

lab-1.1\HTML Starter Template.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8" />
6   <meta name="description" content="Pet Ownership During the COVID Pandemic" />
7   <meta name="keywords" content="HTML, CSS, Pets, COVID, Australia" />
8   <meta name="author" content="Your name here" />
9
10  <title>Pet Ownership During the COVID Pandemic</title>
11  <!--Insert description of exercise -->
12
13 <style>
14   body {
15     font-family: 'Segoe UI', Tahoma, Geneva, Verdana, sans-serif;
16     background: #f7f9fa;
17     color: #222;
18     margin: 0;
19     padding: 0;
20   }
21
22   .container {
23     max-width: 800px;
24     margin: 40px auto;
25     background: #fff;
26     border-radius: 10px;
27     box-shadow: 0 2px 8px rgba(0, 0, 0, 0.08);
28     padding: 32px 40px 24px 40px;
29   }
30
31   h1 {
32     color: #2a5d84;
33     margin-bottom: 0.2em;
34   }
35
36   h2 {
37     color: #4a7ba7;
38     font-size: 1.2em;
39     margin-top: 0;
40   }
41
42   p,
43   ul {
44     font-size: 1.1em;
45     line-height: 1.6;
46   }
47
48   figure {
```

```
49         margin: 32px 0;
50         text-align: center;
51     }
52
53     figcaption {
54         font-size: 0.95em;
55         color: #555;
56         margin-top: 8px;
57     }
58
59     .pet-gallery {
60         display: flex;
61         gap: 24px;
62         justify-content: center;
63         margin: 32px 0 16px 0;
64     }
65
66     .pet-gallery img {
67         width: 120px;
68         height: 120px;
69         object-fit: cover;
70         border-radius: 50%;
71         border: 3px solid #e0e7ef;
72         box-shadow: 0 1px 4px rgba(0, 0, 0, 0.07);
73     }
74
75     footer {
76         text-align: center;
77         color: #888;
78         font-size: 1em;
79         margin-top: 40px;
80         padding: 16px 0 0 0;
81     }
82 </style>
83
84 </head>
85
86 <body>
87     <div class="container">
88         <h1>Pet Ownership During the COVID Pandemic</h1>
89         <h2>Summary of Animal Medicines Australia (AMA) Report</h2>
90         <p>A report from Animal Medicines Australia (AMA) found that many Australians took
the opportunity to introduce
91             a pet into their household during the pandemic. Their survey indicated a
significant increase in the percent
92                 of households taking in a new dog, fish, or bird. Their research also indicated
that pets had a number of
93                     positive influences on their lives such as:</p>
94                     <ul>
95                         <li>companionship</li>
96                         <li>better mental health</li>
```

```
97         <li>joy and happiness</li>
98     </ul>
99     <p>With the increase in pet ownership, the AMA encourages policy makers to consider
100    the needs of companion
101    animals and their owners when considering rental, strata and body corporate
102    regulations, as well as
103    accepting animals in public places and transport.</p>
104    <div class="pet-gallery">
105        
106        
107        
108    </div>
109    <figure>
110        <a href="https://animalmedicinesaustralia.org.au/wp-
111        content/uploads/2021/08/AMAU005-PATP-Report21_v1.41_WEB.pdf"
112            target="_blank">
113            
117        </a>
118        <figcaption>Fig 1. Pet ownership in Australia, 2019 vs 2021. Data Source: <a
119            href="https://animalmedicinesaustralia.org.au/wp-
120            content/uploads/2021/08/AMAU005-PATP-Report21_v1.41_WEB.pdf"
121            target="_blank">Animal Medicines Australia</a>.</figcaption>
122    </figure>
123    </div>
124    <footer>COS30045 Data Visualisation</footer>
125 </body>
126
127 </html>
```

lab-1.2\HTML Starter Template.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8" />
6   <meta name="viewport" content="width=device-width, initial-scale=1.0">
7   <meta name="description" content="Pet Ownership During the COVID Pandemic" />
8   <meta name="keywords" content="HTML, CSS, Pets, COVID, Australia" />
9   <meta name="author" content="Your name here" />
10
11  <title>Pet Ownership During the COVID Pandemic</title>
12
13 <style>
14   /* Base styles */
15   :root {
16     --primary: #3a7ca5;
17     --primary-light: #d9e6f2;
18     --primary-dark: #2c5d7c;
19     --accent: #f39c12;
20     --text: #2d3748;
21     --text-light: #718096;
22     --background: #f8fafc;
23     --card: #ffffff;
24     --border: #e2e8f0;
25     --shadow: 0 4px 6px rgba(0, 0, 0, 0.05), 0 1px 3px rgba(0, 0, 0, 0.1);
26     --shadow-hover: 0 10px 15px rgba(0, 0, 0, 0.1), 0 4px 6px rgba(0, 0, 0, 0.05);
27     --transition: all 0.3s ease;
28   }
29
30   * {
31     box-sizing: border-box;
32     margin: 0;
33     padding: 0;
34   }
35
36   body {
37     font-family: 'Inter', -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto,
38     Helvetica, Arial, sans-serif;
39     background: var(--background);
40     color: var(--text);
41     line-height: 1.6;
42     padding: 0;
43     margin: 0;
44   }
45
46   /* Layout */
47   .container {
48     max-width: 900px;
```

```
48     margin: 40px auto;
49     background: var(--card);
50     border-radius: 12px;
51     box-shadow: var(--shadow);
52     padding: 40px;
53     position: relative;
54     overflow: hidden;
55 }
56
57 @media (max-width: 768px) {
58   .container {
59     margin: 20px;
60     padding: 30px;
61   }
62 }
63
64 /* Typography */
65 h1 {
66   color: var(--primary-dark);
67   font-size: 2.2rem;
68   margin-bottom: 0.5rem;
69   font-weight: 800;
70   line-height: 1.2;
71   position: relative;
72 }
73
74 h1::after {
75   content: '';
76   display: block;
