FIT3179 DATA VISUALISATION

Week 5 Lab Activity: Introduction to CSS

1. Introduction to CSS

When creating elements to be displayed on the web page using HTML, we can only define the structure of those elements without modifying how they look or how they are formatted. CSS (Cascading Style Sheets) is used in combination with HTML in order to style the elements and format the web page. Some benefits of CSS are as follows:

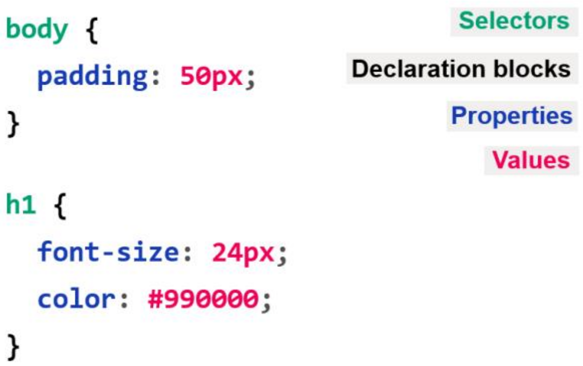
- Control the layout of multiple web pages at once.
- Create responsive design (rearrangement of content for different screen sizes).
- Separate the set of style rules from the structure and content.

2. Syntax of CSS

CSS code consists of a set of rules defined for styling HTML elements. Each CSS rule comprises four things:

- A selector
- A declaration block
- Property names
- Property values

An example of a CSS rule is shown in Figure 1. There are two rules; one for the <body> element and one for the <h1> element. The green text represents selectors, which are followed by {} (declaration blocks) with a list of property-value pairs separated by semicolons (;) .



```
body {
  padding: 50px;
}

h1 {
  font-size: 24px;
  color: #990000;
}
```

Figure 1. Structure of CSS rules

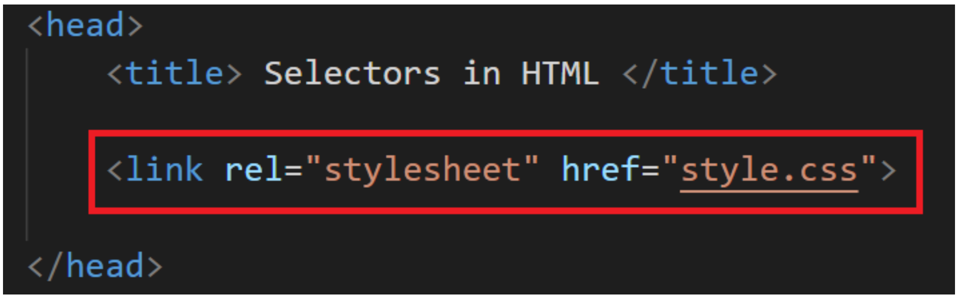
2.1 Saving and Embedding CSS files

Saving a CSS document: A CSS document should be saved with a **.css** extension. There should be no spaces in the name of the CSS document.

Embedding CSS documents in HTML: A CSS document needs to be embedded into an HTML document for all the declared styles to be applied. There are three ways to embed CSS code in HTML:

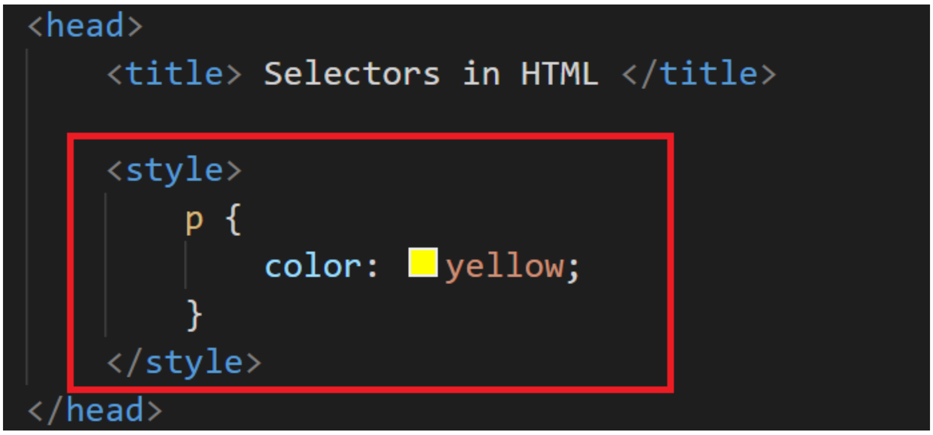
- External embedding by adding a <link> element with the path to the CSS file (Figure 2).
- Internal embedding by adding a <style> element and declaring all CSS rules inside it (Figure 3).
- Inline embedding by adding a style attribute inside a particular HTML element (Figure 4).

Inline embedding should be avoided if possible, because it mixes the content of a HTML page with its styling. It is preferable to separate content and style, such that the visual representation can be adjusted for different types of devices, user preferences and accessibility settings.



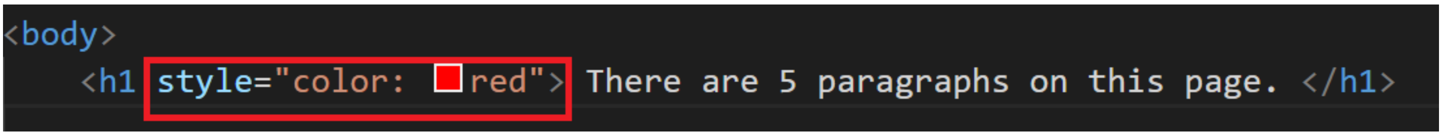
```html
<head>
    <title> Selectors in HTML </title>

    <link rel="stylesheet" href="style.css">

</head>
```

Figure 2. External embedding



```html
<head>
    <title> Selectors in HTML </title>

    <style>
        p {
            color: 🟨yellow;
        }
    </style>
</head>
```

Figure 3. Internal embedding



```html
<body>
    <h1 style="color: 🟥red"> There are 5 paragraphs on this page. </h1>
```

Figure 4. Inline embedding

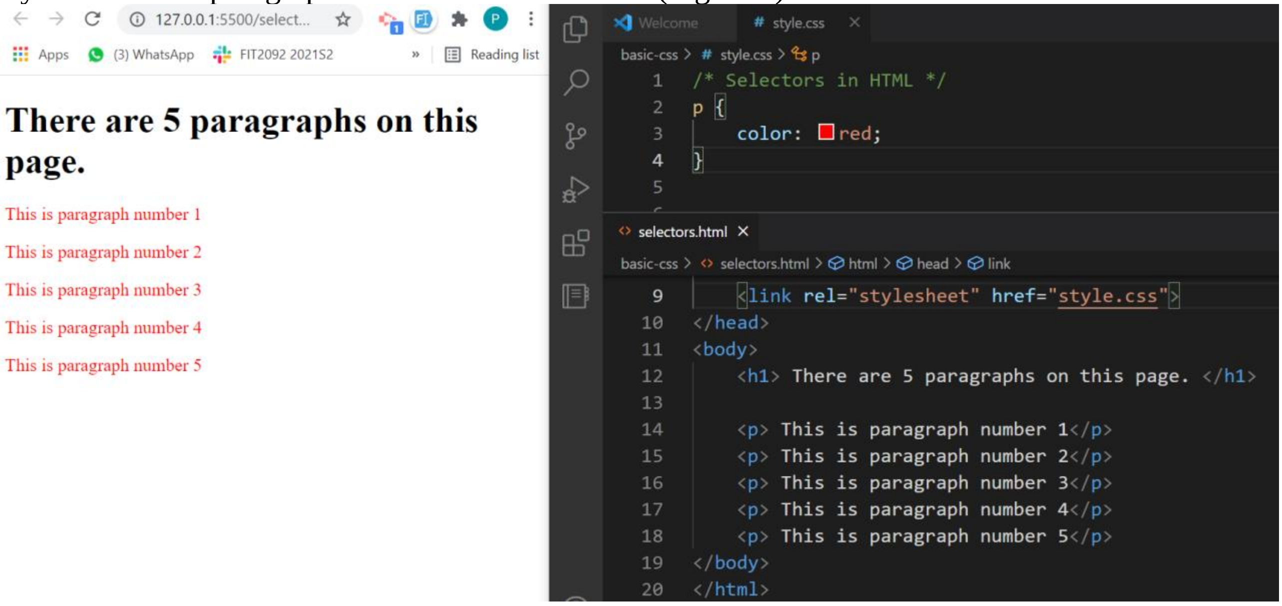
2.2 Selectors in CSS

A selector in CSS selects an HTML element to style it. There are three types of CSS selectors.

- Element selector
- ID selector
- Class selector

2.2.1 Element Selector

The element selector selects HTML elements based on the element names from the HTML document. For example, if you want to change the font colour of all paragraph elements, the p selector can be used to declare a style rule for all paragraph elements in a document (Figure 5).



There are 5 paragraphs on this page.

This is paragraph number 1

This is paragraph number 2

This is paragraph number 3

This is paragraph number 4

This is paragraph number 5

```css
/* Selectors in HTML */
p {
    color: 🟥red;
}

```

```html
    <link rel="stylesheet" href="style.css">
</head>
<body>
    <h1> There are 5 paragraphs on this page. </h1>

    <p> This is paragraph number 1</p>
    <p> This is paragraph number 2</p>
    <p> This is paragraph number 3</p>
    <p> This is paragraph number 4</p>
    <p> This is paragraph number 5</p>
</body>
</html>
```

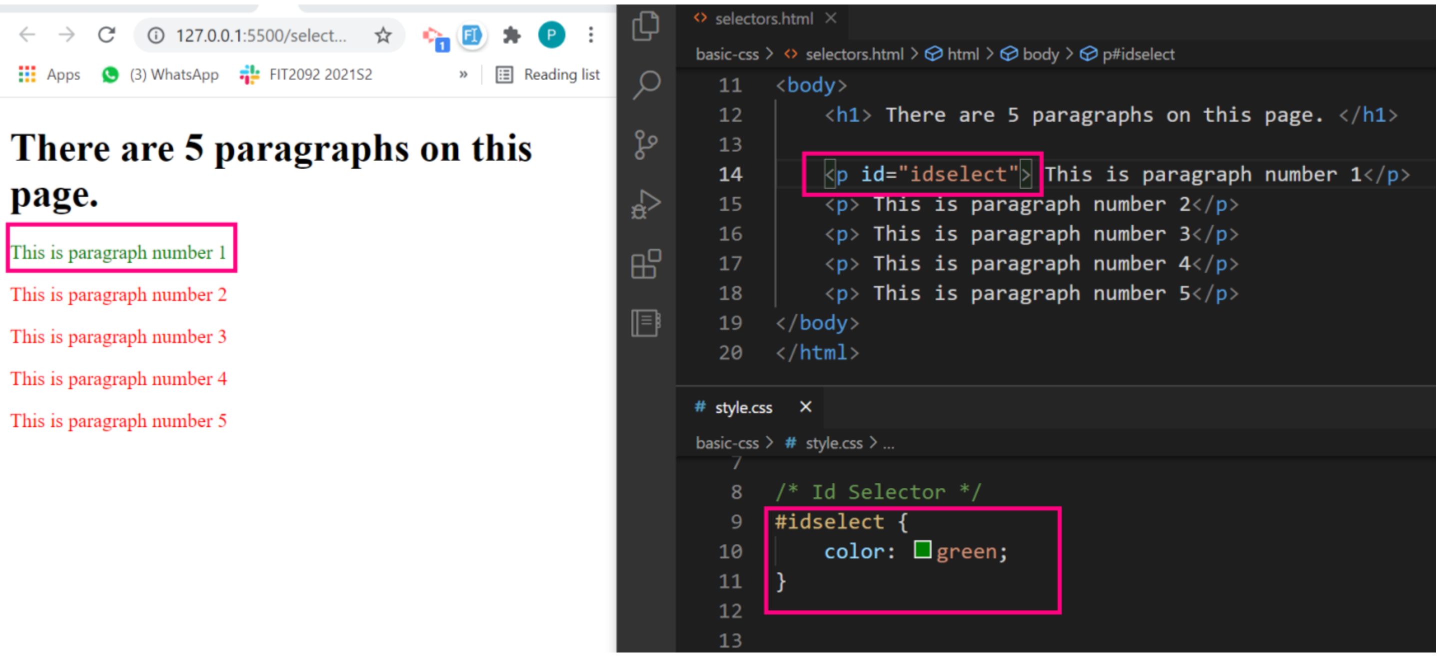
Figure 5. Element selector example: all p elements in the HTML document are red.

2.2.2 ID Selector

An ID selector is used to select one specific element of the HTML document by its identifier. An **id** attribute is added to the HTML element to set the identifier of an HTML element. For example, out of all the paragraph elements, only the first paragraph should have the green text colour, but all others should have red colour (as set in the previous element selector). Figure 6 shows an identifier for the first paragraph element and a CSS ID selector for this identifier.

- Step 1: Add **id** attribute and set the value as **idselect** as shown in Figure.
- Step 2: In a CSS document, the ID selectors are declared with a **#** at the beginning of the ID value.

Note: You can freely choose the id attribute, but it must be unique. Having multiple HTML elements with the same identifier results in a "non-conforming document" and should be avoided.



There are 5 paragraphs on this page.

