Chapter 4
Layout in CSS, Navigation Tabs, and Social Medial Icons

Layout in CSS

In this chapter we are going to look at how to control where each element sits on a page and how to create attractive page layouts.

Screen size

Different visitors to your site will have different sized screens that show different amounts of information, so your design needs to be able to work on a range of different sized screens.

Apple iPhone XS
Display: 2.6 inches × 5.8 inches
Display resolution: 2436 ×1125 pixels

Samsung Galaxy S8
Display: 2.8 inches × 5.8 inches
Display resolution: 2960 x 1440 pixels

Building blocks

CSS treats each HTML element as if it is in its own box. This box will either be a block-level box or an inline box.

If one block-level element sits inside another block-level element then the outer box is known as the containing or parent element.

It is common to group a number of elements together inside a (or other block-level) element.

Static Layouts: Fixed Width

Fixed width layout designs do not change size as the user increases or decreases the size of their app window. Measurements tend to be given in pixels.

Advantages

- Pixel values are accurate at controlling size and positioning of elements.
- The designer has far greater control over the appearance and position of items on the page than with liquid layouts.
- You can control the lengths of lines of text regardless of the size of the user's window.
- The size of an image will always remain the same relative to the rest of the page.

Disadvantages

You can end up with big gaps around the edge of a page.

- If the user's screen is a much higher resolution than the designer's screen, the page can look smaller and text can be harder to read.
- If a user increases font sizes, text might not fit into the allotted spaces.
- The design works best on devices that have a site or resolution similar to that of desktop or laptop computers.
- The page will often take up more vertical space than a liquid layout with the same content.

Dynamic Layouts: Liquid Layout

The liquid layout uses percentages to specify the width of each box so that the design will stretch to fit the size of the screen.

Advantages

- Pages expand to fill the entire app window so there are no spaces around the page on a large screen.
- If the user has a small window, the page can contract to fit it without the user having to scroll to the side.
- The design is tolerant of users setting font sizes larger than the designer intended (because the page can stretch).

Disadvantages

- If you do not control the width of sections of the page then the design can look very different than you intended, with unexpected gaps around certain elements or items squashed together.
- If the user has a wide app window, lines of text can become very long, which makes them harder to read.
- If the user has a very narrow app window, words may be squashed and you can end up with few words on each line.
- If a fixed width item (such as an image) is in a box that is too small to hold it (because the user has made the window smaller) the image can overflow over the text.

Floating Elements. `float` property in CSS

The float property allows you to take an element in normal flow and place it as far to the left or right of the containing element as possible.

Anything else that sits inside the containing element will flow around the element that is floated.

When you use the float property, you should also use the width property to indicate how wide the floated element should be. If you do not, results can be inconsistent but the box is likely to take up the full width of the containing element (just like it would in normal flow).

The CSS `float` property specifies how an element should float. The `float` property can have one of the following values:

- **`left`** - The element floats to the left of its container

`right`- The element floats to the right of its container **`none`** - The element does not float (will be displayed just where it occurs in the text). This is default **`inherit`** - The element inherits the float value of its parent **Responsive effect**

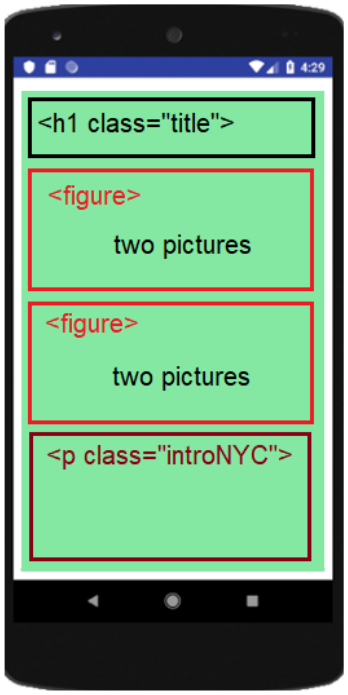
Responsive app web is about using html and css to resize, hide, shrink, enlarge, or move the content to make it look good on any screen.

The **`box-sizing`** property can make building CSS layouts easier and a lot more intuitive. **`box-sizing: border-box;`** , we can change the **`box`** model to what was once the "quirky" way, where an element's specified width and height aren't affected by padding or borders.

`<div>` division tag

The **`<div>`** tag defines a division or a section in an HTML document and is very often used together with CSS, to layout a web page. The **`<div>`** element is often used as a container for other HTML elements to style them with CSS or to perform certain tasks with JavaScript.