77   width: 80px;
78   height: 4px;
79   background: var(--accent);
80   margin-top: 12px;
81   border-radius: 2px;
82 }
83
84 h2 {
85   color: var(--primary);
86   font-size: 1.3rem;
87   margin-top: 0.5rem;
88   margin-bottom: 1.5rem;
89   font-weight: 600;
90 }
91
92 p,
93 ul {
94   font-size: 1.05rem;
95   line-height: 1.7;
96   color: var(--text);
97   margin-bottom: 1.5rem;
```

```
98     }
99
100    ul {
101        padding-left: 1.5rem;
102    }
103
104    li {
105        margin-bottom: 0.5rem;
106        position: relative;
107    }
108
109    li::before {
110        content: '•';
111        color: var(--accent);
112        font-weight: bold;
113        display: inline-block;
114        width: 1em;
115        margin-left: -1em;
116    }
117
118    /* Pet Gallery */
119    .pet-gallery {
120        display: flex;
121        gap: 30px;
122        justify-content: center;
123        margin: 40px 0;
124        flex-wrap: wrap;
125    }
126
127    .pet-card {
128        display: flex;
129        flex-direction: column;
130        align-items: center;
131        transition: var(--transition);
132    }
133
134    .pet-card:hover {
135        transform: translateY(-5px);
136    }
137
138    .pet-card img {
139        width: 140px;
140        height: 140px;
141        object-fit: cover;
142        border-radius: 50%;
143        border: 4px solid var(--primary-light);
144        box-shadow: var(--shadow);
145        transition: var(--transition);
146    }
147
```

```
148     .pet-card:hover img {  
149         border-color: var(--accent);  
150         box-shadow: var(--shadow-hover);  
151     }  
152  
153     .pet-card span {  
154         margin-top: 12px;  
155         font-weight: 600;  
156         color: var(--primary);  
157     }  
158  
159     /* Button container styles */  
160     .button-container {  
161         display: flex;  
162         flex-wrap: wrap;  
163         gap: 12px;  
164         justify-content: center;  
165         margin: 30px 0;  
166     }  
167  
168     /* Button styles */  
169     .chart-button {  
170         background-color: var(--primary-light);  
171         color: var(--primary-dark);  
172         border: none;  
173         border-radius: 8px;  
174         padding: 12px 20px;  
175         font-family: inherit;  
176         font-size: 0.95rem;  
177         font-weight: 600;  
178         cursor: pointer;  
179         transition: var(--transition);  
180         outline: none;  
181         box-shadow: 0 2px 4px rgba(0, 0, 0, 0.1);  
182     }  
183  
184     /* Hover effect */  
185     .chart-button:hover {  
186         background-color: var(--primary);  
187         color: white;  
188         transform: translateY(-2px);  
189         box-shadow: 0 4px 8px rgba(0, 0, 0, 0.15);  
190     }  
191  
192     /* Active button state */  
193     .chart-button.active {  
194         background-color: var(--primary-dark);  
195         color: white;  
196         transform: translateY(0);  
197         box-shadow: 0 1px 2px rgba(0, 0, 0, 0.1);
```

```
198     }
199
200     /* Figure styles */
201     figure {
202         margin: 40px 0;
203         text-align: center;
204         background: var(--primary-light);
205         padding: 30px;
206         border-radius: 12px;
207         box-shadow: inset 0 2px 4px rgba(0, 0, 0, 0.05);
208         transition: var(--transition);
209     }
210
211     figure img {
212         max-width: 100%;
213         border-radius: 8px;
214         box-shadow: var(--shadow);
215         transition: var(--transition);
216         border: 1px solid var(--border);
217         background: white;
218     }
219
220     /* SVG chart styles */
221     figure svg {
222         max-width: 100%;
223         height: auto;
224         background: white;
225         border-radius: 8px;
226         box-shadow: var(--shadow);
227         transition: var(--transition);
228     }
229
230     figcaption {
231         font-size: 0.95rem;
232         color: var(--primary-dark);
233         margin-top: 16px;
234         line-height: 1.5;
235     }
236
237     figcaption a {
238         color: var(--primary-dark);
239         font-weight: 600;
240         text-decoration: none;
241         border-bottom: 1px dotted;
242         transition: var(--transition);
243     }
244
245     figcaption a:hover {
246         color: var(--accent);
247     }
```

```
248     /* Chart container */
249     .chart-container {
250         position: relative;
251         width: 100%;
252         height: 0;
253         padding-bottom: 60%;
254         /* Aspect ratio */
255         overflow: hidden;
256         background: white;
257         border-radius: 8px;
258         box-shadow: var(--shadow);
259     }
260
261
262     .chart-container object {
263         position: absolute;
264         top: 0;
265         left: 0;
266         width: 100%;
267         height: 100%;
268         border: none;
269     }
270
271     /* Footer */
272     footer {
273         text-align: center;
274         color: var(--text-light);
275         font-size: 0.9rem;
276         margin-top: 40px;
277         padding: 20px 0;
278         border-top: 1px solid var(--border);
279     }
280
281     /* Decorative elements */
282     .bg-pattern {
283         position: absolute;
284         top: 0;
285         right: 0;
286         width: 200px;
287         height: 200px;
288         background-image: radial-gradient(var(--primary-light) 2px, transparent 2px);
289         background-size: 20px 20px;
290         opacity: 0.3;
291         z-index: 0;
292         pointer-events: none;