This is paragraph number 1

This is paragraph number 2

This is paragraph number 3

This is paragraph number 4

This is paragraph number 5

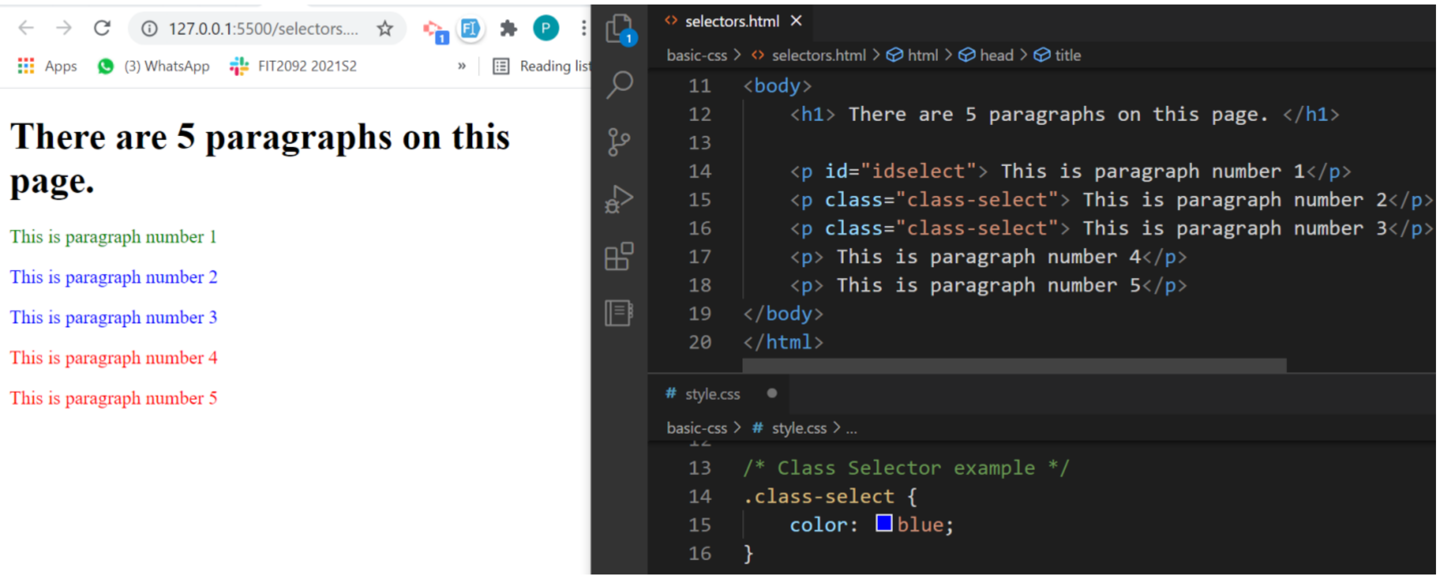
```html
<body>
    <h1> There are 5 paragraphs on this page. </h1>

    <p id="idselect">This is paragraph number 1</p>
    <p> This is paragraph number 2</p>
    <p> This is paragraph number 3</p>
    <p> This is paragraph number 4</p>
    <p> This is paragraph number 5</p>
</body>
</html>
```

```css
/* Id Selector */
#idselect {
    color: green;
}
```

Figure 6. ID selector example

2.2.3 Class selector

A class selector is used to select multiple elements that have the class attribute declared. To set an element as a class selector, a **class** attribute is added to the HTML element. In the CSS document, to select and style all elements of this specific class, write a period (.) character, followed by the class name. Figure 7 shows an example of a class selector, which selects the second and third elements and changes the text colour to blue.


127.0.0.1:5500/selectors....
Apps
(3) WhatsApp
FIT2092 2021S2
Reading list
selectors.html
basic-css > selectors.html > html > head > title
style.css
basic-css > # style.css > ...

There are 5 paragraphs on this page.

This is paragraph number 1

This is paragraph number 2

This is paragraph number 3

This is paragraph number 4

This is paragraph number 5

```html
<body>
    <h1> There are 5 paragraphs on this page. </h1>

    <p id="idselect"> This is paragraph number 1</p>
    <p class="class-select"> This is paragraph number 2</p>
    <p class="class-select"> This is paragraph number 3</p>
    <p> This is paragraph number 4</p>
    <p> This is paragraph number 5</p>
</body>
</html>
```

```css
/* Class Selector example */
.class-select {
    color: blue;
}
```

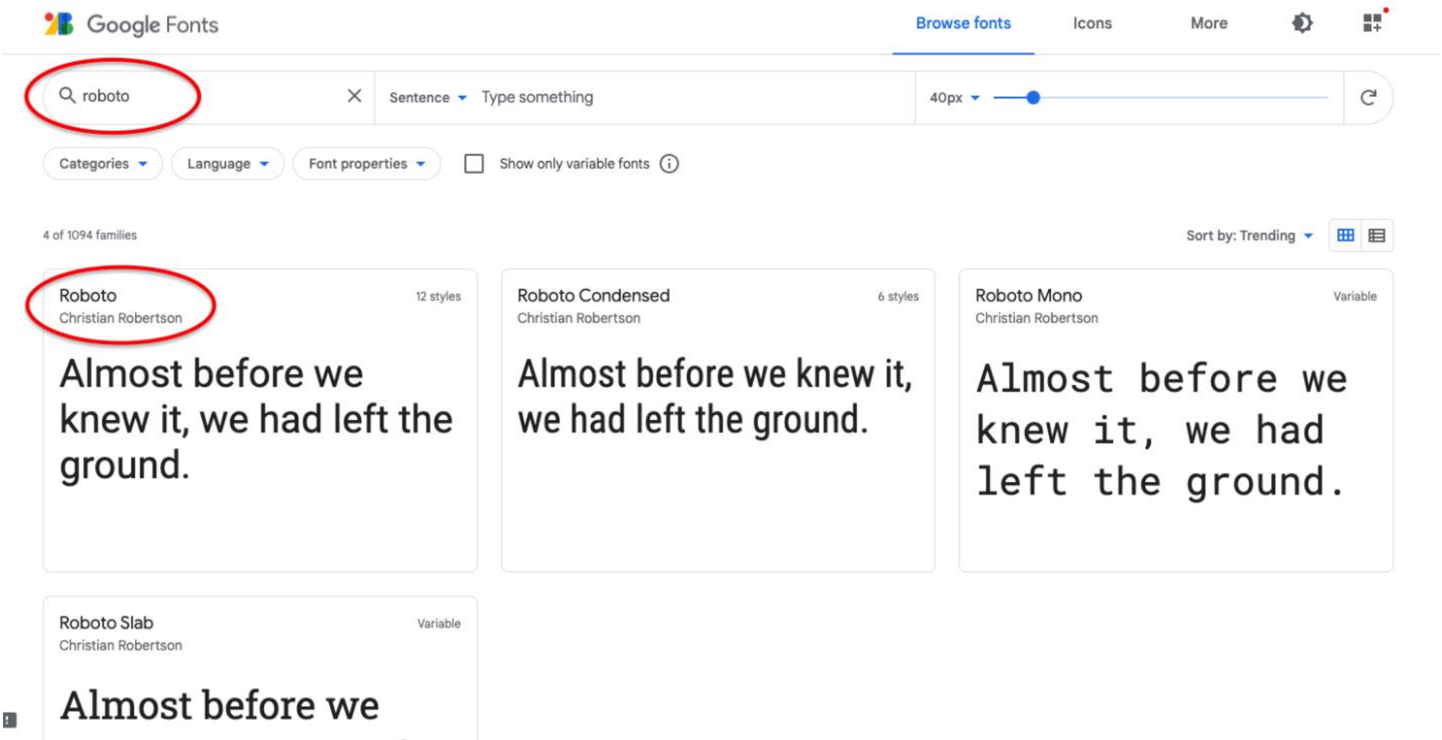
Figure 7. Class selector example

3 Styling HTML content

3.1 Customising typefaces

Typefaces can be customised by using the CSS property *font-family*. Visit https://fonts.google.com/ to choose an appropriate font for your textual content in HTML. Figure 8 shows the Google Fonts interface for searching, previewing and selecting font families to be embedded on the website.

- Step 1: From the categories section, select any font family that has multiple weights and italic and normal styles to choose from, for example, Roboto or Chakra Petch.



roboto

Roboto — Christian Robertson — 12 styles

Almost before we knew it, we had left the ground.

Roboto Condensed — Christian Robertson — 6 styles

Almost before we knew it, we had left the ground.

Roboto Mono — Christian Robertson — Variable

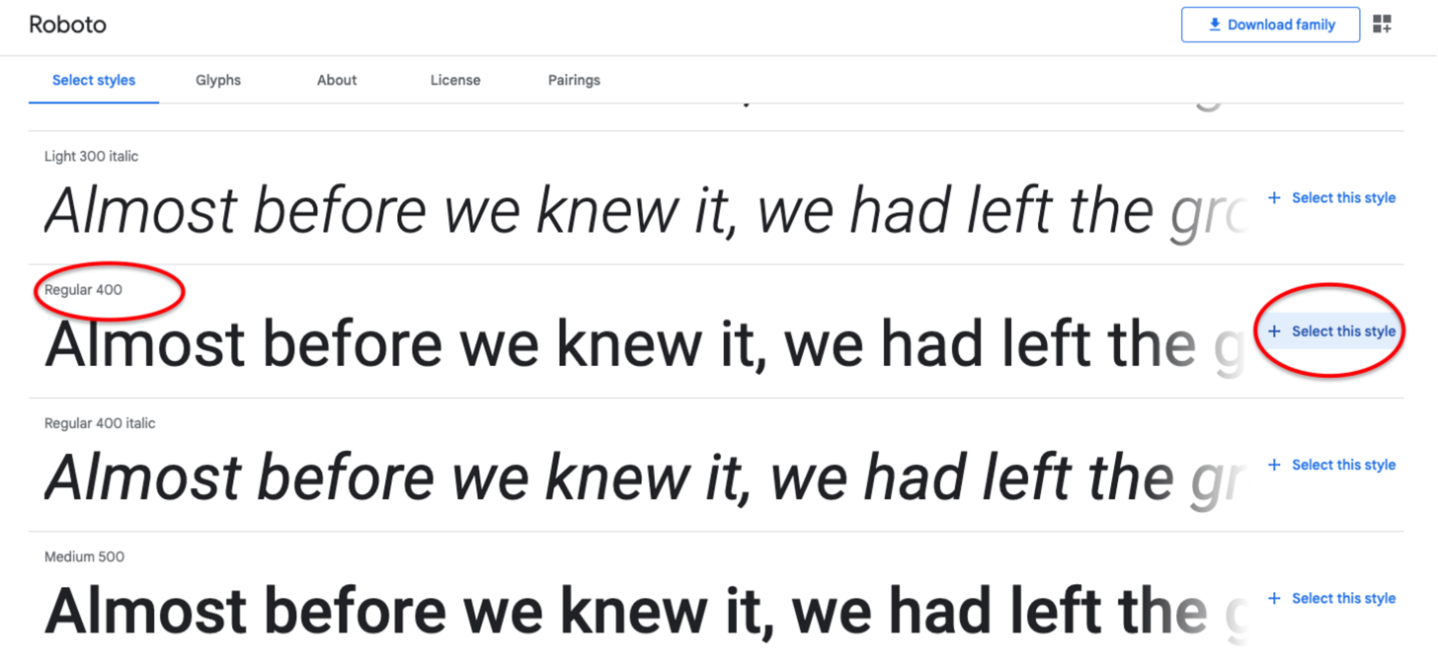
Almost before we knew it, we had left the ground.

Roboto Slab — Christian Robertson — Variable

Almost before we

Figure 8. Google Fonts interface (selecting "Roboto" as an example).

- Step 2: Select a font-weight and whether to use italic by clicking on *Select this style*.