Activity) Create a layout using `<div>` and `<figure>` to display four images and description of a city using the following layout:



To create the layout, first we create a container to hold the header and the four images. We can create this container using `<div>` and name it `container`

```
<div class="container">

  </div>
```

Once the container is set, we are going to use a <h1> element for the title and two <figure> element to store two images in one figure element:

```
<div class="container">
  <h1 class="title">New York City</h1>
  <figure>

  </figure>
  <figure>

  </figure>
</div>
```

A complete HTML file looks as the following:

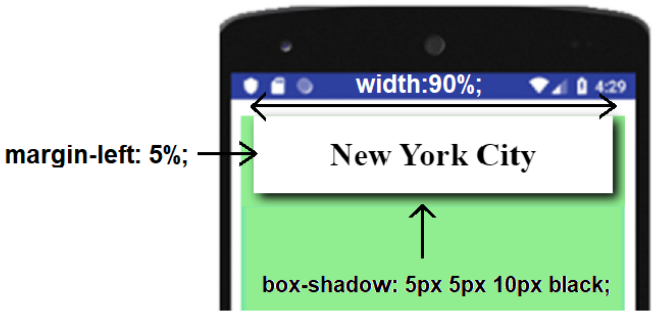
html file

```
<!DOCTYPE html>
<html lang="en" dir="ltr">
 <head>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="css/index.css" type="text/css">
  <title>Layout by Prof. Wu</title>
 </head>
 <body>
  <div class="container">
       <h1 class="title">New York City</h1>
       <figure>

       </figure>
       <figure>

       </figure>
  </div>
 </body>
</html>
```

Now in the CSS file, we can set the **box-sizing** for all elements, padding to the **body**, and background-color, width, and height to the **container** first:

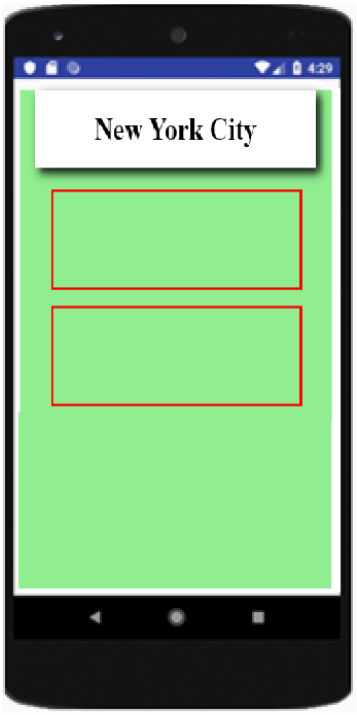
```
*{box-sizing: border-box;}
body{padding: 5px;}
.container{
  background-color: lightgreen;
  width: 100%;
  height: 500px;
}
```

After it, we can set the css to the **title** as the following:



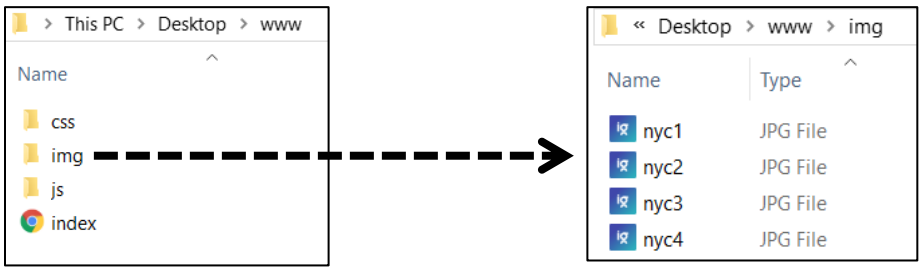

```
.title{
  text-align: center;
  background-color: white;
  width: 90%;
  margin-left: 5%;
  box-shadow: 5px 5px 10px black;
}
```

Once the **title** is set, we can set the css to the **`figure`** container. For this, we can add a border to the **`<figure>`** container to use it as reference. This border can be erased after the layout is set.




```
figure{
      border: solid red;
      width: 80%;
      height: 20%;
   }
```

Once the <figure> elements are set, we can insert the images. We can download four images and save them in the **img** folder in our project folder:



If the images are inside of the **img** folder, the code in HTML should indicate the location of the folder as the following:

```
<img src="img/nyc1.jpg" class="img1" /></div>
```

As shown in the code above, we also added a class name as **img1** in order to apply CSS to it. After it, we can insert two images within the first <figure> element and then apply CSS to each image.

```
<figure>
  <img src="img/nyc1.jpg" class="img1">
  <img src="img/nyc2.jpg" class="img2">
</figure>
```

Now in the CSS file, for the images to sit within the **<figure>** element, we can set the **width** of around 50% to **img1** and **img2** until both images sit inline within the **<figure>** element:

```
.img1{width: 45%; height:100%;}

.img2{width: 50%; height:100%;}
```