293     }
294
295     /* Chart animation */
296     @keyframes fadeIn {
297         from {
```

```
298         opacity: 0;
299         transform: translateY(10px);
300     }
301
302     to {
303         opacity: 1;
304         transform: translateY(0);
305     }
306 }
307
308 .chart-container object {
309     animation: fadeIn 0.5s ease-out;
310 }
311
312 /* Responsive design */
313 @media (max-width: 600px) {
314     .button-container {
315         flex-direction: column;
316         align-items: stretch;
317     }
318
319     .chart-button {
320         width: 100%;
321         margin-bottom: 8px;
322     }
323
324     h1 {
325         font-size: 1.8rem;
326     }
327
328     h2 {
329         font-size: 1.2rem;
330     }
331
332     .pet-gallery {
333         gap: 20px;
334     }
335
336     figure {
337         padding: 20px;
338     }
339
340     .chart-container {
341         padding-bottom: 75%;
342         /* Adjust aspect ratio for mobile */
343     }
344 }
345 </style>
346 </head>
347
```

```
348 <body>
349     <div class="container">
350         <div class="bg-pattern"></div>
351         <header>
352             <h1>Pet Ownership During the COVID Pandemic</h1>
353             <h2>Summary of Animal Medicines Australia (AMA) Report</h2>
354         </header>
355
356         <main>
357             <section>
358                 <p>A report from Animal Medicines Australia (AMA) found that many Australians took the opportunity to
359                     introduce
360                     a pet into their household during the pandemic. Their survey indicated a significant increase in the
361                     percent
362                     of households taking in a new dog, fish, or bird. Their research also indicated that pets had a
363                     number of
364                     positive influences on their lives such as:</p>
365             <ul>
366                 <li>Companionship and reduced feelings of isolation</li>
367                 <li>Better mental health and emotional wellbeing</li>
368                 <li>Joy, happiness and a sense of purpose</li>
369             </ul>
370             <p>With the increase in pet ownership, the AMA encourages policy makers to consider the needs of
371                     companion
372                     animals and their owners when considering rental, strata and body corporate regulations, as well as
373                     accepting animals in public places and transport.</p>
374         </section>
375
376         <div class="pet-gallery">
377             <div class="pet-card">
378                 
379                 <span>Cats</span>
380             </div>
381             <div class="pet-card">
382                 
383                 <span>Dogs</span>
384             </div>
385             <div class="pet-card">
386                 
387                 <span>Fish</span>
388             </div>
389         </div>
390
391         <!-- Button container will be inserted here by JavaScript -->
392
393         <figure>
```

```
394         <div class="chart-container" id="chartContainer">
395             <object id="chartObject" data="chart_comparison.svg"
396             type="image/svg+xml">
397                 Your browser does not support SVG
398             </object>
399         </div>
400         <figcaption id="chartCaption">Fig 1. Pet ownership comparison between 2019
401 and 2021. This chart shows
402             the
403             percentage of households owning each type of pet in Australia across both
404 years. Data Source: <a
405             href="https://animalmedicinesaustralia.org.au/wp-
406             content/uploads/2021/08/AMAU005-PATP-Report21_v1.41_WEB.pdf"
407             target="_blank">Animal Medicines Australia</a>.</figcaption>
408     </figure>
409 </main>
410
411     <footer>
412         <p>COS30045 Data Visualisation © 2023</p>
413     </footer>
414 </div>
415
416     <!-- JavaScript file -->
417     <script>
418         // Chart data and configuration
419         const chartConfig = [
420             {
421                 id: 'comparison',
422                 title: 'Pet Ownership Comparison (2019 vs 2021)',
423                 src: 'chart_comparison.svg',
424                 alt: 'Bar chart comparing pet ownership percentages between 2019 and 2021 for
425 different animal types',
426                 description: 'Fig 1. Pet ownership comparison between 2019 and 2021. This
427 chart shows the percentage of households owning each type of pet in Australia across both
428 years.'
429             },
430             {
431                 id: 'distribution',
432                 title: 'Pet Ownership Distribution (2021)',
433                 src: 'chart_distribution.svg',
434                 alt: 'Pie chart showing the distribution of pet types owned in Australian
435 households in 2021',
436                 description: 'Fig 2. Distribution of pet types in Australian households
437 (2021). This pie chart displays the relative popularity of different pet types.'
438             },
439             {
440                 id: 'change',
441                 title: 'Change in Pet Ownership (2019-2021)',
442                 src: 'chart_change.svg',
443                 alt: 'Bar chart showing the percentage change in pet ownership between 2019
444 and 2021',
```

```
435             description: 'Fig 3. Percentage change in pet ownership from 2019 to 2021.  
436             This chart highlights which pet types saw increases or decreases in ownership during the  
437             pandemic period.'  