Almost before we knew it, we had left the gro

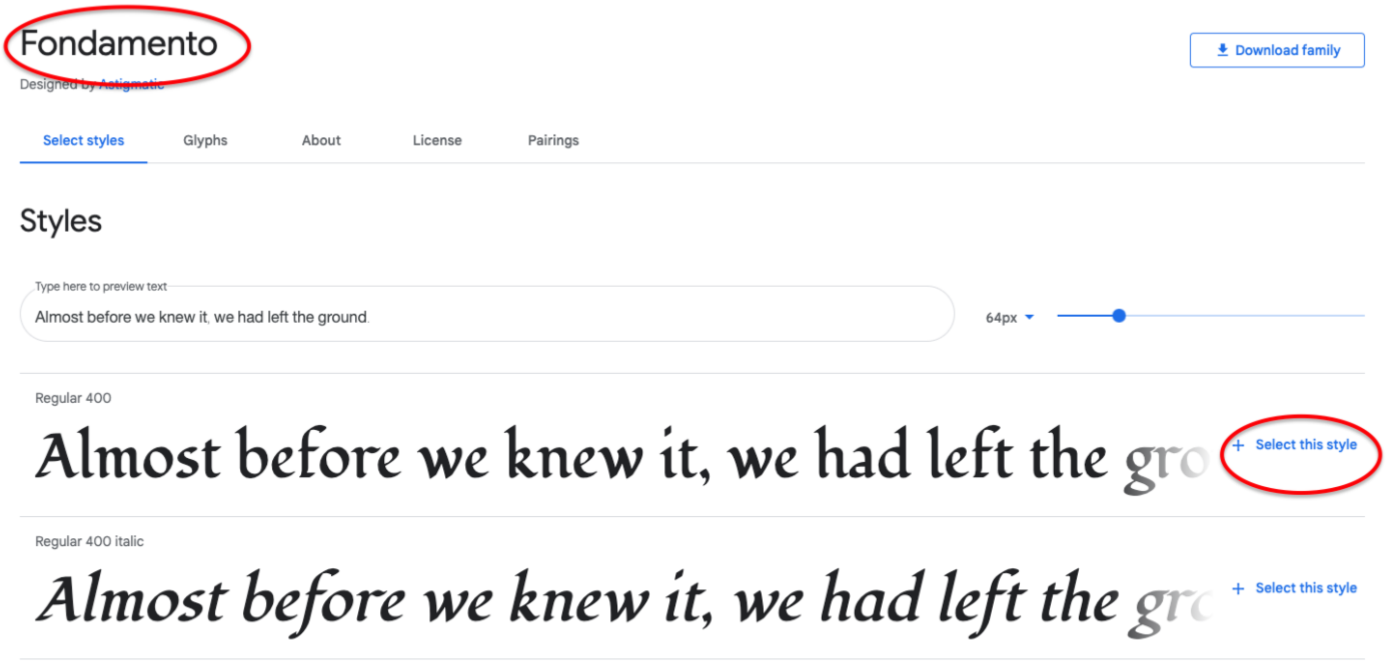
Almost before we knew it, we had left the g

Almost before we knew it, we had left the gr

Almost before we knew it, we had left the g

Figure 9. Previewing and selecting fonts in Google fonts

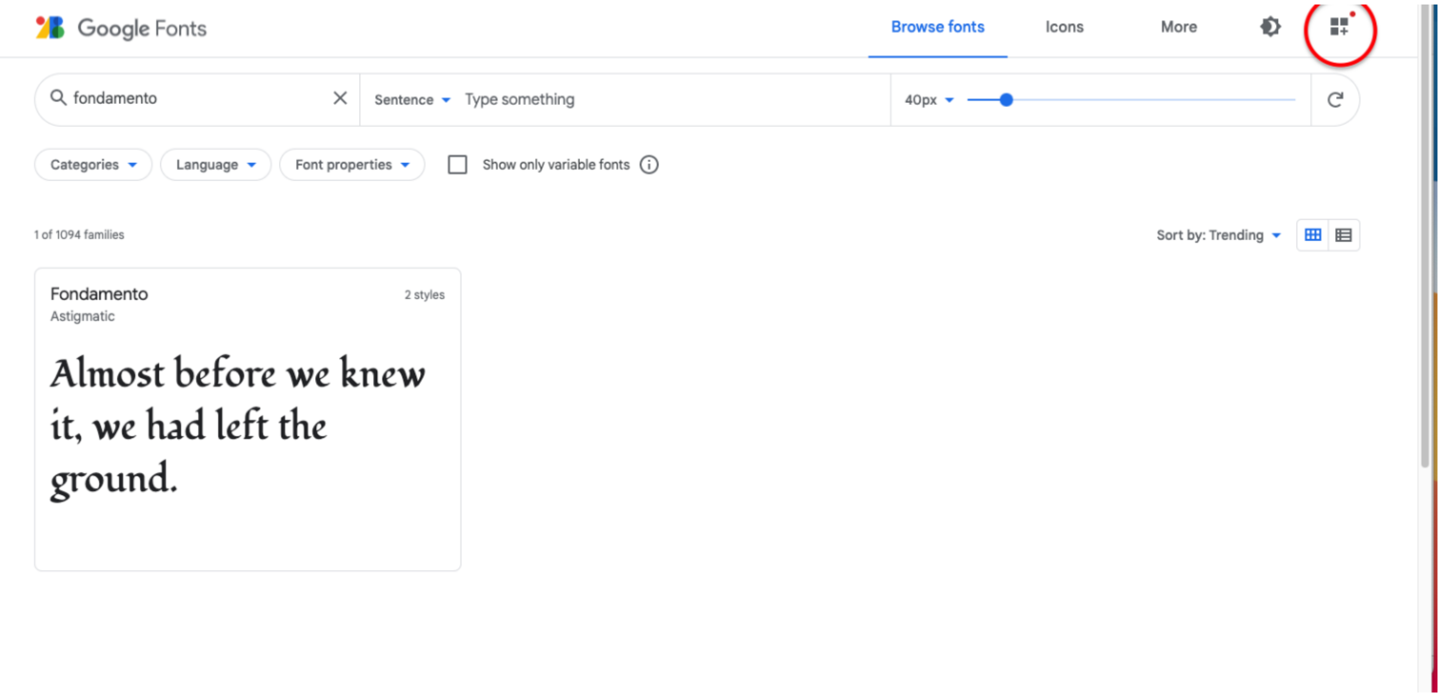
- Step 3: Go back to the homepage of Google Fonts and select another font-family, for example, Fondamento, and again click on *Select this style*.



Almost before we knew it, we had left the ground

Figure 10. Selecting another style.

- Step 4. You have now created a collection of at least two fonts. To use the fonts in your HTML file, click the icon on the top-right corner to "view your selected families". A window will pop up.

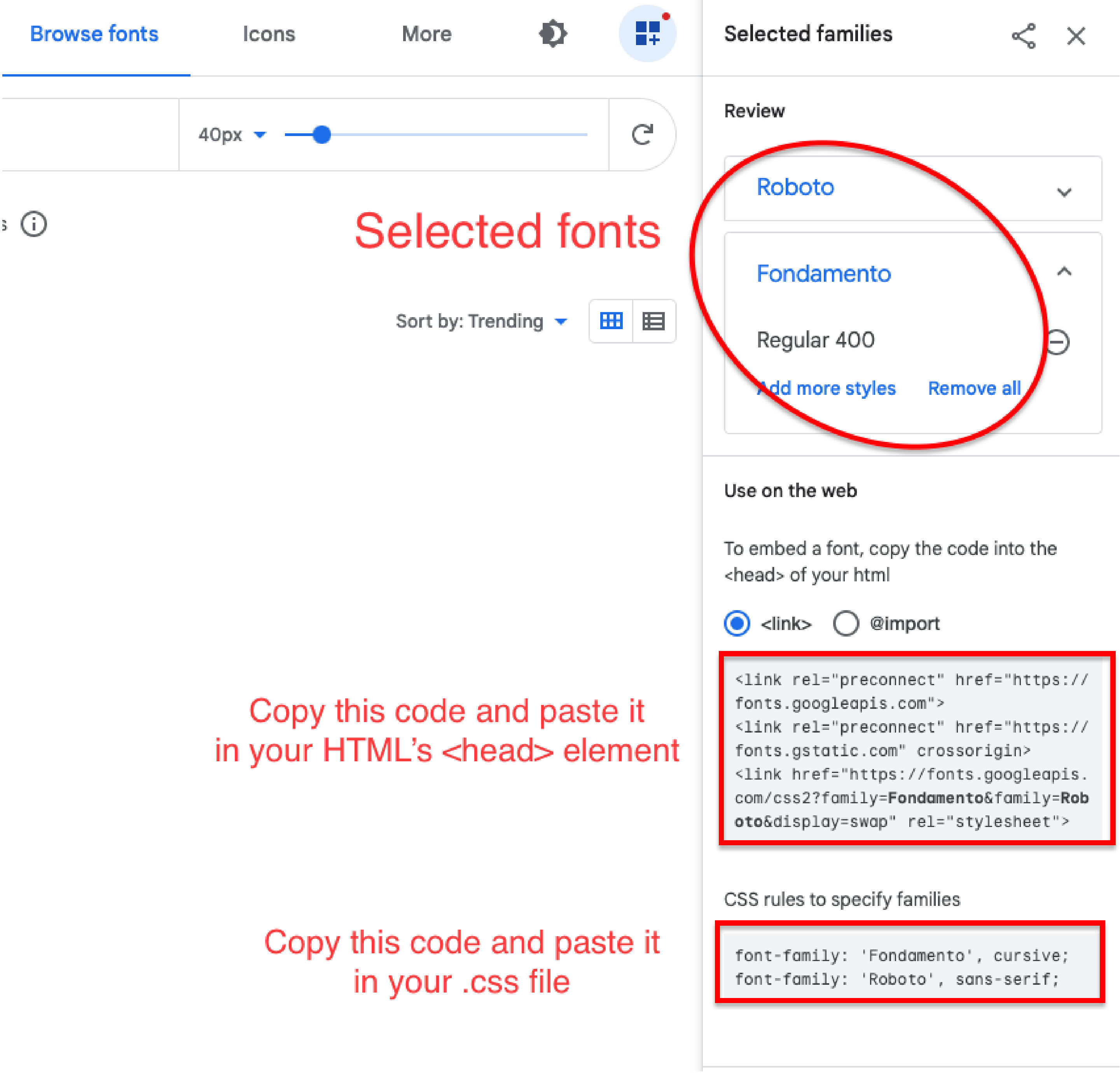


□ Show only variable fonts

fondamento

Almost before we knew it, we had left the ground.

Figure 11. "View your selected families"



Selected fonts

To embed a font, copy the code into the <head> of your html

● <link> ○ @import

Copy this code and paste it in your HTML’s <head> element

```
<link rel="preconnect" href="https://
fonts.googleapis.com">
<link rel="preconnect" href="https://
fonts.gstatic.com" crossorigin>
<link href="https://fonts.googleapis.
com/css2?family=Fondamento&family=Rob
oto&display=swap" rel="stylesheet">
```

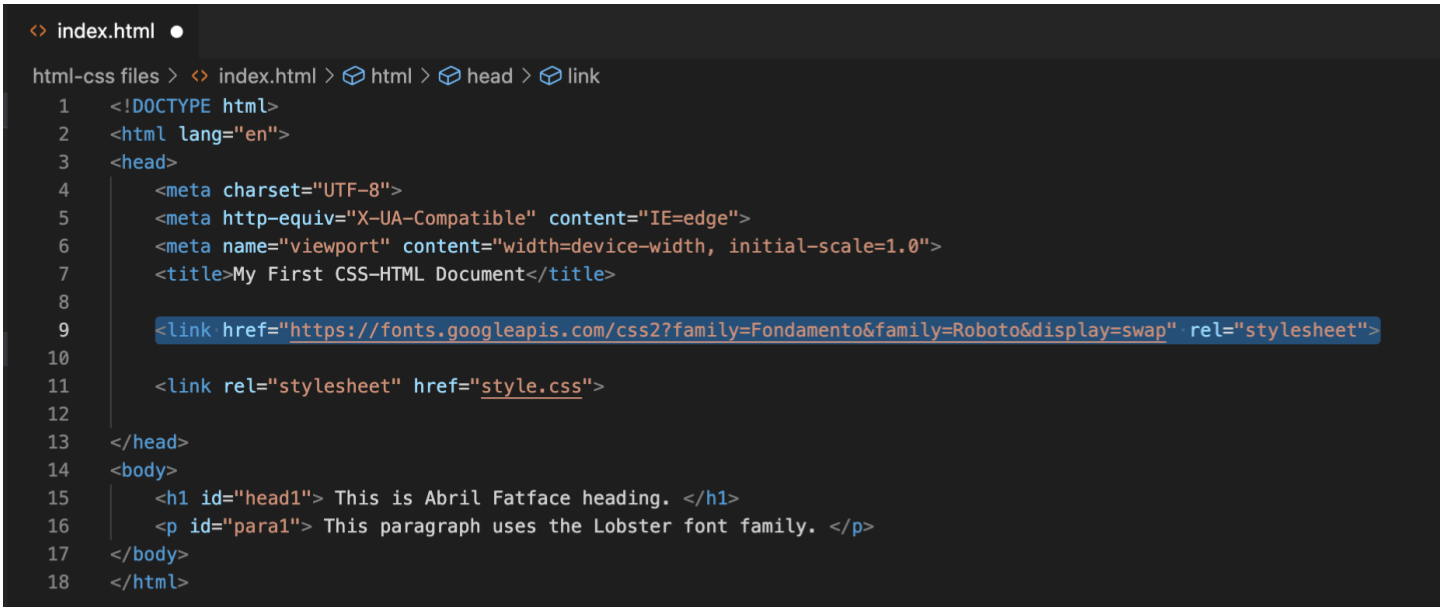
CSS rules to specify families

Copy this code and paste it in your .css file

```
font-family: 'Fondamento', cursive;
font-family: 'Roboto', sans-serif;
```