The app view should look as the following:

Next, we can insert image 3 and 4 within the second **<figure>**

```
<figure>
  <img src="img/nyc3.jpg" class="img3">
  <img src="img/nyc4.jpg" class="img4">
</figure>
```

In the CSS file, we can set the **width** for **img3** to 50% and for **img4** to 45%. Also, for the first image, **img1**, and the third image, **img3**, we can set **margin-right: 3%** so the images will not be very close to each other:

```
.img1{width: 45%; height:100%; margin-right: 3%; }
.img2{width: 50%; height:100%; }
.img3{width: 50%; height:100%; margin-right: 3%; }
.img4{width: 45%; height:100%;}
```

Once we finish the images set, we can remove the border from <figure> elements. The App view should look as the following:

CSS styling images

Now that we have the four images set, we can different styling to the images. The basic CSS properties that we can use for images are **border-radius, border,** and **box-shadow.**

To create rounded and circled images, we can use the `border-radius` property in the CSS file:

Rounded Images

```
border-radius: 8px;
```

Circled Image

```
border-radius: 50%;
```

To create a border or shadow to an image, we can use the border property to create thumbnail images.

Border image

```
border: 1px solid green;
border-radius: 6px;
padding: 10px;
```

Shadow image

```
box-shadow: 0 0 5px 10px lightblue;
```

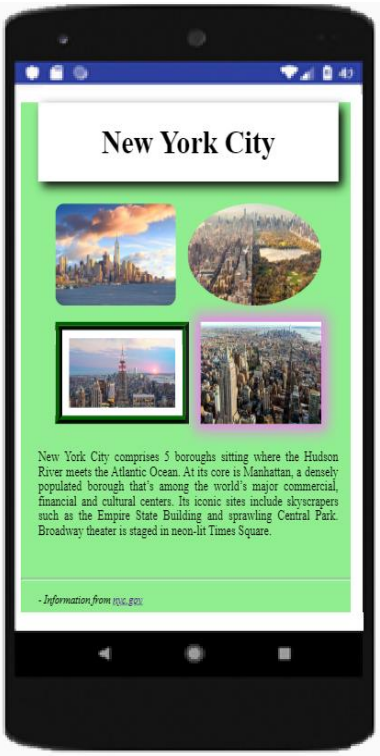
`0 0` means to not set only distance to the botton and right

`5px` means to set the blurriness of the box shadow

`10px` means to set the distance of the shadow around the box

`lightblue` is the color of the shadow of the box

Activity) Using the previous code, add the css code to round the corners of the first image, set the second image to look as a cicle or oval, add border and padding to the third image so it will look as it is framed, and add box shadow to all the corners to the fourth image. After the images, we can add a paragraph with a brief description of New York City. The complete app iew should look as:



The complete HTML code should look as the following:

HTML file

```
<!DOCTYPE html>
<html lang="en" dir="ltr">
  <head>
    <meta charset="utf-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <link rel="stylesheet" href="css/index.css" type="text/css">
      <title>Layout and Nav Tabs by Prof. Wu</title>
  </head>
  <body>
   <div class="container">
    <h1 class="title">New York City</h1>
    <figure>
     <img src="img/nyc1.jpg" class="img1">
     <img src="img/nyc2.jpg" class="img2">
    </figure>
    <figure>
     <img src="img/nyc3.jpg" class="img3">
     <img src="img/nyc4.jpg" class="img4">
    </figure>
   <p class="introNYC">New York City comprises 5 boroughs sitting where the Hudson
    River meets the Atlantic Ocean. At its core is Manhattan, a densely populated
    borough that's among the world's major commercial, financial and cultural
    centers. Its iconic sites include skyscrapers such as the Empire State Building
    and sprawling Central Park. Broadway theater is staged in neon-lit Times
    Square.</p>
   <br><hr><i>- Information from <a href="https://www1.nyc.gov/"
    target="_blank">nyc.gov</a></i>
   </div>
  </body>
</html>
```

The complete CSS file code is as the following:

css file

```
*{box-sizing: border-box;}
body{padding: 5px;}
.container{
   background-color: lightgreen;
   height: 500px;}
figure{
   width: 80%;
   height: 20%;}
.title{
   text-align: center;
   background-color: white;
   box-shadow: 5px 5px 10px black;
   width: 90%;
   margin-left: 5%;
   padding: 20px; }
.img1{
   width: 45%;
   height:100%;
   margin-right: 3%;
   border-radius: 10px; }
.img2{
   width: 50%;
   height:100%;
   border-radius: 50%;}
.img3{
   width: 50%;
   height:100%;
   margin-right: 3%;
   border: ridge 8px darkgreen;
   padding: 8px;
   background-color: white;}
.img4{
   width: 45%;
   height:100%;
   box-shadow: 0px 0px 15px 7px violet}
.introNYC{
  padding: 10px 20px 0px 20px;
  text-align: justify;
  font-size: 0.8em;
}
```