438         }  
439     ];  
440  
441     // Initialize the current chart  
442     let currentChartIndex = 0;  
443  
444     // Function to update the visualization  
445     function updateVisualization(index) {  
446         // Get the chart configuration  
447         const chart = chartConfig[index];  
448  
449         // Update the chart object source  
450         const chartObject = document.getElementById('chartObject');  
451         chartObject.data = chart.src;  
452         chartObject.alt = chart.alt;  
453  
454         // Update the figcaption  
455         const figCaption = document.getElementById('chartCaption');  
456         figCaption.innerHTML = chart.description + ' Data Source: <a  
457 href="https://animalmedicinesaustralia.org.au/wp-content/uploads/2021/08/AMAU005-PATP-  
458 Report21_v1.41_WEB.pdf" target="_blank">Animal Medicines Australia</a>.';  
459  
460         // Update the active button class  
461         const buttons = document.querySelectorAll('.chart-button');  
462         buttons.forEach((button, i) => {  
463             if (i === index) {  
464                 button.classList.add('active');  
465             } else {  
466                 button.classList.remove('active');  
467             }  
468         });  
469  
470         // Update current index  
471         currentChartIndex = index;  
472     }  
473  
474     // Function to initialize the visualization controls  
475     function initializeVisualization() {  
476         // Create the button container  
477         const buttonContainer = document.createElement('div');  
478         buttonContainer.className = 'button-container';  
479  
480         // Create buttons for each chart  
481         chartConfig.forEach((chart, index) => {  
482             const button = document.createElement('button');  
483             button.textContent = chart.title;  
484             button.className = 'chart-button';  
485             if (index === 0) button.classList.add('active');
```

```
482         // Add click event listener
483         button.addEventListener('click', () => {
484             updateVisualization(index);
485         });
486
487         buttonContainer.appendChild(button);
488     });
489
490     // Find where to insert the button container (before the figure)
491     const figure = document.querySelector('figure');
492     figure.parentNode.insertBefore(buttonContainer, figure);
493
494     // Initial visualization update
495     updateVisualization(0);
496 }
497
498     // Run initialization when the DOM is fully loaded
499     document.addEventListener('DOMContentLoaded', initializeVisualization);
500 </script>
501 </body>
502 </html>
```

lab-1.2\script.js

```
1 // script.js
2
3 // Chart data and configuration
4 const chartConfig = [
5   {
6     id: 'comparison',
7     title: 'Pet Ownership Comparison (2019 vs 2021)',
8     src: 'chart_comparison.svg',
9     alt: 'Bar chart comparing pet ownership percentages between 2019 and 2021 for different animal types',
10    description: 'Fig 1. Pet ownership comparison between 2019 and 2021. This chart shows the percentage of households owning each type of pet in Australia across both years.'
11  },
12  {
13    id: 'distribution',
14    title: 'Pet Ownership Distribution (2021)',
15    src: 'chart_distribution.svg',
16    alt: 'Pie chart showing the distribution of pet types owned in Australian households in 2021',
17    description: 'Fig 2. Distribution of pet types in Australian households (2021). This pie chart displays the relative popularity of different pet types.'
18  },
19  {
20    id: 'change',
21    title: 'Change in Pet Ownership (2019-2021)',
22    src: 'chart_change.svg',
23    alt: 'Bar chart showing the percentage change in pet ownership between 2019 and 2021',
24    description: 'Fig 3. Percentage change in pet ownership from 2019 to 2021. This chart highlights which pet types saw increases or decreases in ownership during the pandemic period.'
25  }
26];
27
28 // Initialize the current chart
29 let currentChartIndex = 0;
30
31 // Function to update the visualization
32 function updateVisualization(index) {
33   // Get the chart configuration
34   const chart = chartConfig[index];
35
36   // Update the image source and alt text
37   const chartImage = document.getElementById('chartImage');
38   chartImage.src = chart.src;
39   chartImage.alt = chart.alt;
40
41   // Update the figcaption
42   const figCaption = document.getElementById('chartCaption');
43   figCaption.innerHTML = chart.description;
```

```
44
45     // Update the active button class
46     const buttons = document.querySelectorAll('.chart-button');
47     buttons.forEach((button, i) => {
48         if (i === index) {
49             button.classList.add('active');
50         } else {
51             button.classList.remove('active');
52         }
53     });
54
55     // Update current index
56     currentChartIndex = index;
57 }
58
59 // Function to initialize the visualization controls
60 function initializeVisualization() {
61     // Create the button container
62     const buttonContainer = document.createElement('div');
63     buttonContainer.className = 'button-container';
64
65     // Create buttons for each chart
66     chartConfig.forEach((chart, index) => {
67         const button = document.createElement('button');
68         button.textContent = chart.title;
69         button.className = 'chart-button';
70         if (index === 0) button.classList.add('active');
71
72         // Add click event listener
73         button.addEventListener('click', () => {
74             updateVisualization(index);
75         });
76
77         buttonContainer.appendChild(button);
78     });
79
80     // Find where to insert the button container (before the figure)
81     const figure = document.querySelector('figure');
82     figure.parentNode.insertBefore(buttonContainer, figure);
83
84     // Update the image and figcaption IDs
85     const chartImage = document.querySelector('figure img');
