

- 1) I am extending the data visualization template, driven by a keen interest in data analytics and a quest to understand complex coding techniques. In addition to the template's original five charts, I've chosen to include two other extensions from Coursera: the Waffle Chart from week 11 and the Bubble Chart from week 13. In the future, I also aim to add a Stacked Area Chart, which is an original extension. For these, I will heavily rely on Object Orientation Programming, particularly encapsulation, closures, array manipulation and iteration, and nested loops for graphical generation (such as boxes and lines) and for manipulation of data from the tables.

The Waffle Chart will be designed to display category-specific information for each day upon mouseOver and will utilise a random colour generator for the fill. I envision the intensive use of nested arrays and data manipulation.

For the data for the Waffle Chart, I will be creating a CSV generator that will be able to auto populate survey results required for the chart.

The Bubble Chart, on the other hand, will display the value and units for each bubble upon mouseOver. I plan to introduce a slider for the year selection, replacing the existing button group to enhance intuitiveness. Additionally, the texts within the bubble will be wrapped, demanding a lot of string manipulation, including breaking the original string into multiple components based on the bubble size.

Lastly, the Stacked Area Chart is intended to demonstrate varied percentages across two time frames for efficient data comparison, much like a pie chart. It will need substantial data manipulation and will make use of vertexes to create shapes, which will require complex arrays to store shape coordinates based on table data.

I anticipate the greatest challenge will come from implementing the Stacked Area Chart due to the lack of existing references and my limited experience with vertexes. However, I'm confident that with thorough and proper code planning, I can overcome these obstacles and draw the chart effectively.