Figure 12. Codes to use

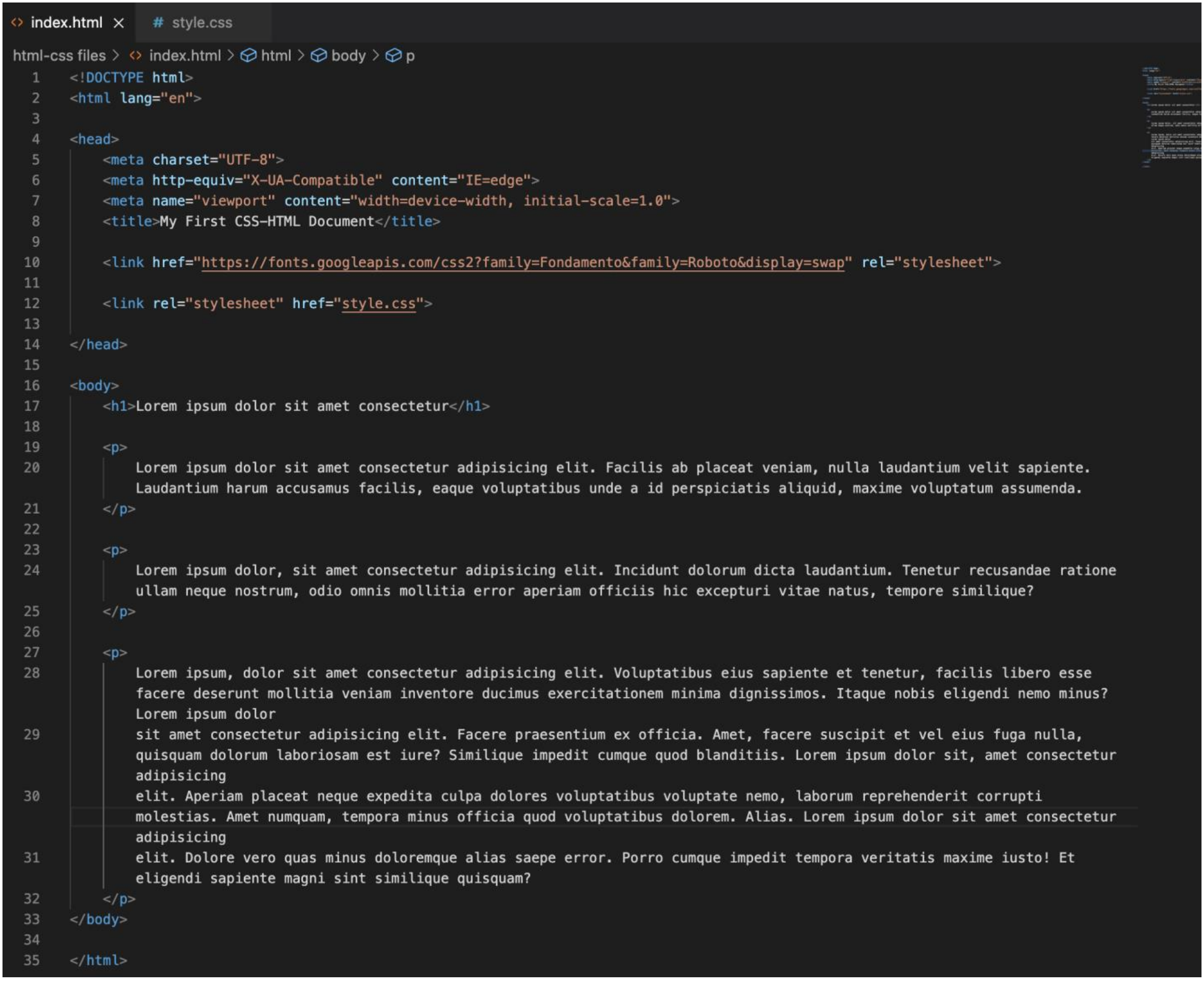
- Step 5: Open your index.html file and embed the <link> elements that point to the Google fonts in your HTML head element. The first two <link> elements are optional, but the last <link> element is mandatory as it has the details of the font families.



```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>My First CSS-HTML Document</title>

    <link href="https://fonts.googleapis.com/css2?family=Fondamento&family=Roboto&display=swap" rel="stylesheet">

    <link rel="stylesheet" href="style.css">

</head>
<body>
    <h1 id="head1"> This is Abril Fatface heading. </h1>
    <p id="para1"> This paragraph uses the Lobster font family. </p>
</body>
</html>
```

Figure 13. Adding the <link> tag to load font files from Google Fonts and load your style.css file.

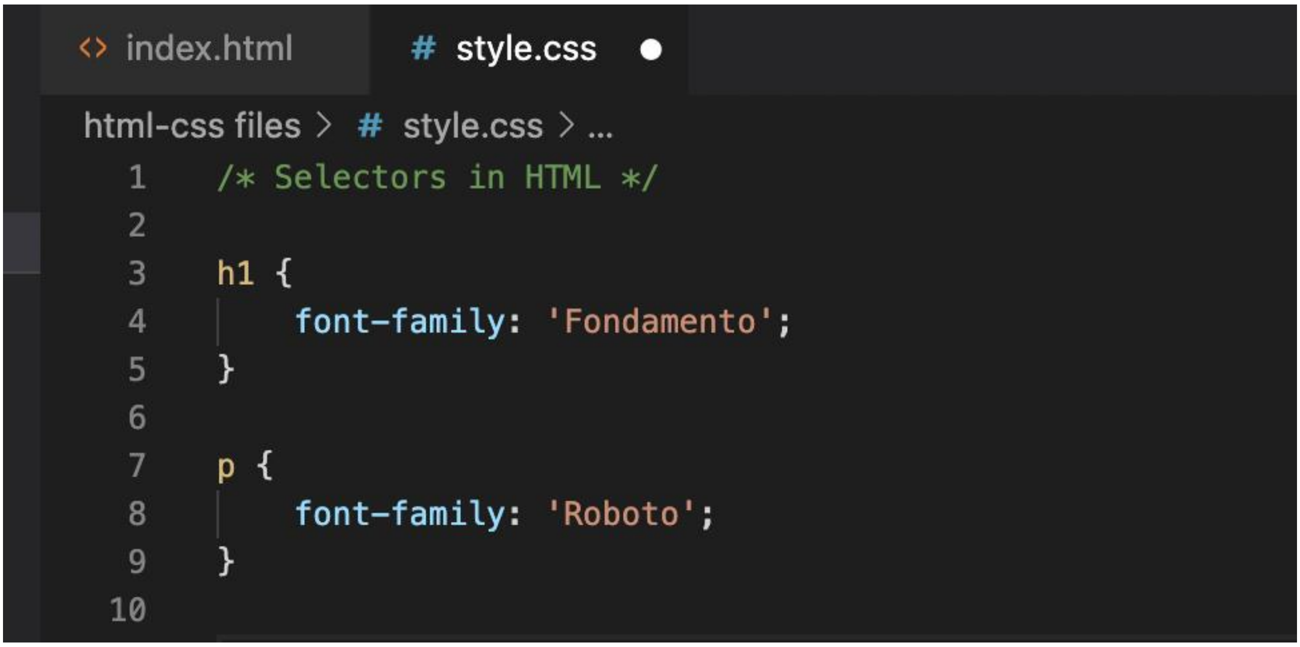
- Step 6: Create a <h1> and a few <p> elements.



```html
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>My First CSS-HTML Document</title>

    <link href="https://fonts.googleapis.com/css2?family=Fondamento&family=Roboto&display=swap" rel="stylesheet">

    <link rel="stylesheet" href="style.css">

</head>

<body>
    <h1>Lorem ipsum dolor sit amet consectetur</h1>

    <p>
        Lorem ipsum dolor sit amet consectetur adipisicing elit. Facilis ab placeat veniam, nulla laudantium velit sapiente.
        Laudantium harum accusamus facilis, eaque voluptatibus unde a id perspiciatis aliquid, maxime voluptatum assumenda.
    </p>

    <p>
        Lorem ipsum dolor, sit amet consectetur adipisicing elit. Incidunt dolorum dicta laudantium. Tenetur recusandae ratione
        ullam neque nostrum, odio omnis mollitia error aperiam officiis hic excepturi vitae natus, tempore similique?
    </p>

    <p>
        Lorem ipsum, dolor sit amet consectetur adipisicing elit. Voluptatibus eius sapiente et tenetur, facilis libero esse
        facere deserunt mollitia veniam inventore ducimus exercitationem minima dignissimos. Itaque nobis eligendi nemo minus?
        Lorem ipsum dolor
        sit amet consectetur adipisicing elit. Facere praesentium ex officia. Amet, facere suscipit et vel eius fuga nulla,
        quisquam dolorum laboriosam est iure? Similique impedit cumque quod blanditiis. Lorem ipsum dolor sit, amet consectetur
        adipisicing
        elit. Aperiam placeat neque expedita culpa dolores voluptatibus voluptate nemo, laborum reprehenderit corrupti
        molestias. Amet numquam, tempora minus officia quod voluptatibus dolorem. Alias. Lorem ipsum dolor sit amet consectetur
        adipisicing
        elit. Dolore vero quas minus doloremque alias saepe error. Porro cumque impedit tempora veritatis maxime iusto! Et
        eligendi sapiente magni sint similique quisquam?
    </p>
</body>

</html>
```

Figure 14. Adding a few tags

- Step 7: Open the **style.css** document. Create two different rules for the element selectors h1 and p, and add a new property font-family between the { } of these rules as shown in Figure 15.

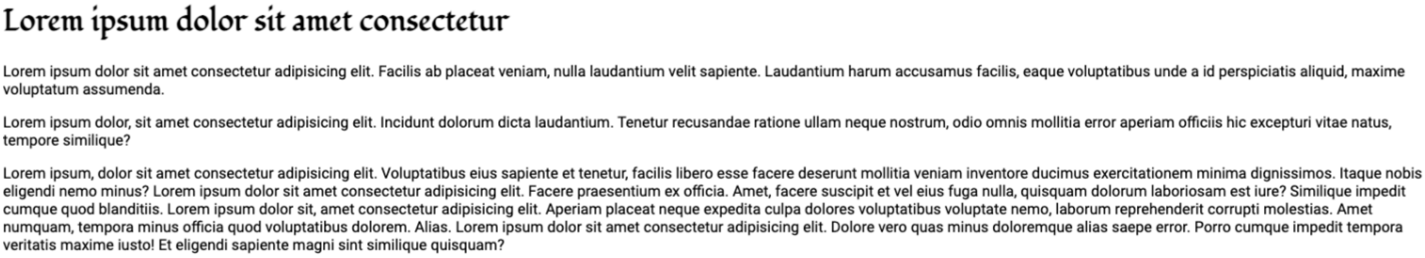


```css
/* Selectors in HTML */

h1 {
    font-family: 'Fondamento';
}

p {
    font-family: 'Roboto';
}

```

Figure 15. Adding font families in CSS document

By adding the font-family property for the element selectors, the mentioned font-family will be applied to the textual content.

Note: Combining the Fondamento typeface, which is a calligraphic hand lettering style, with the modern geometric Roboto typeface does not make sense for most web pages and is not aesthetic. We use these two typefaces for illustrative purposes only.


Lorem ipsum dolor sit amet consectetur

Lorem ipsum dolor sit amet consectetur adipisicing elit. Facilis ab placeat veniam, nulla laudantium velit sapiente. Laudantium harum accusamus facilis, eaque voluptatibus unde a id perspiciatis aliquid, maxime voluptatum assumenda.

Lorem ipsum dolor, sit amet consectetur adipisicing elit. Incidunt dolorum dicta laudantium. Tenetur recusandae ratione ullam neque nostrum, odio omnis mollitia error aperiam officiis hic excepturi vitae natus, tempore similique?

Lorem ipsum, dolor sit amet consectetur adipisicing elit. Voluptatibus eius sapiente et tenetur, facilis libero esse facere deserunt mollitia veniam inventore ducimus exercitationem minima dignissimos. Itaque nobis eligendi nemo minus? Lorem ipsum dolor sit amet consectetur adipisicing elit. Facere praesentium ex officia. Amet, facere suscipit et vel eius fuga nulla, quisquam dolorum laboriosam est iure? Similique impedit cumque quod blanditiis. Lorem ipsum dolor sit, amet consectetur adipisicing elit. Aperiam placeat neque expedita culpa dolores voluptatibus voluptate nemo, laborum reprehenderit corrupti molestias. Amet numquam, tempora minus officia quod voluptatibus dolorem. Alias. Lorem ipsum dolor sit amet consectetur adipisicing elit. Dolore vero quas minus doloremque alias saepe error. Porro cumque impedit tempora veritatis maxime iusto! Et eligendi sapiente magni sint similique quisquam?

Figure 16. Custom fonts in HTML

3.1.1 Customising font

The following example demonstrates how to change the font of individual words in a text using the span element.

Example 1. Colour-coded text with CSS

We can use colours to encode the words/terms in the titles, descriptions and annotations; and make them consistent with the colours in the visualisation. For example, in one of the first lectures, we discussed the following visualisation.

