Pika's scenes are before Yudu's – Wendy and Pika are put together as they share more similar patterns – overall, weight gain with happiness gain. For Yudu, overall, there was weight loss and a happiness again.

- **Annotations.**
  On each graph, for the first and last data point of the data in scope, there is an annotation that notes the weight/happiness level. The annotation of the last data point in scope also notes how much the value changed has changed compared with the first data point. The annotation uses a line that starts from the data point's circle, and ends with the annotation text, making it clear which data point the annotation is associated with. The text is in the format of <the data point's nature (i.e., weight/happiness>: <the value>.

Highlighting the first and the last data point makes the trend analysis easier – one can easily tell if the weight/happiness increased or decreased by reviewing the trend supported by the annotation.

In addition, the summary of the trend is included at the bottom of the chart noting if there is a weight gain and a happiness gain at the same time. This is a good recap of the data.

The annotation's templates for both the annotations in and below the graph are consistent across scenes and between graphs. The annotation text does change in the single scene, mainly due to the below reasons:

1. For each scene, the first graph shows weight vs the second graph is for the happiness level. The annotation text changes to indicate the nature of the graph.
2. The first data point differs from the last data point – the annotation text value changes to appropriately support the data point.
3. The change is included in the annotation of the last data point.
4. Depending on the parameters, the data and the trend change, so the summary of the data also changes.

- **Parameters.**
The parameters are the candidates – Wendy, Pika or Yudu. In addition, the date range is parameters. These variables determine what data (i.e., which candidate's data) to show in the graphs, and the summary at the bottom of the graphs is based on this filtered data.

- **Triggers.**
The buttons that enable users to select different candidates of interest are triggers. The dropdowns to select the start date and the end date are also triggers.