Navigation Tabs

A navigation tabs needs standard HTML as a base, which can be built using the unordered list `<ul>` and `<li>` elements or `<nav>` element. We can create vertical navigation tabs using `<ul>` and `<li>` and `<nav>` to create horizontal navigation tabs.

Vertical Navigation Bars

To create a basic vertical navigation tabs, in HTML file we can use the unordered list **`<ul>`** and list each hyperlink using **`<a>`** tag as the following:

```
<ul class="nav_vertical">
  <li><a href="#">Home</a></li>
  <li><a href="https://www1.nyc.gov/" target="_blank">NYC website</a></li>
</ul>
```

In the CSS file, to take off the bullet of each list, we can set the **`list-style-type`** to **`none`** of the `<ul>`:

```
.nav_vertical{
  list-style-type: none;
}
```

To make the vertical navigation bar with a purple background-color, we can write CSS codes to make changes to the hyperlinks in the list item. Also, **`display: block;`** property sets the list in a block, column, format.

```
.nav_vertical li a {
  display: block;
  padding: 8px 16px;
  color: lightgray;
  background-color: purple;
  width: 50%;
  text-decoration: none;
}
```

After it, we can change the background color of the links when the user clicks on them:

```
.nav_vertical li a:hover {
  background-color: lightgray;
  color: purple;
}
```

When we run the app view, the navigation should look as:

Horizontal Navigation Bars

There are two ways to create a horizontal navigation bar using **`inline`** or **`floating`** list items in the CSS properties once the list is created in HTML file.

In the HTML file, we can start creating the horizontal navigation tabs using the **<nav>** element:

```
<nav class="nav_horizontal">
  <a href="#">Home</a>
  <a href="https://www1.nyc.gov/" target="_blank">NYC website</a>
</nav>
```

Once we have the HTML code set, in the CSS file, we can set the <nav> element with background-color and height:

```
.nav_horizontal{
  background-color: darkgreen;
  height: auto;
  width: 100%;
}
```

After it, we can set hyperlink with left border, height, width, font color, center the text, and add the padding. We also set the hyperlink to float from the left to right without underline:

```
.nav_horizontal a{
  color: lightyellow;
  padding: 10px;
  text-decoration: none;
  display:inline-block;
  width: 40%;
  text-align: center;
}
```

After it, we can change the background color of the links when the user clicks on links:

```
.nav_horizontal a:hover{
  background-color: lightyellow;
  color: darkgreen;
  font-size: 1.1em;
  text-decoration: underline;
}
```

When you run the app view, the horizontal navigation tabs should look as:

Fixed navigation tabs

Fixed navigation tabs happens when the navigation tab remain at the top or bottom of the app, even when the user moves the page. For this, you can use the CSS property `position: fixed;` to the element that contains the hyperlinks. For example, if we use the horizontal tabs HTML and CSS code from the previous topic, we just need to add to positions to the container that has the navigation tabs, which is nav_horizontal. The code will look as the following:

```
.nav_horizontal{
  background-color: darkgreen;
  height: auto;
  position: fixed;
  top: 0;
}
```

`position:fixed;` and **`top: 0;`** will make the element to have a position fixed to the top of the app. If we want the navigation to stick to the bottom of the app view, instead of using **`top: 0`** we can set it to **`bottom: 0;`**

Smooth scrolling effect

Smooth scrolling effect is a web app behavior that smoothly goes to the section of the same web page when is clicked. To do so, we can add `scroll-behavior: smooth` to the <html> element to enable smooth scrolling for the whole page.

```
html {
  scroll-behavior: smooth;
}
```

Extra Markup - Adding Media Logos – contact information (flex-container)

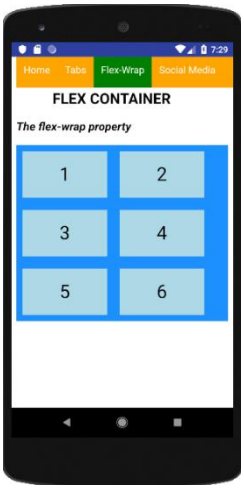
CSS flexbox layout

Flexible container layout makes it easier to design flexible responsive layout structure without using float or positioning.