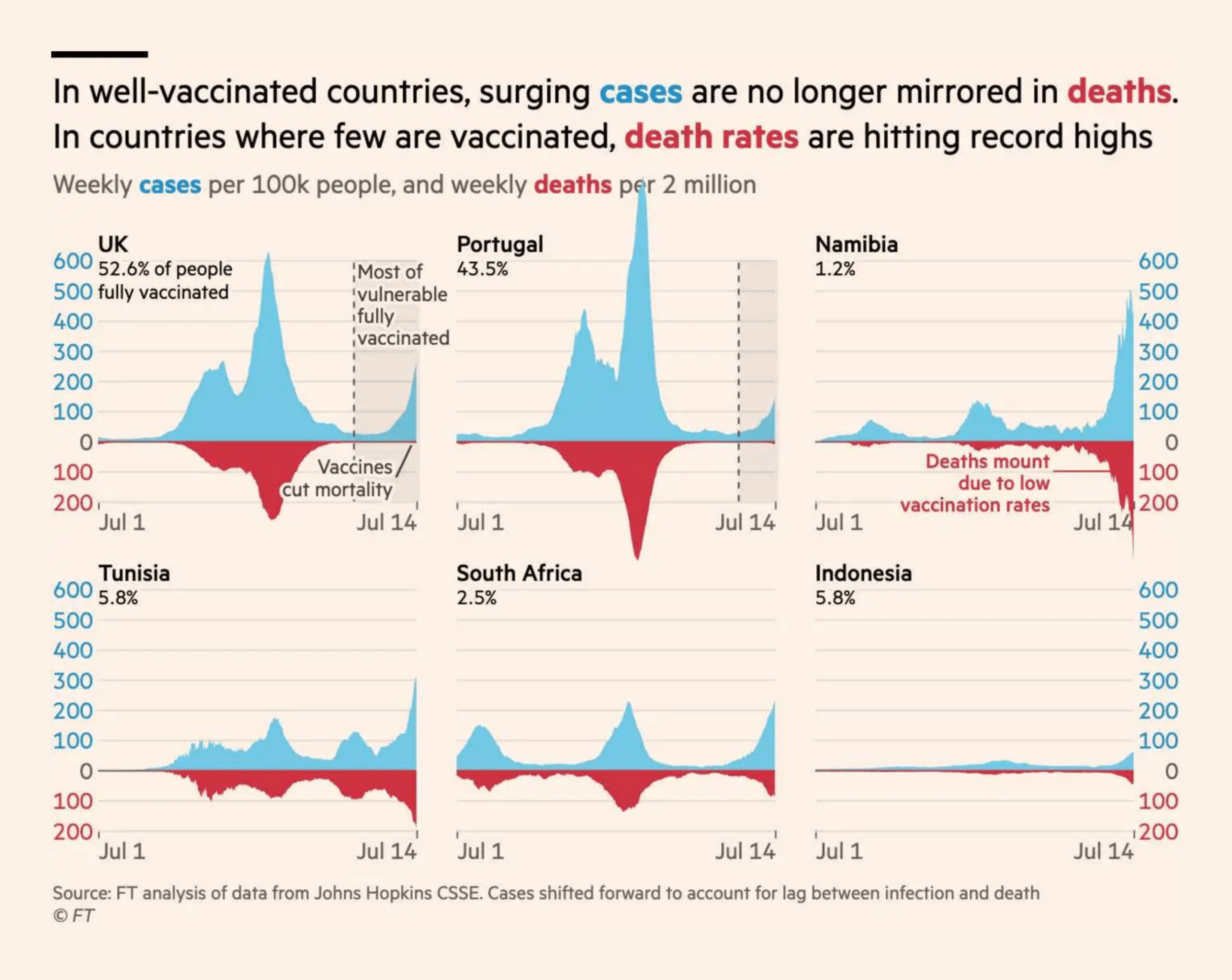


Figure 17. The Financial Times: Delta variant takes hold in developing world as infections soar, July 18 2021.

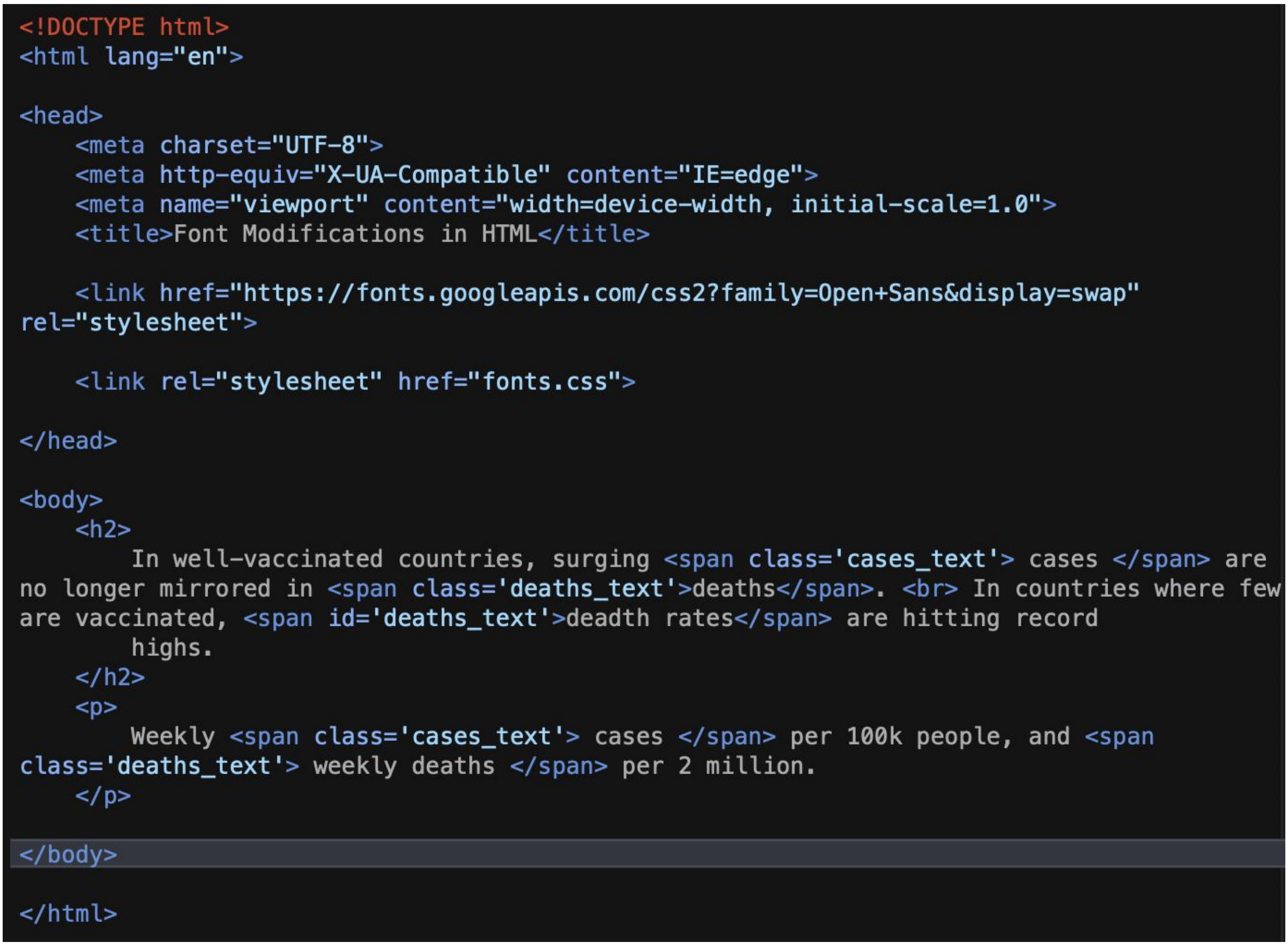
While we do not need to worry about the chart for now, let's replicate the colour coding of the title and subtitles. We will use class selectors, because we want to apply a blue and a red style to multiple words.

Step 1. As shown in Figure 18,

- Create an HTML file called 'fonts.html'. Include the Open Sans font family and a CSS file "fonts.css" in the <head>.

- Under <body>, write down the title and subtitle texts inside the tag <h2> and <p>, respectively. You can copy the text here: *In well-vaccinated countries, surging cases are no longer mirrored in deaths. In countries where few are vaccinated, death rates are hitting record highs. Weekly cases per 100k people, and weekly deaths per 2 million*

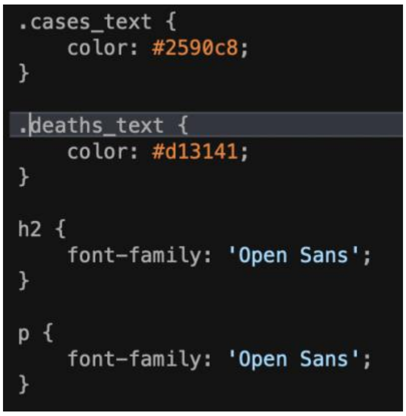
- Then, for the words associated with "cases", we include them in a <span> tag, with a class called "**cases_text**"; for everything related to "deaths", we include them in a <span> tag with a class called "**deaths_text**".



```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Font Modifications in HTML</title>

    <link href="https://fonts.googleapis.com/css2?family=Open+Sans&display=swap"
rel="stylesheet">

    <link rel="stylesheet" href="fonts.css">

</head>

<body>
    <h2>
        In well-vaccinated countries, surging <span class='cases_text'> cases </span> are
no longer mirrored in <span class='deaths_text'>deaths</span>. <br> In countries where few
are vaccinated, <span id='deaths_text'>deadth rates</span> are hitting record
        highs.
    </h2>
    <p>
        Weekly <span class='cases_text'> cases </span> per 100k people, and <span
class='deaths_text'> weekly deaths </span> per 2 million.
    </p>

</body>

</html>
```

Figure 18. Example 1

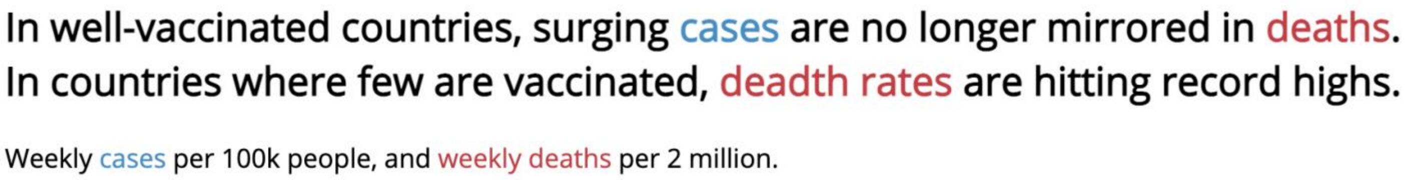
Step 2. Create a “fonts.css” file and include the following codes there (Figure 19).



```
.cases_text {
    color: #2590c8;
}

.deaths_text {
    color: #d13141;
}

h2 {
    font-family: 'Open Sans';
}

p {
    font-family: 'Open Sans';
}
```

Figure 19. fonts.css

The result is shown below:



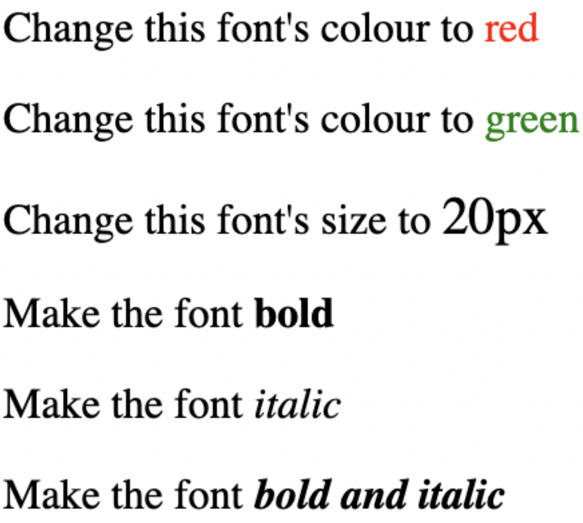
In well-vaccinated countries, surging cases are no longer mirrored in deaths.
In countries where few are vaccinated, deadth rates are hitting record highs.

Weekly cases per 100k people, and weekly deaths per 2 million.

Figure 20. The result.

Example 2, we can also customise the font of individual words by defining the style, size, weight, etc.

Please check the information on this page [link], and try to duplicate the information shown in Figure 21:



Change this font's colour to red

Change this font's colour to green

Change this font's size to 20px

Make the font **bold**

Make the font *italic*

Make the font ***bold and italic***

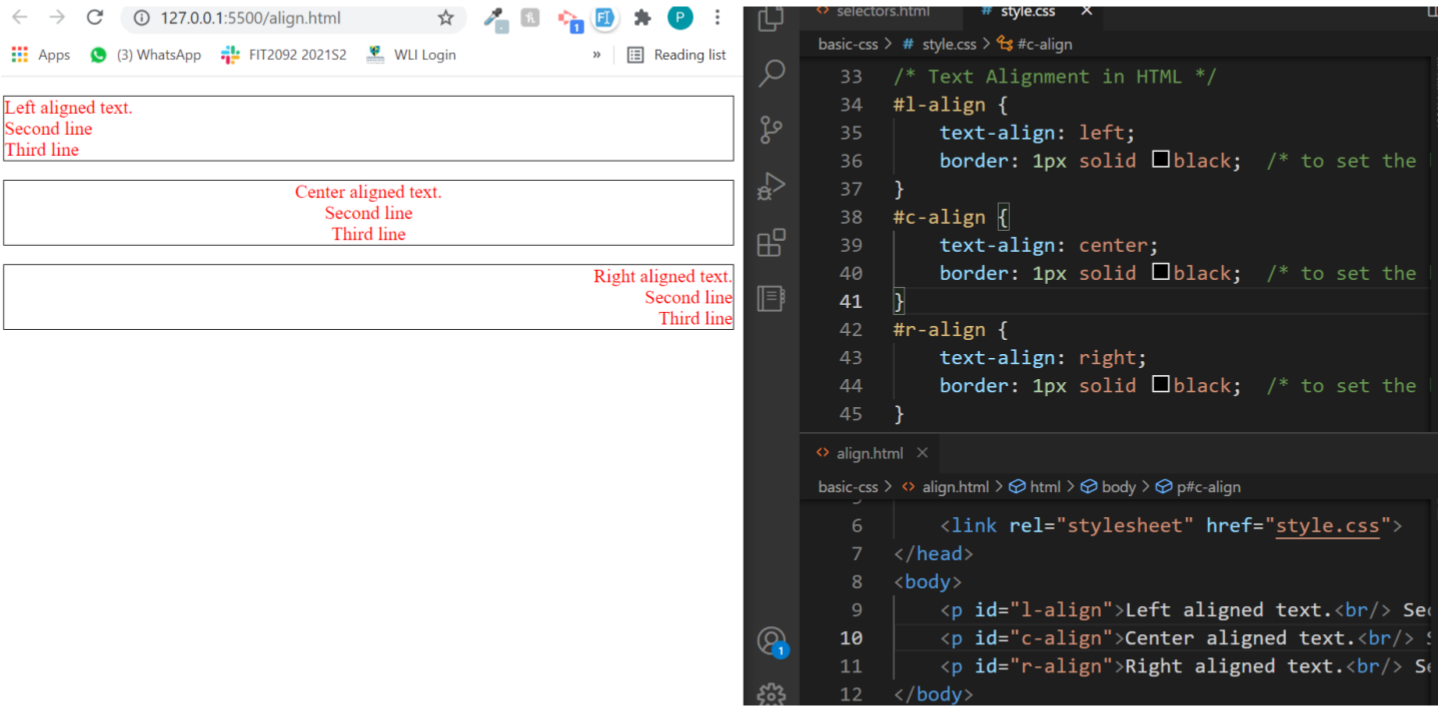
Figure 21. Example of the colour property

Question:

Technically, you can also use inline styles to define the colours and font styles of individual words. What are the advantages of using an external file to manage this?

