Faculty of Science, Engineering and Technology

COS30045 Data Visualisation

Task 1.2 Technology Fundamentals JavaScript Review

ILO	Create web-based interactive visualisations using real-world data sets.
Requirements:	Demonstrate basic familiarity with JavaScript by creating a webpage that uses buttons to change some feature of the web page.
Resources:	*Textbook:* Chapter 3 Murray (2017) Interactive Data Visualisation (2nd Ed) on ProQuest Murray on Safari *Web Resources:* *W3Schools: JavaScript* *Modzilla Developer Network: JavaScript* *codeacademy* *W3schools JavaScript Quiz* *Videos:* *Excel Data Visualization: Mastering 20+ Charts and Graphs (C Dutton)* *(Section 2 and selected videos in Section 3 (depending on charts you are interested in). If you have time Section 1 is also good advice!)*
Demonstration:	Demonstrate appropriate and well formatted use of HTML, CSS and JavaScript code Be prepared to demonstrate Code live to tutor when requested: - code is appropriate for task, well formatted and commented - code runs correctly and meets the requirements specified in this Task - explain programming features and concepts in the code - successfully edit code to change a specified feature of the program

Note: This Task Guide is not meant to be fully explanatory. Unless you are already familiar with JavaScript you will need to read the text book and/or examine web resources. This is something you need to get used to doing when you get out into the 'real' world!

Tip: If you have done any web programming units, it might be worth going back and reviewing your notes. We expect that the good practices you learnt in other units are continued in this unit. For example, putting your CSS and JavaScript in separate files.

Overview

In this unit you will learn to use D3 to create web-based visualisations. D3 is a JavaScripting library that is used in conjunction with HTML and CSS. To help make sure you are ready to do D3 this tasks requires you to add some JavaScript to your webpage from Task 1.1.

Requirement Set 1: Design and create visualisation of pet ownership in Australia

- ☐ screen shot of visualisation created in Excel (or software of your choice)
- ☐ visualisation uses data from Pet ownership in 2021 table (p9 of AMA Report) (also see *Canvas/Assignments/LAB 1.1 HTML and CSS/COS30045 1.1 Resources.zip/pet_ownership_in_australia_table.png or Canvas/Assignments/LAB 1.2 JavaScript Review/COS30045 1.2 Resources.zip/pet_ownership_2019_2021.xlsx*)
- ☐ visualisation is appropriate for the data types

Requirement Set 2: Allow the user to change their view of the data

- ☐ JavaScript is used to allow the user to interact with the webpage to change their view of the data (e.g., using buttons)
- ☐ figure captions update with chart image
- ☐ images have appropriate alt text
- ☐ buttons are styled using CSS

Note: For this exercise you just need to use screenshots of the charts, but by the middle of semester you should be able to create this type of chart by uploading data directly into to charts built with D3.

Step 1 Create visualisations using Excel (or software of your choice)