86     chartImage.id = 'chartImage';
87
88     const figCaption = document.querySelector('figcaption');
89     figCaption.id = 'chartCaption';
90
91     // Initial visualization update
92     updateVisualization(0);
93 }
```

```
94 |  
95 | // Run initialization when the DOM is fully loaded  
96 | document.addEventListener('DOMContentLoaded', initializeVisualization);
```

lab-1.2\styles.css

```
1  /* styles.css */
2
3  /* Button container styles */
4  .button-container {
5      display: flex;
6      flex-wrap: wrap;
7      gap: 12px;
8      justify-content: center;
9      margin: 24px 0;
10 }
11
12 /* Button styles */
13 .chart-button {
14     background-color: #f0f5fa;
15     color: #2a5d84;
16     border: 2px solid #e0e7ef;
17     border-radius: 6px;
18     padding: 10px 16px;
19     font-family: inherit;
20     font-size: 0.95em;
21     font-weight: 500;
22     cursor: pointer;
23     transition: all 0.2s ease;
24     outline: none;
25     box-shadow: 0 2px 4px rgba(0, 0, 0, 0.05);
26 }
27
28 /* Hover effect */
29 .chart-button:hover {
30     background-color: #e8f0f8;
31     border-color: #c5d5e5;
32     transform: translateY(-2px);
33     box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
34 }
35
36 /* Active button state */
37 .chart-button.active {
38     background-color: #2a5d84;
39     color: white;
40     border-color: #2a5d84;
41     transform: translateY(0);
42     box-shadow: 0 1px 2px rgba(0, 0, 0, 0.1);
43 }
44
45 /* Responsive design for small screens */
46 @media (max-width: 600px) {
47     .button-container {
48         flex-direction: column;
```

```
49     align-items: stretch;
50 }
51
52 .chart-button {
53     width: 100%;
54     margin-bottom: 8px;
55 }
56 }
57
58 /* Chart image styles */
59 figure img {
60     max-width: 100%;
61     border-radius: 8px;
62     box-shadow: 0 2px 12px rgba(0, 0, 0, 0.1);
63     transition: all 0.3s ease;
64 }
65
66 /* Figure caption styles enhancement */
67 figcaption {
68     font-size: 0.95em;
69     color: #555;
70     margin-top: 12px;
71     line-height: 1.5;
72     text-align: center;
73 }
```

lab-1.3\index.html

```
1 <!-- index.html -->
2 <!DOCTYPE html>
3 <html lang="en">
4
5 <head>
6     <meta charset="UTF-8">
7     <meta name="viewport" content="width=device-width, initial-scale=1.0">
8     <meta name="description" content="Drawing Shapes with SVG for Data Visualization">
9     <meta name="author" content="Joe Bloggs">
10    <title>Drawing Shapes with SVG</title>
11    <style>
12        body {
13            font-family: Arial, sans-serif;
14            margin: 20px;
15            max-width: 800px;
16        }
17
18        h1 {
19            font-size: 24px;
20            margin-bottom: 10px;
21        }
22
23        h2 {
24            font-size: 16px;
25            color: #555;
26            margin-bottom: 20px;
27        }
28
29        .visualization-container {
30            margin-bottom: 40px;
31        }
32
33        .footer {
34            margin-top: 20px;
35            color: #666;
36            font-size: 14px;
37        }
38    </style>
39 </head>
40
41 <body>
42     <!-- First Visualization -->
43     <div class="visualization-container">
44         <h1>Drawing Shapes with SVG</h1>
45
46         <!-- SVG Canvas with basic shapes demonstration -->
47         <svg width="500" height="80" style="background-color: #6c7a89;">
48             <!-- Circle -->
```

```
49         <circle cx="40" cy="40" r="25" fill="cornflowerblue" />
50
51         <!-- Rectangle -->
52         <rect x="65" y="15" width="50" height="50" fill="#4a89dc" />
53
54         <!-- Ellipse -->
55         <ellipse cx="155" cy="40" rx="40" ry="25" fill="#3498db" stroke="#3498db" stroke-width="2" />
56
57         <!-- Line -->
58         <line x1="15" y1="40" x2="195" y2="40" stroke="black" stroke-width="5" />
59
60     </svg>
61
62     <div class="footer">
63         <p>COS30045 Data Visualisation<br>
64             Semester 1 2020X<br>
65             Joe Bloggs</p>
66     </div>
67 </div>
68
69     <!-- Second Visualization -->
70     <div class="visualization-container">
71         <h1>Drawing Shapes with SVG</h1>
72         <h2>Pet ownership in 2019</h2>
73
74         <!-- SVG Canvas for pet ownership bar chart -->
75         <svg width="500" height="300" style="background-color: #6c7a89;">
76             <!-- Bar chart using rectangles -->
77             <rect x="50" y="50" width="80" height="180" fill="#4a89dc" />
78             <rect x="150" y="70" width="80" height="160" fill="#4a89dc" />
79             <rect x="250" y="130" width="80" height="100" fill="#4a89dc" />
80             <rect x="350" y="190" width="80" height="40" fill="#4a89dc" />
81             <rect x="450" y="210" width="80" height="20" fill="#4a89dc" />
82
83             <!-- You can add text labels for each bar (optional) -->
84             <!--
85                 <text x="90" y="250" text-anchor="middle" fill="white">Dogs</text>
86                 <text x="190" y="250" text-anchor="middle" fill="white">Cats</text>
87                 <text x="290" y="250" text-anchor="middle" fill="white">Fish</text>
88                 <text x="390" y="250" text-anchor="middle" fill="white">Birds</text>
89                 <text x="490" y="250" text-anchor="middle" fill="white">Other</text>
90             -->
91         </svg>
92
93     <div class="footer">
94         <p>COS30045 Data Visualisation<br>
95             Semester 1 2020X<br>
96             Joe Bloggs</p>
97     </div>
```

```
98     </div>
99
100    <!-- Additional Examples with Different Shapes and Colors -->
101    <div class="visualization-container">
102        <h1>More SVG Shape Examples</h1>
103
104        <svg width="500" height="200" style="background-color: #34495e;">
105            <!-- Ellipse -->
106            <ellipse cx="100" cy="80" rx="70" ry="40" fill="#3498db" stroke="#ecf0f1" stroke-width="2" />
107
108            <!-- Polygon (Triangle) -->
109            <polygon points="200,40 250,120 150,120" fill="#2ecc71" />
110
111            <!-- Rectangle with rounded corners -->