3.1.2 Aligning Textual Content

To align the textual content, the *text-align* CSS property can be used. An example of text alignment is shown in Figure 22. The different values for the text-align property are *left*, *right* and *centre*.


127.0.0.1:5500/align.html
Apps
(3) WhatsApp
FIT2092 2021S2
WLI Login
Reading list
selectors.html
style.css
basic-css > # style.css > #c-align
align.html
basic-css > align.html > html > body > p#c-align

Left aligned text.
Second line
Third line

Center aligned text.
Second line
Third line

Right aligned text.
Second line
Third line

```
/* Text Alignment in HTML */
#l-align {
    text-align: left;
    border: 1px solid ■black;  /* to set the
}
#c-align {
    text-align: center;
    border: 1px solid ■black;  /* to set the
}
#r-align {
    text-align: right;
    border: 1px solid ■black;  /* to set the
}
```

```
    <link rel="stylesheet" href="style.css">
</head>
<body>
    <p id="l-align">Left aligned text.<br/> Se
    <p id="c-align">Center aligned text.<br/> S
    <p id="r-align">Right aligned text.<br/> Se
</body>
```

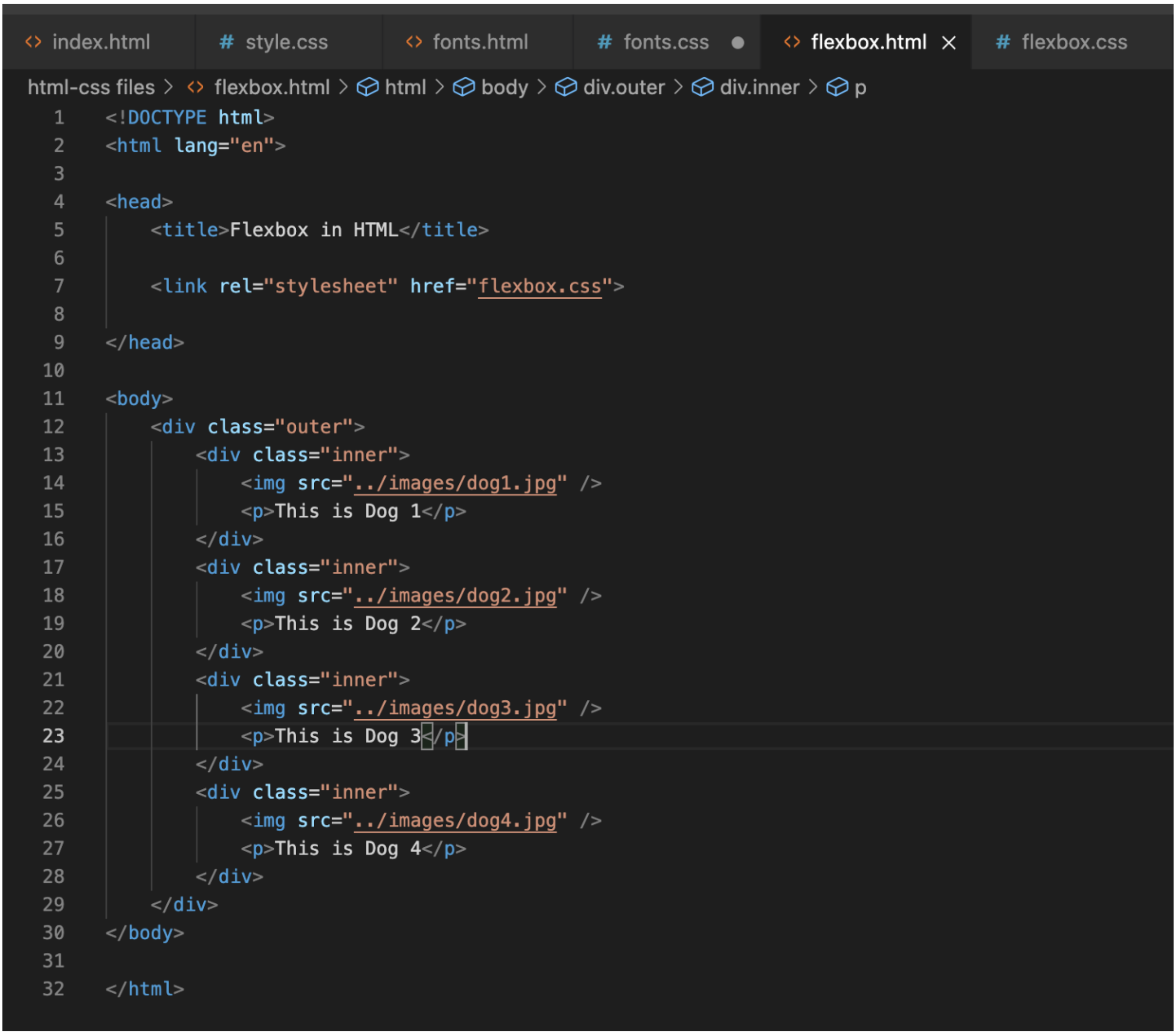
Figure 22. Example of Text Alignment in HTML

3.2 Aligning Images and Text

CSS has various layout techniques to set images and fonts in the same row and columns.

- Step 1: Create a new HTML document and save it as flexbox.html
- Step 2: Create a new CSS document as save it as flexbox.css

- Step 3: Four dog images have been provided in the lab material this week. Create a <div> element in the HTML document. Set the property **class="outer".** Create four <div> elements inside it and add a **class="inner"** attribute.
- Step 4: Add an <img> and <p> element inside the <div> with **class="inner"**.


index.html
style.css
fonts.html
fonts.css
flexbox.html
flexbox.css
html-css files > flexbox.html > html > body > div.outer > div.inner > p

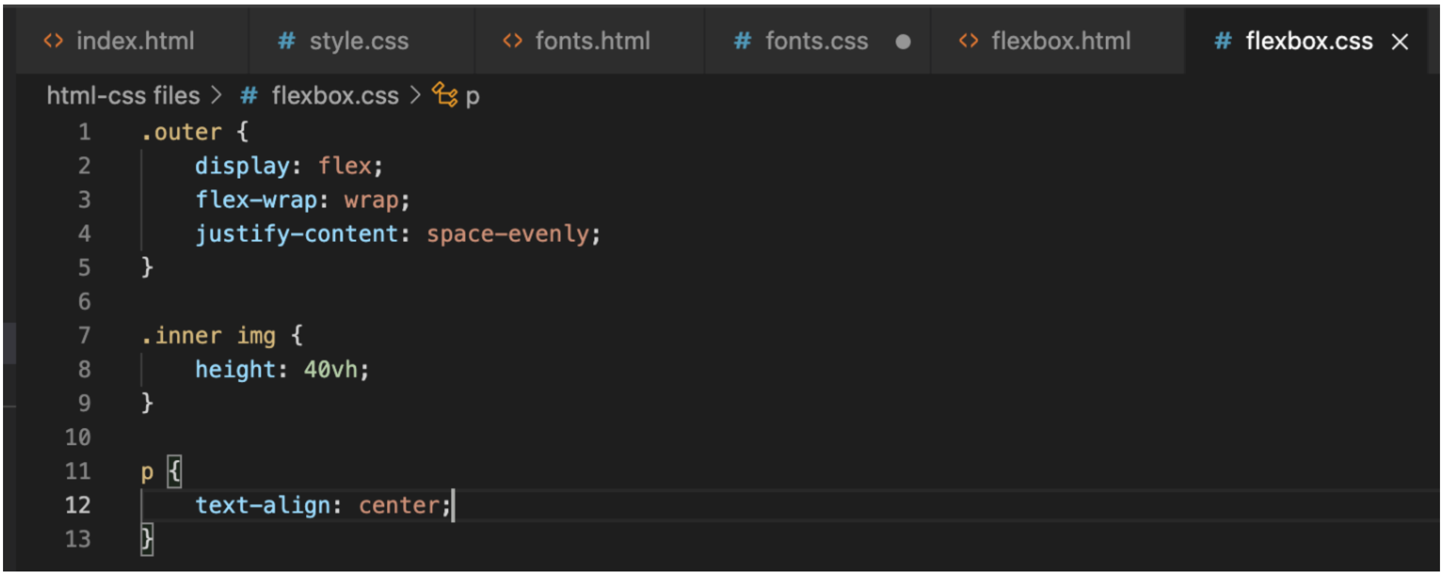
```html
<!DOCTYPE html>
<html lang="en">

<head>
    <title>Flexbox in HTML</title>

    <link rel="stylesheet" href="flexbox.css">

</head>

<body>
    <div class="outer">
        <div class="inner">
            <img src="../images/dog1.jpg" />
            <p>This is Dog 1</p>
        </div>
        <div class="inner">
            <img src="../images/dog2.jpg" />
            <p>This is Dog 2</p>
        </div>
        <div class="inner">
            <img src="../images/dog3.jpg" />
            <p>This is Dog 3</p>
        </div>
        <div class="inner">
            <img src="../images/dog4.jpg" />
            <p>This is Dog 4</p>
        </div>
    </div>
</body>

</html>
```

Figure 23. flexbox.html

Question:

What is the meaning of "../images/dog1.jpg" here?

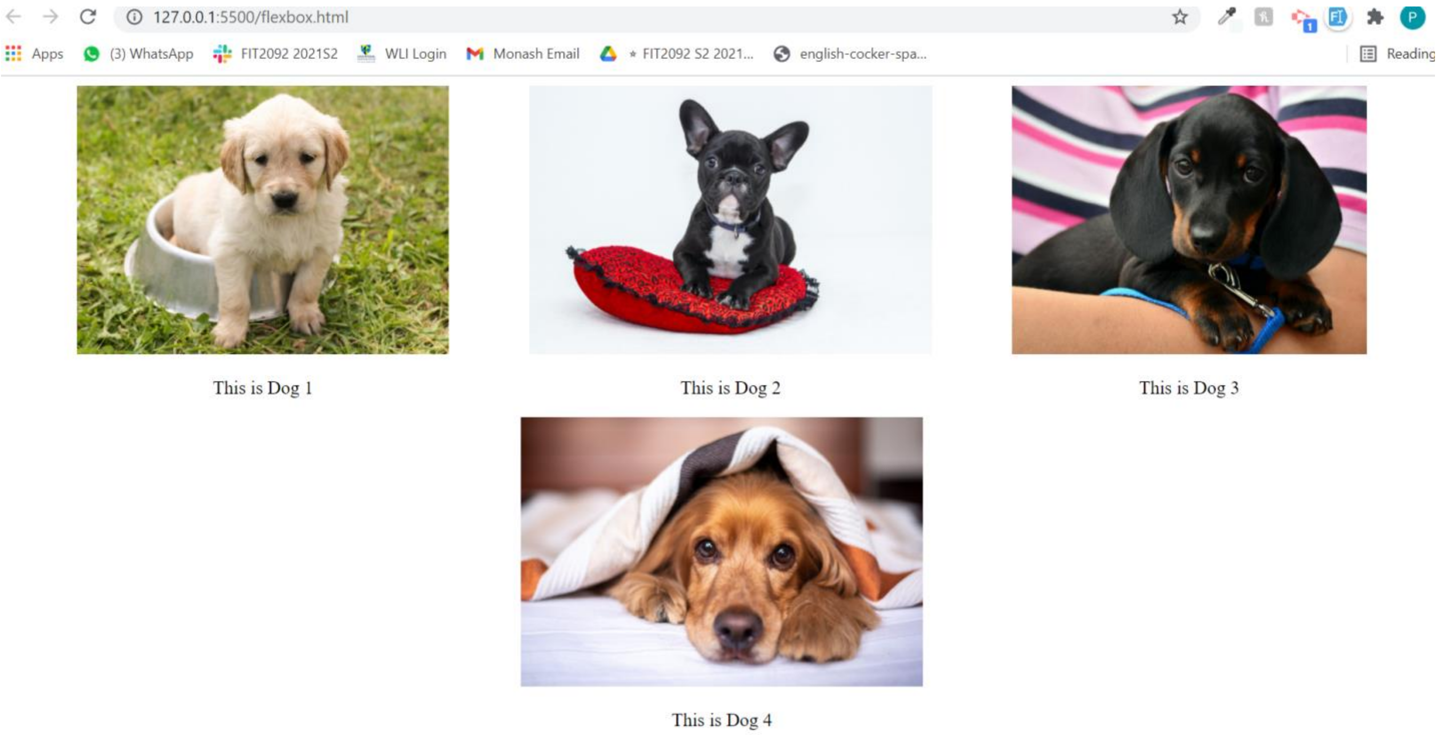
- Step 5: define the CSS file as below. The **display: flex** property is used to create a flexible box with images and fonts. The property **flex-wrap: wrap** will wrap all the elements and stop them from overflowing off the screen (creating a scrollbar on the site), and **justify-content** will set the content with even spacing between all the elements. Restrict the size of all <img> elements by setting **height** property. If this size is not restricted, the elements will be shown according to the original size of the embedded images.



```
.outer {
    display: flex;
    flex-wrap: wrap;
    justify-content: space-evenly;
}

.inner img {
    height: 40vh;
}

p {
    text-align: center;
}
```

Figure 24. flexbox.css

The result is shown below.