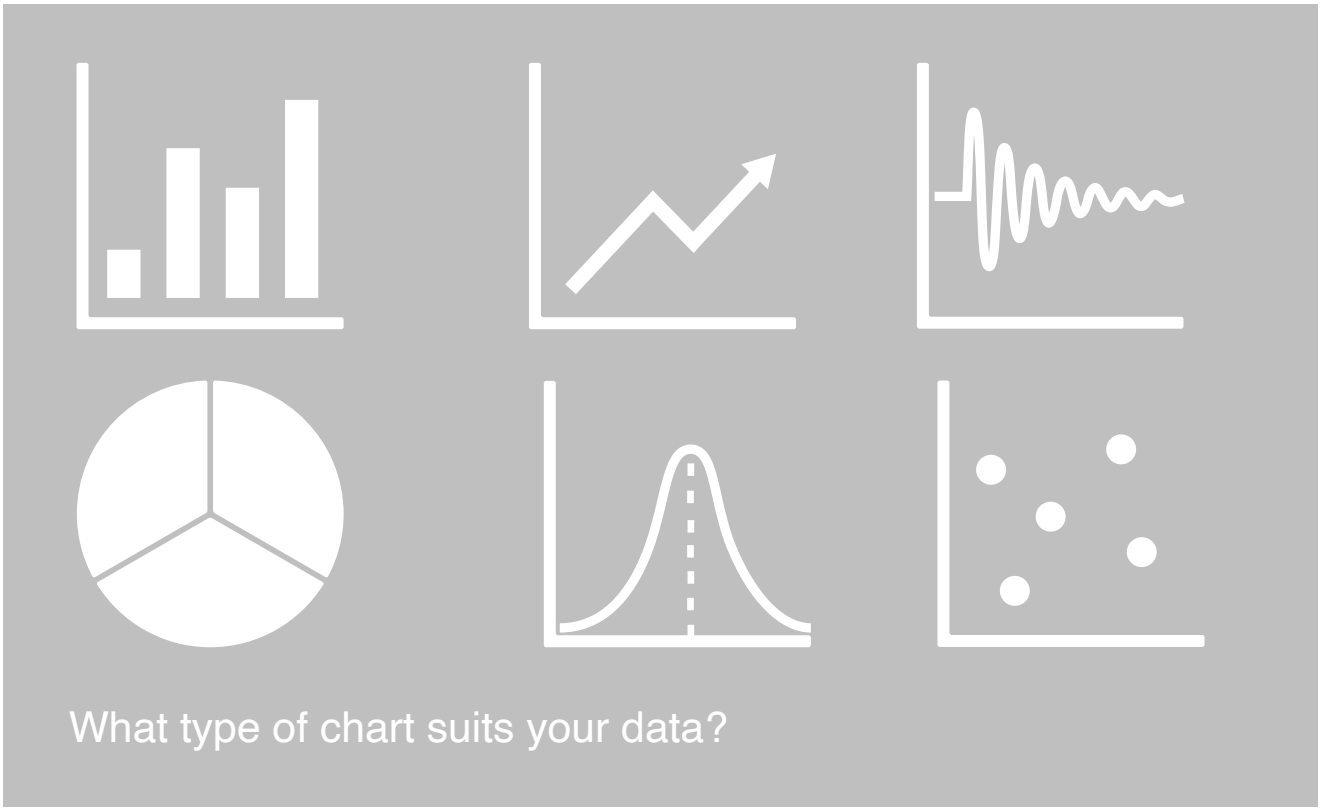
In Task 1.1 we showed a table of the pet ownership data. However, the table is dense and not very visual. In this task you will use Excel (or charting software of your choice) to create visualisations of the household pet ownership data.

Tip: If you are new to using Excel for creating charts then it may be worth viewing the following LinkedIn Learning Video: Excel Data Visualization: Mastering 20+ Charts and Graphs. Use your Swin email to get free access to all LinkedIn Learning resources.

Create *three* visualisations based on the pet ownership data table. Feel free to design a visualisation to answer questions of your choice. However, here are some examples to get you started:

- What type of pets did Australians own in 2019, and which were the most/least popular?
- What type of pets did Australians own in 2021, and which were the most/least popular?
- How did pet ownership in 2019 compare with 2021?
- Which pets saw the biggest increase/decrease in ownership between 2019 and 2021?

