Introduction to Programming II Project Log

Project title:	Data Visualisation Application
Topic:	Topic 7

What progress have you made this topic?

I have implemented the bubble chart according to the Coursera instructional videos, I have made further changes to the bubble chart to better the user experience. Instead of the group of buttons implemented in the Coursera videos, I have instead incorporated a slide to navigate between different years. To make the displayed year easily identifiable, I have included a title as well as the year selected, displayed at the top left of the canvas. To improve text readability, I have implemented a text wrap function to the text such that it fits inside the bubble rather than protruding out of it. Lastly, a mouse-over function has been added that displays the number of grams for each corresponding bubble.

What problems have you faced and were you able to solve them?

The main challenges I encountered were mainly the data manipulation within the CSV file as well as enhancing the visual presentation of the bubble chart. Understanding and visualising the data table was the most challenging component, as I faced many obstacles in isolating the data required. This made-up majority of the debugging time, however, these issues were subsequently solved utilising console.log () as well as p5.js references, which lead to the successful display of the chart. As for the visual elements, the initial bubble chart lacked many information, I solved this by implementing many changes that were described in the previous question.

What are you planning to do over the next few weeks?

I plan to further refine the other charts in the data visualisation app, as well as to implement my very own extension, which will be a stacked area chart.

Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?

I am currently on target to successfully complete the project on time, as according to the gnatt chart.

Introduction to Programming II Project Log

Project title:	Data Visualisation Application
Topic:	Topic 8

What progress have you made this topic?

My progress has been substantial, and I managed to develop my independent extension which features a stacked area chart. I initially chose a dataset "Singapore External Debt Statistics" where I proceeded to clean it for easier data manipulation. I adapted the "this.layout" object from the climate change visualisation. I then calculated the maximum value for the y-axis to ensure proper scaling. With an emphasis on object-orientated programming, I modularised the visualisation drawing process into three separate functions: "drawLabels", "drawData" and "drawLegend". These functions are rendered in each individual component of the code. I also added a mousePressed functionality, where upon clicking each individual colour on the legend, it only shows the selected categories' data.

What problems have you faced and were you able to solve them?

The primary problems I faced were planning the rendering of individual areas in the stacked area chart, manipulating data to populate arrays and implementing of the "mousePressed" functionality. During the planning phase, I initially visualised a general structure for the drawing code, however, there were many issues that I had to figure out during the actual coding. Utilising "console.log" to debug was instrumental in identifying the many instances where for-loops exceeded table data. I also manually sketched a simplified representation of the data table to enhance my own understanding. Implementing the "mousePressed" feature required extensive experimentation of different methodologies before I finalised my current implementation. All these problems were eventually overcome.

What are you planning to do over the next few weeks?

In the next few weeks, I plan to improve on the existing implementations of the pie chart and the stacked bar chart. Adding a 3D popup functionality to the pie chart upon mouseover, as well as to display the % of the data upon mouseover to the stacked bar chart.

Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?

I am currently on target to complete the project.

Introduction to Programming II Project Log

Project title:	Data Visualisation Application
Topic:	Topic 9

What progress have you made this topic?

I have implemented improvements to the pie chart (Tech Diversity: Race) as well as the stacked bar chart (Tech Diversity: Gender). For the pie chart, three enhancements were implemented, the first is a dynamic animation that triggers upon switching companies, adjusting the pie slices to represent the new percentages. The second is a 3D pop-up animation triggered upon mouseover, which also enlarges the legend of the corresponding category. For the stacked bar chart, I have implemented two enhancements. The first is an interactive function where the percentage will be displayed upon mouseover. The second is a starting animation where the bar will gradually fill up to a total of 100%, I had also done some basic stability testing using the "performance" tab to measure CPU and memory usage, which most of the visualisations did not show signs of resource overutilisation.

What problems have you faced and were you able to solve them?

I encountered many problems while attempting to implement the dynamic animation, particularly in variable referencing within the "TechDiversityRace" instance. Initially, I mainly referenced variables with "this." Keyword, which caused many issues. However, it was only after reading through the JavaScript documentation, I discovered that I had to use "self." instead to refer to the specific value and variable I wanted. The problem was eventually solved and allowed me to proceed with the implementation of the animation.

What are you planning to do over the next few weeks?

In the next few weeks, I am planning to add more comments to my code, as well as to test my code extensively to ensure that it functions properly. And to debug the code if any issues occur during testing.

Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?

I am currently on target to complete my project.

Introduction to Programming II Project Log

Project title:	Data Visualisation Application
Topic:	Topic 10

What progress have you made this topic?

I have added extensive comments throughout the files to ensure proper documentation and readability. I have also designed a user test, with the purpose of validating the functionality and enhancements applied to each extension within the data visualisation application. The test is structured to include the scenario, the instructions and the expected output. The users will be able to validate if the application is working as intended. To gather feedback, I've asked for 10 users to conduct the user acceptance testing, where I subsequently compiled the data into a single report, including both quantitative and qualitative data gathered within the report.

What problems have you faced and were you able to solve them?

One problem occurred while I was self-testing the application, the stacked area chart had certain areas where upon clicking the mouse, it automatically goes into one selected category. I was subsequently able to debug using console.log and fix the problem before the main user testing.

What are you planning to do over the next few weeks?

While user testing, two users came up with some ideas to further enhance the extensions that I haven't thought of, if time permits, I will be implementing those enhancements within the application.

Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?

I am currently on target to complete the project