This is Dog 1

This is Dog 2

This is Dog 3

This is Dog 4

Figure 25. Output of Flexbox

Try resetting the height in step 5 to **height: 60vh**. The output will show 2 columns per row. This means it rearranges the content according to the height set for the <img> elements.

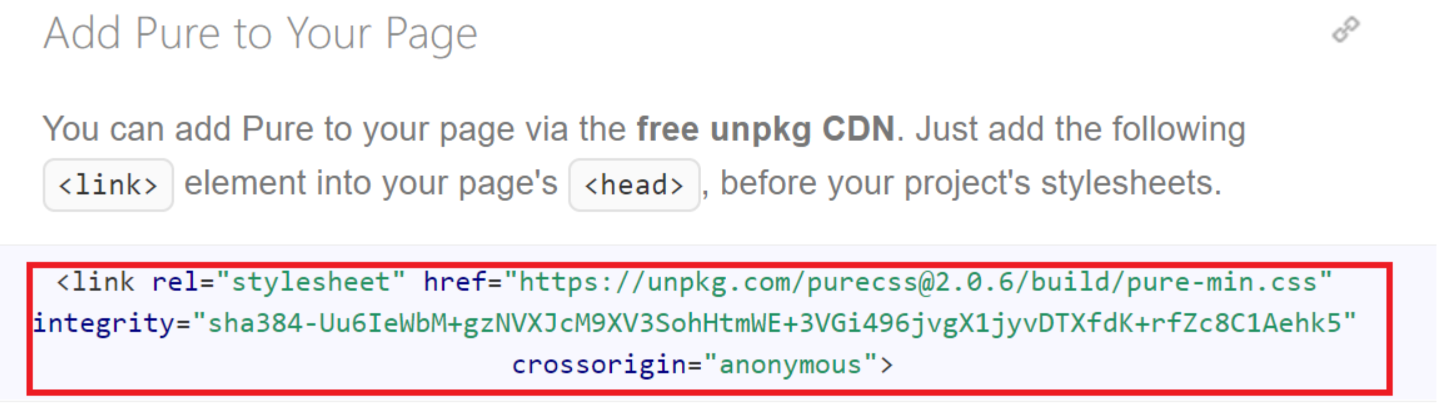
4 Creating a layout using HTML and CSS

In this section, we will use pure css to duplicate the top parts of "Explore European cities on a budget" [link].

To create a simple layout in CSS, we will use the pure.css library.

- Step 1: Create a new HTML document and save it as **layout.html**.

- Step 2: Visit https://purecss.io/start/ and copy the pure.css public <link> element (Figure 26) and add it to your HTML document's <head> element.



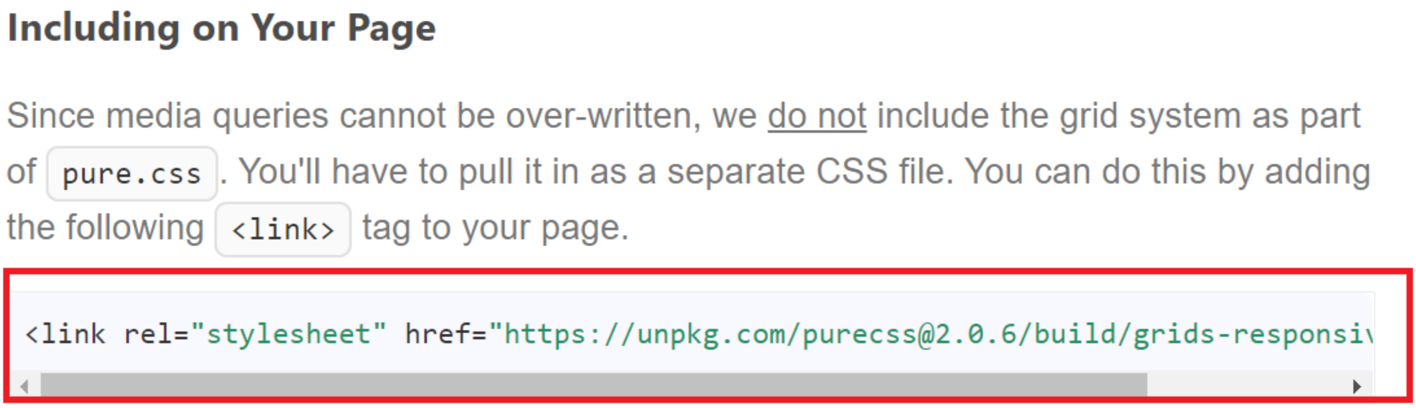
Add Pure to Your Page

You can add Pure to your page via the **free unpkg CDN**. Just add the following `<link>` element into your page's `<head>`, before your project's stylesheets.

```
 <link rel="stylesheet" href="https://unpkg.com/purecss@2.0.6/build/pure-min.css"
integrity="sha384-Uu6IeWbM+gzNVXJcM9XV3SohHtmWE+3VGi496jvgX1jyvDTXfdK+rfZc8C1Aehk5"
                          crossorigin="anonymous">
```

Figure 26. Pure css CDN link

- Step 3: Click on the **Grids** from the navigation menu on the left and scroll to the section as shown in Figure 27 and copy the <link> element and add it in your HTML document's <head> element after adding the link mentioned in Step 2.



Including on Your Page

Since media queries cannot be over-written, we do not include the grid system as part of `pure.css`. You'll have to pull it in as a separate CSS file. You can do this by adding the following `<link>` tag to your page.

```
<link rel="stylesheet" href="https://unpkg.com/purecss@2.0.6/build/grids-responsi
```

Figure 27. Purecss Grids link

- **Step 4:** Based on the Tableau visualization dashboard for the European cities [link], four images have been provided for the first two rows, i.e., banner.png, left.png, center.png and right.png.

- Step 5: Pure's grid system is simple and powerful. You create a row by using the .pure-g class (pure grids), and create columns within that row by using the pure-u-* classes (pure units).
  - First, the outer <div> element should be created with the class="pure-g" attribute. "g" is short for "grids". You create a row by using the ".pure-g" class.
  - Then, we add the pure-u-* classes. Pure.css grids use the class attributes with the value **pure-u-*** where * is represented by the units. For example, pure-u-1-5 means that the element uses 20% of the total size (1÷5), pure-u-2-5 uses 40% of the total size (2÷5), and pure-u-1-3 uses 33.33% of the total size(1÷3).

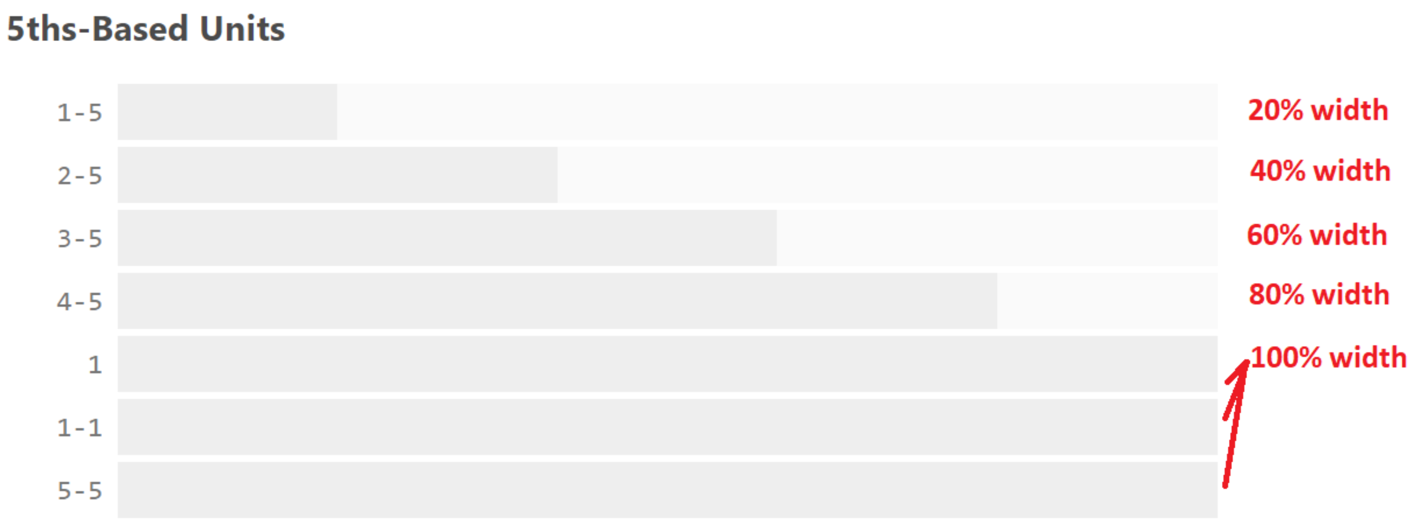
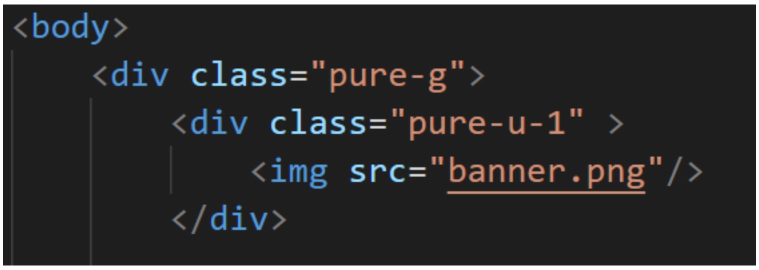


Figure 28. pure units

- Step 6: For our grid, the first row only has one column spanning across the entire width, so we will create a new <div> element inside the pure-g <div> element and add **class=”pure-u-1”** attribute to it.

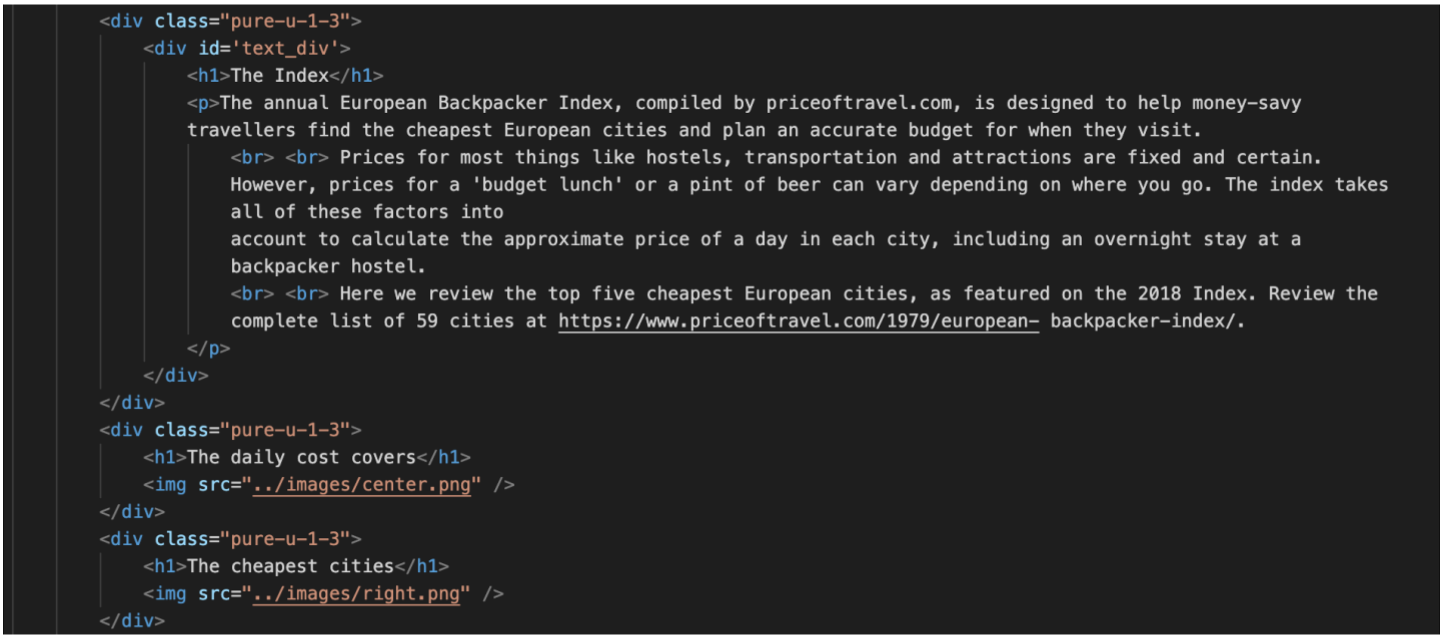
- Step 7: Add an <img> element with the path to banner.png image as shown in figure 28.



```
<body>
    <div class="pure-g">
        <div class="pure-u-1" >
            <img src="banner.png"/>
        </div>
```