The flex-wrap Property

The **`flex-wrap`** property in CSS that specifies whether the flex items should wrap or not.

Activity) The example below have 6 flex items, to better demonstrate the `flex-wrap` property. For this first try we can set the `flex-wrap` container with **`width: 40%;`** The app view should look as the following:



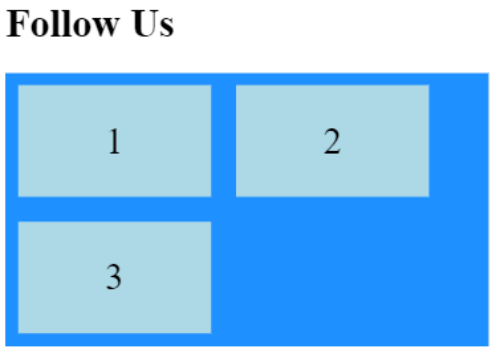
html file

```
<h1>Follow Us </h1>
<div class="flex-container">
  <div>1</div>
  <div>2</div>
  <div>3</div>
</div>
```

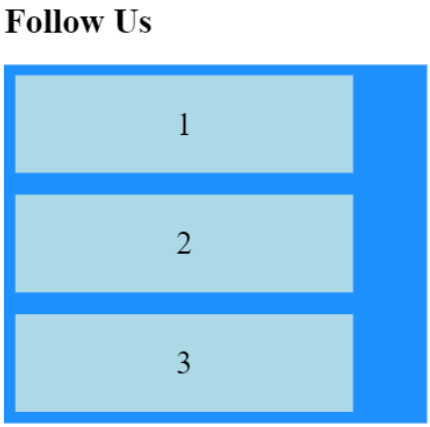
css file

```
/*-- flex container --*/
.flex-container {
  display: flex;
  flex-wrap: wrap;
  background-color: DodgerBlue;
}
.flex-container > div {
  background-color: lightblue;
  width: 40%;
  margin: 10px;
  text-align: center;
  line-height: 3em;
  font-size: 30px;
}
```

If we run the app view, the flex container part should look as:



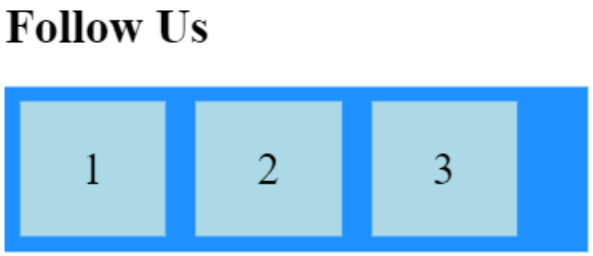
Now we can set the **`width: 80%;`** and see the changes:



Logo and social media logo

There are many logos on the internet that we can use in the app you are creating. One of the website that you can use to download logos and use in your app is https://www.iconfinder.com/

We can use the flex-container to create the social media logos. For example, if we have three social media icons, using the previous flex-container, we can set the **width** of each flex-container division to 12%.



After the size of the divisions within the flex-container is set, we delete the numbers in each element, remove the background-color, and insert the social media icons in each container. First, we have to download three social media icons and save them in the **img** folder.

To add the social media information in your app as part of the contact you can use `<a>:`

HTML

```
<a target="_blank" title="follow me on Twitter"
href="https://www.twitter.com/PLACEHOLDER"><img alt="follow me on Twitter"
src="twitter.png" border=0></a>
```

The PLACEHOLDER space should go the Twitter username, for example, if your Twitter username was '@thecakeshop', you would replace 'www.twitter.com/PLACEHOLDER with 'www.twitter.com/thecakeshop', ensuring you don't include the @ symbol so that the button directs to the right page.

If we run the app view, the social media looks as:

The complete social media section HTML and CSS:

html file

```
<h1>Follow Us </h1>
<div class="flex-container">
  <div><a target="_blank" href="https://www.twitter.com/PLACEHOLDER">
    <img src="img/twitter_logo.png"></a></div>
  <div><a target="_blank" href="https://www.facebook.com/PLACEHOLDER">
    <img src="img/fb_logo.png"></a></div>
  <div><a target="_blank" href="https://www.instagram.com/PLACEHOLDER">
    <img src="img/instagram_logo.png"> </a></div>
</div>
```

css file

```
/*-- flex container --*/
.flex-container {
  display: flex;
  flex-wrap: wrap;
  background-color: lightgray;
}
.flex-container > div {
  width: 13%;
  margin: 10px;
  line-height: 3em;
  text-align: center;
  font-size: 30px;
}
/* social media*/
.flex-container div img{
  width: 100%;
}
```