112            <rect x="280" y="40" width="80" height="80" rx="15" ry="15" fill="#e74c3c" />
113
114            <!-- Path (custom shape) -->
115            <path d="M 400,40 L 440,40 L 420,80 Z" fill="#f1c40f" />
116
117            <!-- Circle with different styling -->
118            <circle cx="100" cy="160" r="20" fill="#9b59b6" stroke="#ecf0f1" stroke-width="3"
stroke-dasharray="5,3" />
119
120            <!-- Line with different styling -->
121            <line x1="150" y1="160" x2="250" y2="160" stroke="#e67e22" stroke-width="8"
stroke-linecap="round" />
122
123            <!-- Text element -->
124            <text x="320" y="160" font-family="Arial" font-size="18" fill="#ecf0f1">SVG
Text</text>
125        </svg>
126    </div>
127 </body>
128
129 </html>
```

lab-2.0\index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8">
6   <meta name="description" content="D3 Data Binding Exercise">
7   <meta name="keywords" content="HTML, D3, JavaScript, Data Visualization">
8   <meta name="author" content="Joe Bloggs">
9   <title>D3 Data Binding</title>
10  <script src="https://d3js.org/d3.v7.min.js"></script>
11 </head>
12
13 <body>
14   <h1>Creating and Formatting Paragraph Elements with D3</h1>
15
16   <script>
17     // Step 3: Define the dataset
18     const dataset = [14, 5, 26, 23, 9];
19
20     // Use D3 to generate and format paragraph elements
21     d3.select("body")
22       .selectAll("p")
23       .data(dataset)
24       .enter()
25       .append("p")
26       .text(function (d) {
27         // Use the data value 'd' to create a sentence
28         return `Joe watched ${d} cat videos today.`;
29       })
30       .style("color", function (d) {
31         // Conditionally set the text color to red if the value is > 10
32         if (d > 10) {
33           return "red";
34         }
35       })
36       .html(function (d) {
37         // Conditionally add a "Warning:" prefix if the value is > 10
38         if (d > 10) {
39           return `<strong>Warning:</strong> ${this.innerHTML}`;
40         } else {
41           return this.innerHTML;
42         }
43       });
44   </script>
45
46   <footer>
47     <p style="color:grey; font-style: italic;">
48       COS30045 Data Visualisation<br>
```

```
49      Joe Bloggs
50      </p>
51  </footer>
52
53 </body>
54
55 </html>
```

lab-2.1\index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8">
6   <meta name="description" content="D3 Bar Chart Exercise">
7   <meta name="keywords" content="HTML, D3, JavaScript, SVG, Bar Chart">
8   <meta name="author" content="Joe Bloggs">
9   <title>Drawing with Data</title>
10  <!-- Step 1: Include the D3.js library -->
11  <script src="https://d3js.org/d3.v7.min.js"></script>
12  <style>
13    /* Optional: Add some basic styling for the chart container */
14    body {
15      font-family: sans-serif;
16      text-align: center;
17    }
18
19    .chart-container {
20      margin: 20px auto;
21      border: 1px solid #ccc;
22      display: inline-block;
23      /* To make the container fit the SVG */
24    }
25
26    h1,
27    footer {
28      color: #333;
29    }
30  </style>
31 </head>
32
33 <body>
34
35   <h1>Drawing with Data</h1>
36
37   <div class="chart-container">
38     <!-- The SVG will be created here by D3 -->
39   </div>
40
41   <script>
42     // --- Configuration Variables ---
43
44     // Define the dimensions of the SVG canvas
45     const w = 500;
46     const h = 150; // Increased height for better visibility
47     const barPadding = 2; // The space between bars
48     const heightMultiplier = 4; // Multiplier to make bars taller
```

```
49
50     // Define the dataset
51     const dataset = [5, 10, 13, 19, 21, 25, 22, 18, 15, 13, 11, 12, 15, 20, 18, 17, 16,
52     18, 23, 25];
53
54     // --- D3 Code ---
55
56     // Step 2: Create the SVG element
57     // Select the container div and append an SVG element to it
58     const svg = d3.select(".chart-container")
59         .append("svg")
60         .attr("width", w)
61         .attr("height", h);
62
63     // Step 3 & 4 & 5: Create and position the bars (rectangles)
64     svg.selectAll("rect")
65         .data(dataset)
66         .enter()
67         .append("rect")
68         .attr("x", function (d, i) {
69             // Calculate the x position for each bar.
70             // 'i' is the index of the data point.
71             // We space the bars evenly across the SVG width.
72             return i * (w / dataset.length);
73         })
74         .attr("y", function (d) {
75             // Step 6: Adjust the baseline.
76             // In SVGs, y=0 is the top. To make bars grow from the bottom,
77             // we set the y-coordinate to the total height minus the bar's height.
78             return h - (d * heightMultiplier);
79         })
80         .attr("width", w / dataset.length - barPadding)
81         .attr("height", function (d) {
82             // The height of the bar is the data value multiplied by our constant.
83             return d * heightMultiplier;
84         })
85         .attr("fill", function (d) {
86             // Optional: Add a dynamic color based on the data value.
87             // Taller bars will be a darker blue.
88             return "rgb(0, 0, " + (d * 10) + ")";
89         });
90
91     // Optional: Add labels on top of the bars
92     svg.selectAll("text")
93         .data(dataset)
94         .enter()
95         .append("text")
96         .text(function (d) {
97             return d;
98         })
```

```
98     .attr("x", function (d, i) {
99         // Center the text in the middle of the bar.
100        return i * (w / dataset.length) + (w / dataset.length - barPadding) / 2;
101    })
102    .attr("y", function (d) {
103        // Position the text just above the bar.
104        return h - (d * heightMultiplier) + 14;
105    })
106    .attr("font-family", "sans-serif")
107    .attr("font-size", "11px")
108    .attr("fill", "white")
109    .attr("text-anchor", "middle"); // This ensures the x-coordinate is the center.