Figure 29. First row of the grid

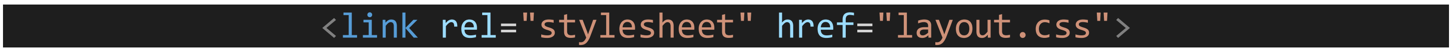
- Step 8: For the second row of the grid, we require three sections in the same row, so we will create three <div> elements with the **class=”pure-u-1-3”** attribute.
  - For the first part on the left, we add an <h1> tag and a <p> tag for the descriptions. You can copy the text from the end of this document. In order to change the specific layout such as paddings of texts, we define a <div> named “text_div” to contain the <h1> and <p> tags.
  - For the middle and the right parts, we add an <h1> tag for the title, and an <img> element for the graph. Please note that, the images will be replaced with the actual codes to create visualisations from data next week.



```
<div class="pure-u-1-3">
    <div id='text_div'>
        <h1>The Index</h1>
        <p>The annual European Backpacker Index, compiled by priceoftravel.com, is designed to help money-savy
        travellers find the cheapest European cities and plan an accurate budget for when they visit.
            <br> <br> Prices for most things like hostels, transportation and attractions are fixed and certain.
            However, prices for a 'budget lunch' or a pint of beer can vary depending on where you go. The index takes
            all of these factors into
            account to calculate the approximate price of a day in each city, including an overnight stay at a
            backpacker hostel.
            <br> <br> Here we review the top five cheapest European cities, as featured on the 2018 Index. Review the
            complete list of 59 cities at https://www.priceoftravel.com/1979/european- backpacker-index/.
        </p>
    </div>
</div>
<div class="pure-u-1-3">
    <h1>The daily cost covers</h1>
    <img src="../images/center.png" />
</div>
<div class="pure-u-1-3">
    <h1>The cheapest cities</h1>
    <img src="../images/right.png" />
</div>
```

Figure 30. Second row of the grid

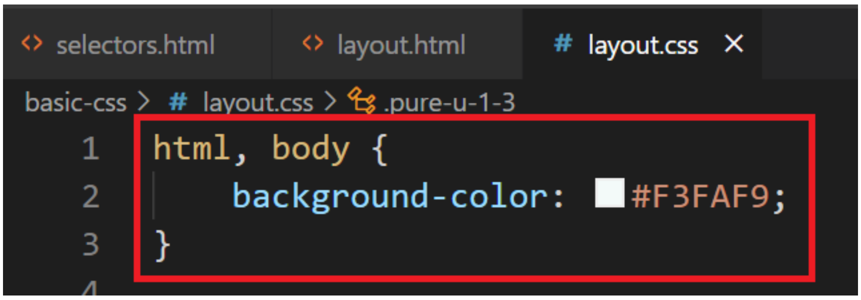
- Step 9: Create a new layout.css Document. Add the <link> to the CSS document in the <head> element as shown in Figure 30.



```
<link rel="stylesheet" href="layout.css">
```

Figure 31. Layout.css added in HTML document

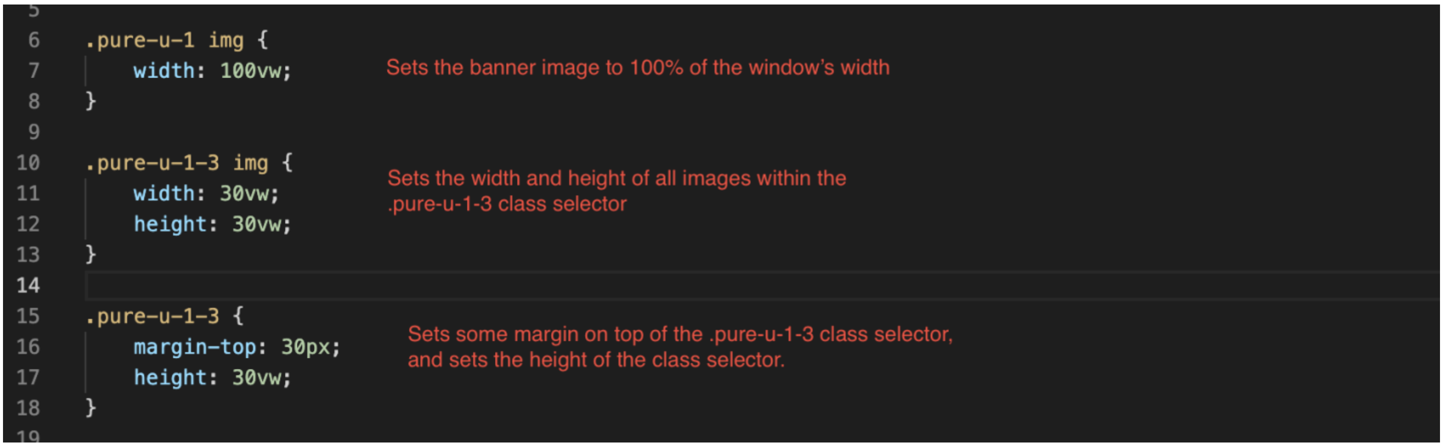
- Step 10: Set the background colour to the entire <html> page by selecting the HTML element and Body element.



```
html, body {
    background-color: #F3FAF9;
}
```

Figure 32. Setting background colour of entire document

- Step 11: Some additional CSS can be added to the pure.css grids to modify the width and height of the images to fit the screen's width and height as shown in Figure 32. "vw" means "Relative to 1% of the width of the viewports". Check here for more relative length units: [link].



```
.pure-u-1 img {
    width: 100vw;
}

.pure-u-1-3 img {
    width: 30vw;
    height: 30vw;
}

.pure-u-1-3 {
    margin-top: 30px;
    height: 30vw;
}
```

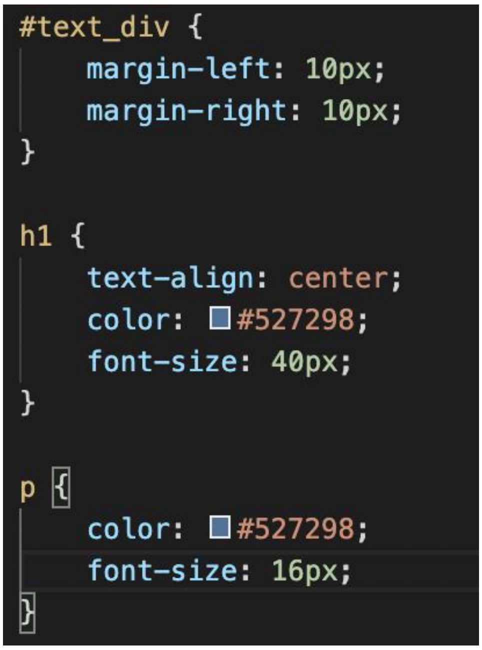
Sets the banner image to 100% of the window's width

Sets the width and height of all images within the .pure-u-1-3 class selector

Sets some margin on top of the .pure-u-1-3 class selector, and sets the height of the class selector.

Figure 33. Additional CSS to set images to screen's width and height

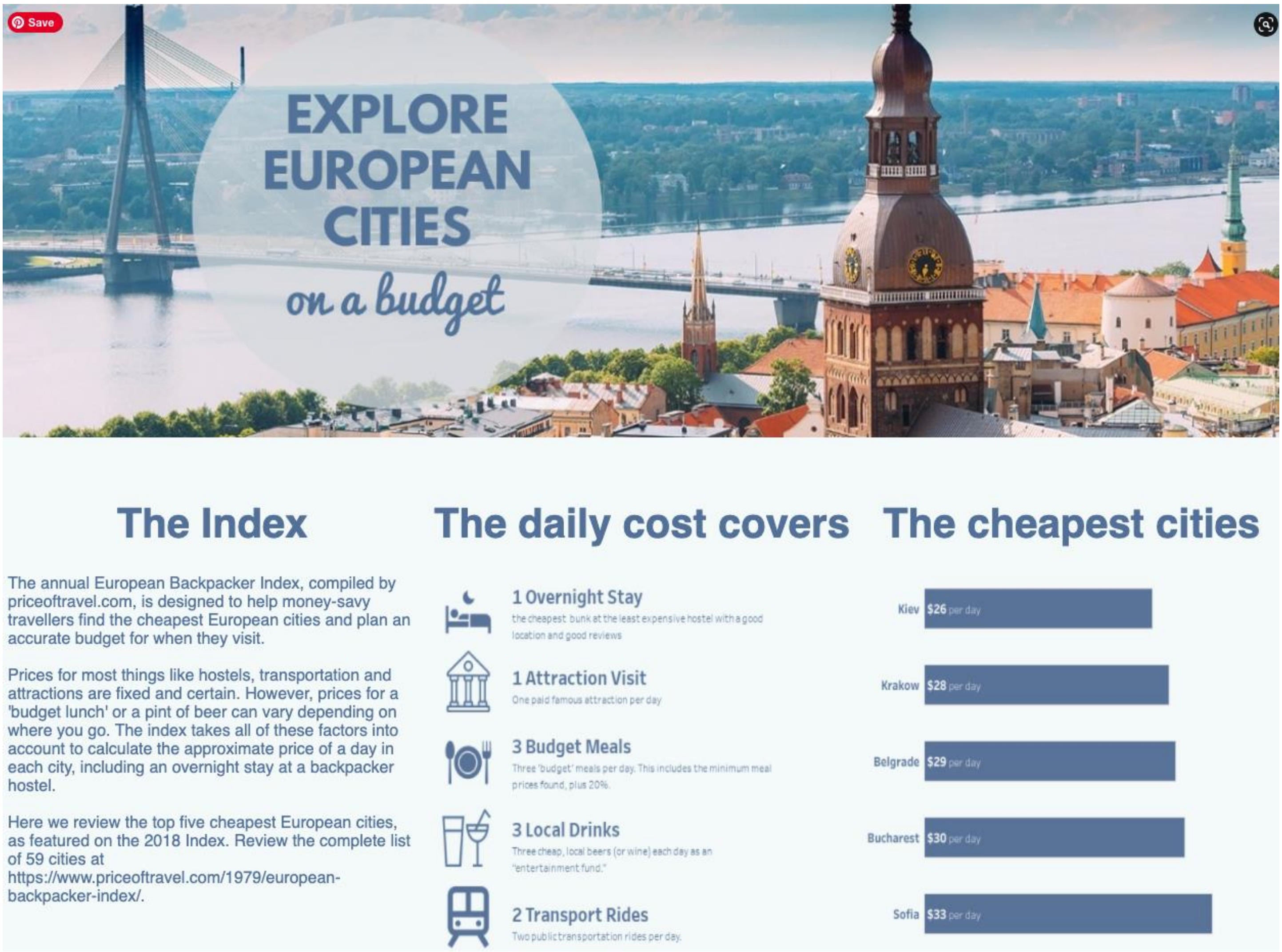
- Step 12: To duplicate the information used in this Tableau example, we also defined the following text styles.



```
#text_div {
    margin-left: 10px;
    margin-right: 10px;
}

h1 {
    text-align: center;
    color: #527298;
    font-size: 40px;
}

p {
    color: #527298;
    font-size: 16px;
}
```

Figure 34. Additional CSS information for the text

- The expected output is shown in Figure 33.



The Index

The annual European Backpacker Index, compiled by priceoftravel.com, is designed to help money-savy travellers find the cheapest European cities and plan an accurate budget for when they visit.

Prices for most things like hostels, transportation and attractions are fixed and certain. However, prices for a 'budget lunch' or a pint of beer can vary depending on where you go. The index takes all of these factors into account to calculate the approximate price of a day in each city, including an overnight stay at a backpacker hostel.

Here we review the top five cheapest European cities, as featured on the 2018 Index. Review the complete list of 59 cities at https://www.priceoftravel.com/1979/european-backpacker-index/.

The daily cost covers

1 Overnight Stay
the cheapest bunk at the least expensive hostel with a good location and good reviews

1 Attraction Visit
One paid famous attraction per day

3 Budget Meals
Three 'budget' meals per day. This includes the minimum meal prices found, plus 20%.

3 Local Drinks
Three cheap, local beers (or wine) each day as an "entertainment fund."

2 Transport Rides
Two public transportation rides per day.

The cheapest cities

Figure 35. A reference layout to recreate with a Pure.css grid

Note 1. The purpose of this document is trying to illustrate how to use CSS to manage the layout and fonts. We simplified the task here by placing images for the centre and right columns. The right image will be replaced with a Vega-Lite visualisation in next week's tutorial. The centre image should be replaced with a matrix of five rows and two columns: the first column with icons, the second column with title and info text in each row. We leave this as an exercise for you to explore.

Note 2. We defined several CSS files to demonstrate different information in this tutorial. For your project, it is a good practice to limit your CSS file number. For example, you can have a layout.css for the layout and a style.css for the fonts. It is also suggested to store the CSS files in a separate folder called "css".

Text for left column

The annual European Backpacker Index, compiled by priceoftravel.com, is designed to help money-savy travellers find the cheapest European cities and plan an accurate budget for when they visit.

Prices for most things like hostels, transportation and attractions are fixed and certain. However, prices for a 'budget lunch' or a pint of beer can vary depending on where you go. The index takes all of these factors into account to calculate the approximate price of a day in each city, including an overnight stay at a backpacker hostel.

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