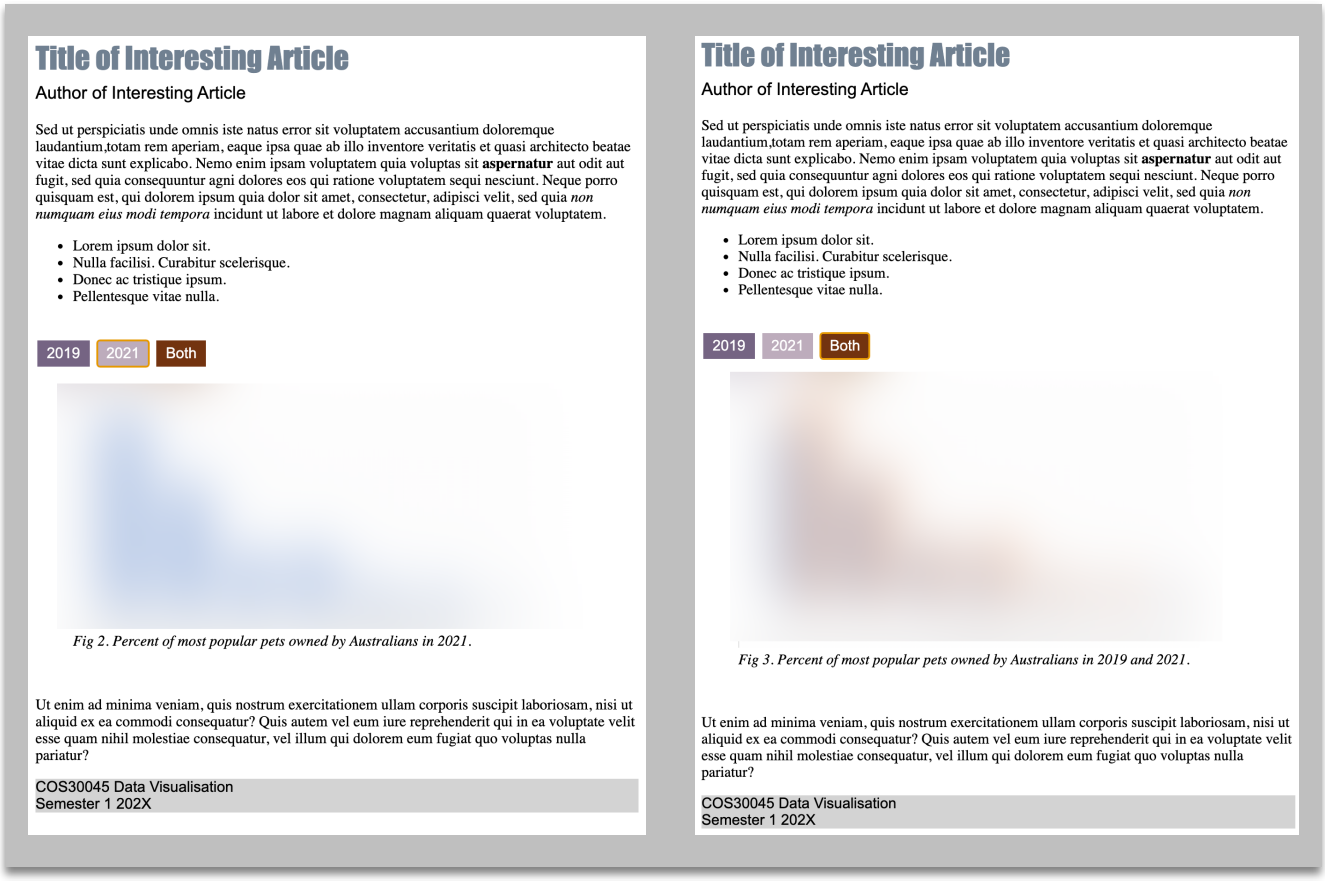
The data required to make visualisations that answers these questions can be found at *Canvas/Assignments/LAB 1.2 JavaScript Review/COS30045 1.2 Resources.zip/pet_ownership_2019_2021.xlsx.*



Step 2 Add some JavaScript

Use JavaScript buttons to allow the user to switch between images of your three visualisations Make sure that you update the caption and alt text when swapping between the three.

You do not have to use the same style as in the example, but you are expected to apply some CSS styling on the buttons.



When user clicks on '2021' they get 2021 data

When user clicks on 'Both' button they see a visualisation that compares 2019 and 2021