110
111 </script>
112
113 <footer>
114     <p style="color:grey; font-style: italic;">
115         COS30045 Data Visualisation<br>
116         Joe Bloggs
117     </p>
118 </footer>
119
120 </body>
121
122 </html>
```

lab-2.2\index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8">
6   <meta name="description" content="D3 Bar Chart Exercise">
7   <meta name="keywords" content="HTML, D3, JavaScript, SVG, Bar Chart">
8   <meta name="author" content="Joe Bloggs">
9   <title>Drawing with Data</title>
10  <!-- Step 1: Include the D3.js library -->
11  <script src="https://d3js.org/d3.v7.min.js"></script>
12  <style>
13    /* Optional: Add some basic styling for the chart container */
14    body {
15      font-family: sans-serif;
16      text-align: center;
17    }
18
19    .chart-container {
20      margin: 20px auto;
21      border: 1px solid #ccc;
22      display: inline-block;
23      /* To make the container fit the SVG */
24    }
25
26    h1,
27    footer {
28      color: #333;
29    }
30  </style>
31 </head>
32
33 <body>
34
35   <h1>Drawing with Data</h1>
36
37   <div class="chart-container">
38     <!-- The SVG will be created here by D3 -->
39   </div>
40
41   <script>
42     // --- Configuration Variables ---
43
44     // Define the dimensions of the SVG canvas
45     const w = 500;
46     const h = 150;
47     const barPadding = 2; // The space between bars
48     const heightMultiplier = 4; // Multiplier to make bars taller
```

```
49
50     // Define the dataset
51     const dataset = [5, 10, 13, 19, 21, 25, 22, 18, 15, 13, 11, 12, 15, 20, 18, 17, 16,
52     18, 23, 25];
53
54     // --- D3 Code ---
55
56     // Step 2: Create the SVG element
57     // Select the container div and append an SVG element to it
58     const svg = d3.select(".chart-container")
59         .append("svg")
60         .attr("width", w)
61         .attr("height", h);
62
63     // Step 3, 4, 5 & 6: Create, position, and style the bars (rectangles)
64     svg.selectAll("rect")
65         .data(dataset)
66         .enter()
67         .append("rect")
68         .attr("x", function (d, i) {
69             // Step 4: Calculate the x position for each bar.
70             // 'i' is the index of the data point.
71             // We space the bars evenly across the SVG width.
72             return i * (w / dataset.length);
73         })
74         .attr("y", function (d) {
75             // Step 6: Adjust the baseline.
76             // In SVGs, y=0 is the top. To make bars grow from the bottom,
77             // we set the y-coordinate to the total height minus the bar's height.
78             return h - (d * heightMultiplier);
79         })
80         .attr("width", w / dataset.length - barPadding)
81         .attr("height", function (d) {
82             // Step 5: The height of the bar is the data value multiplied by our
83             // constant.
84             return d * heightMultiplier;
85         })
86         .attr("fill", "slategrey"); // Add a default color
87
88     // Optional: Add labels on top of the bars
89     svg.selectAll("text")
90         .data(dataset)
91         .enter()
92         .append("text")
93         .text(function (d) {
94             return d;
95         })
96         .attr("x", function (d, i) {
97             // Center the text in the middle of the bar.
98             return i * (w / dataset.length) + (w / dataset.length - barPadding) / 2;
```

```
97      })
98      .attr("y", function (d) {
99          // Position the text just above the bar.
100         return h - (d * heightMultiplier) + 14;
101     })
102     .attr("font-family", "sans-serif")
103     .attr("font-size", "11px")
104     .attr("fill", "white")
105     .attr("text-anchor", "middle"); // This ensures the x-coordinate is the center.
106
107 </script>
108
109 <footer>
110     <p style="color:grey; font-style: italic;">
111         COS30045 Data Visualisation<br>
112         Joe Bloggs
113     </p>
114 </footer>
115
116 </body>
117
118 </html>
```

lab-2.3\index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8">
6   <meta name="description" content="D3 Scatter Plot Exercise">
7   <meta name="keywords" content="HTML, D3, JavaScript, SVG, Scatter Plot">
8   <meta name="author" content="Joe Bloggs">
9   <title>Drawing with Data - Scatter Plot</title>
10  <!-- Step 1: Include the D3.js library -->
11  <script src="https://d3js.org/d3.v7.min.js"></script>
12  <style>
13    /* Optional: Add some basic styling for the chart container */
14    body {
15      font-family: sans-serif;
16      text-align: center;
17    }
18
19    .chart-container {
20      margin: 20px auto;
21      border: 1px solid #ccc;
22      display: inline-block;
23      /* To make the container fit the SVG */
24    }
25
26    h1,
27    footer {
28      color: #333;
29    }
30  </style>
31 </head>
32
33 <body>
34
35   <h1>Drawing with Data - Scatter Plot</h1>
36
37   <div class="chart-container">
38     <!-- The SVG will be created here by D3 -->
39   </div>
40
41   <script>
42     // --- Configuration Variables ---
43
44     // Define the dimensions of the SVG canvas
45     const w = 500;
46     const h = 100;
47     const padding = 20; // Add padding to prevent circles from being cut off
48
```

```
49 // Step 2: Define the new dataset for the scatter plot
50 // Each inner array: [x_coordinate, y_coordinate, radius_size (optional)]
51 const dataset = [
52     [50, 20, 5], [480, 90, 8], [250, 50, 10], [100, 33, 4], [330, 95, 9],
53     [410, 12, 6], [475, 44, 7], [25, 67, 5], [85, 21, 8], [220, 88, 12]
54 ];
55
56 // --- D3 Code ---
57
58 // Create the SVG element
59 const svg = d3.select(".chart-container")
60     .append("svg")
61     .attr("width", w)
62     .attr("height", h);
63
64 // Step 3: Create and position the circles
65 svg.selectAll("circle")
66     .data(dataset)
67     .enter()
68     .append("circle")
69     .attr("cx", function (d) {
70         // The first value of the inner array (d[0]) is the x-coordinate.
71         return d[0];
72     })
73     .attr("cy", function (d) {
74         // The second value (d[1]) is the y-coordinate.
75         // We subtract from 'h' to flip the y-axis (0 is at the top in SVG).
76         return h - d[1];
77     })
78     .attr("r", function (d) {
79         // Optional: The third value (d[2]) is used for the radius.
80         return d[2];
81     })
82     .attr("fill", function (d) {
83         // Style important data points in red (e.g., where y > 80).
84         if (d[1] > 80) {
85             return "red";
86         }
87         return "slategrey"; // Default color
88 });
89
90 // Step 4: Add labels to the scatter plot
91 svg.selectAll("text")
92     .data(dataset)
93     .enter()
94     .append("text")
95     .text(function (d) {
96         // The label text shows the coordinates.
97         return d[0] + "," + d[1];
98     })
```

```
99     .attr("x", function (d) {
100         // Position the label slightly to the right of the circle.
101         return d[0] + d[2] + 2; // Offset by radius + a little extra
102     })
103     .attr("y", function (d) {
104         // Position the label vertically aligned with the circle's center.
105         return h - d[1];
106     })
107     .attr("font-family", "sans-serif")
108     .attr("font-size", "11px")
109     .attr("fill", "black");
110
111 </script>
112
113 <footer>
114     <p style="color:grey; font-style: italic;">
115         COS30045 Data Visualisation<br>
116         Joe Bloggs
117     </p>
118 </footer>
119
120 </body>
121
122 </html>
```

lab-2.4\chart.js

```
1 // It's best practice to wrap your D3 code in a function that runs once the window has loaded.
2 window.onload = function () {
3
4     // --- Configuration Variables ---
5     const w = 500;
6     const h = 150;
7     const barPadding = 2;
8
9     // --- D3 Code ---
10
11    // Step 4: Reading in the data using d3.csv()
12    // D3 will fetch the file and parse it. The .then() block is executed
13    // once the data is successfully loaded.
14    d3.csv("Task_2.4_data.csv").then(function (data) {
15        // The 'data' variable now holds the parsed CSV data.
16        // Let's log it to the console to see its structure.
17        console.log(data);
18
19        // Call our function to generate the chart, passing the loaded data.
20        generateBarChart(data);
21    }).catch(function (error) {
22        // Handle any errors that might occur during loading
23        console.log("Error loading the CSV file:", error);
24    });
25
26    // This function contains the bar chart drawing logic.
27    function generateBarChart(wombatSightings) {
28
29        // Create the SVG element inside the #chart div
30        const svg = d3.select("#chart")
31            .append("svg")
32            .attr("width", w)
33            .attr("height", h);
34
35        // Create the bars (rectangles)
36        svg.selectAll("rect")
37            .data(wombatSightings)
38            .enter()
39            .append("rect")
40            .attr("x", function (d, i) {
41                // Position bars evenly across the SVG width
42                return i * (w / wombatSightings.length);
43            })
44            .attr("y", function (d) {
45                // Position the top of the bar. Note that CSV values are read as strings,
46                // so we use '+' to convert d.wombats to a number.
47                return h - (+d.wombats * 4); // Added a multiplier for better height
48            })
49    }
50}
```

```
49     .attr("width", w / wombatSightings.length - barPadding)
50     .attr("height", function (d) {
51         // Set the height based on the 'wombats' column from the CSV.
52         return +d.wombats * 4;
53     })
54     .attr("fill", function (d) {
55         // Step 5: Change color based on data value.
56         if (+d.wombats > 20) {
57             return "rgb(25, 60, 160)"; // Darker blue for high values
58         }
59         return "rgb(70, 130, 180)"; // Steel blue for lower values
60     });
61
62     // Add labels to the bars
63     svg.selectAll("text")
64         .data(wombatSightings)
65         .enter()
66         .append("text")
67         .text(function (d) {
68             return d.wombats;
69         })
70         .attr("x", function (d, i) {
71             return i * (w / wombatSightings.length) + (w / wombatSightings.length -
barPadding) / 2;
72         })
73         .attr("y", function (d) {
74             return h - (+d.wombats * 4) + 14; // Position text inside the bar
75         })
76         .attr("font-family", "sans-serif")
77         .attr("font-size", "11px")
78         .attr("fill", "white")
79         .attr("text-anchor", "middle");
80     }
81 };
82 }
```

lab-2.4\index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5     <meta charset="UTF-8">
6     <meta name="description" content="D3 Bar Chart from CSV Data">
7     <meta name="keywords" content="HTML, CSS, D3, Data Import, CSV">
8     <meta name="author" content="Your name here">
9     <title>Task 2.4 D3 Data Import</title>
10    <!-- Link to the D3.js library -->
11    <script src="https://d3js.org/d3.v7.min.js"></script>
12    <!-- Link to our external JavaScript file -->
13    <script src="chart.js"></script>
14 <style>
15     /* Basic styling for presentation */
16     body {
17         font-family: sans-serif;
18         text-align: center;
19     }
20
21     #chart {
22         margin: 20px auto;
23         border: 1px solid #ccc;
24         display: inline-block;
25     }
26
27     h1,
28     footer {
29         color: #333;
30     }
31 </style>
32 </head>
33
34 <body>
35
36     <h1>Chart drawn from CSV file</h1>
37
38     <!-- This div is the target for our D3 chart -->
39     <div id="chart"></div>
40
41     <footer>
42         <p style="color:grey; font-style: italic;">
43             COS30045 Data Visualisation<br>
44             Joe Bloggs
45         </p>
46     </footer>
47
48 </body>
```

49	
50	</html>