CodeActually
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Flexbox

CSS has been updated to include some new layout features. These features provide simpler, more flexible ways to achieve desired layout and design, without having to use the confusing float property. Bootstrap 4 is based on Flexbox, and most modern browsers now support Flexbox (https://caniuse.com/#feat=flexbox).

Flexbox provides new css properties that help with aligning sections of your page within rows. You can use generic elements like <div> or more specific HTML5 elements like <header>, <nav>, <footer>, <section> to designate portions of your page.

Consider how you can use ids (single use) or classes (multiple use) to make your layouts more efficient.

Flexbox is predicated on the concept that you will align objects based on an axis or row. The parent item is a flex container and the direct child elements are considered flex items. There are detailed resources at https://css-tricks.com/snippets/css/a-guide-to-flexbox/.

Flexbox Properties

Parent Element Properties

You can use the "flex" value for the display property to align elements next to each other, as we used floats in the past. You can used percent widths on the child elements or use the flex-grow and flex-basis properties.

display: flex;

flex-wrap designates whether an element should wrap or not, depending on the flex-basis of the child elements. This does not work with percentage widths.

flex-wrap: wrap; nowrap | wrap | wrap-reverse;

Child Elements Properties

Use the flex-grow property to establish a relative measure of the space the item will take up within the parent as the element grows. Put different amounts on different elements to create unequal width layouts.

flex-grow: 1;

By default, flex items will try to fit all elements onto one line. You can change flex-basis and allow the items to wrap as needed with this property, if the parent element uses flex-wrap.

flex-basis is the initial size of the flex box and functions like min-width if flex-wrap set to wrap on the parent element, so if an element reaches this size, it wraps to the next line.

flex-basis: 450px;

Other
You can find examples of usage of these Flexbox properties at https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Flexible_Box_Layout/Basic_Concepts_of_Flexbox.

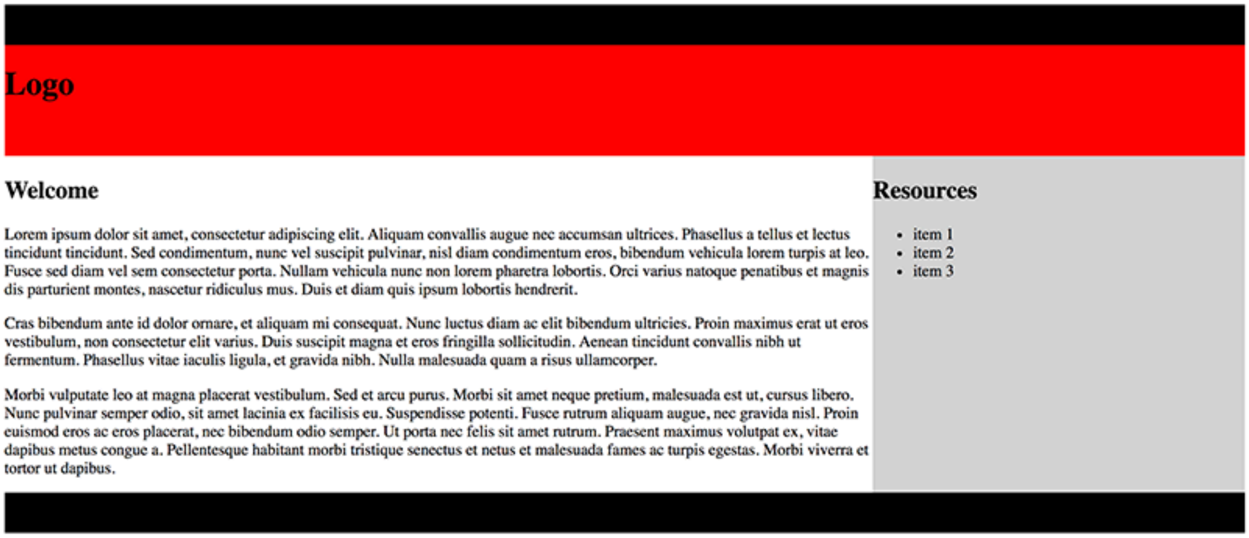
- flex-direction
- order
- justify-content
- place-content
- align-content and other align properties

See the examples below. There will be other applications of Flexbox as you work to achieve various layouts using these new properties combined with more traditional media queries.

See the flexbox-simple.html and flexbox.html examples. In these example files, the css is in the html page, but should be made into a separate, attached stylesheet for active projects. Files can also be found at https://github.com/cindyroyal/flexbox.

Example 1

The simplest way of applying Flexbox is to use the flex value in the display property in the parent element of items you want to align next to each other. From there, you can use percent widths as before to have those elements align vertically. Use media queries as done previously to achieve responsive layouts. The parent div is the “row” class and the child divs are “item1” and “item2”. Working example at http://webdesign.cindyroyal.net/examples/flexbox_simple.html.



Logo

Welcome

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam convallis augue nec accumsan ultrices. Phasellus a tellus et lectus tincidunt tincidunt. Sed condimentum, nunc vel suscipit pulvinar, nisl diam condimentum eros, bibendum vehicula lorem turpis at leo. Fusce sed diam vel sem consectetur porta. Nullam vehicula nunc non lorem pharetra lobortis. Orci varius natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Duis et diam quis ipsum lobortis hendrerit.

Cras bibendum ante id dolor ornare, et aliquam mi consequat. Nunc luctus diam ac elit bibendum ultricies. Proin maximus erat ut eros vestibulum, non consectetur elit varius. Duis suscipit magna et eros fringilla sollicitudin. Aenean tincidunt convallis nibh ut fermentum. Phasellus vitae iaculis ligula, et gravida nibh. Nulla malesuada quam a risus ullamcorper.

Morbi vulputate leo at magna placerat vestibulum. Sed et arcu purus. Morbi sit amet neque pretium, malesuada est ut, cursus libero. Nunc pulvinar semper odio, sit amet lacinia ex facilisis eu. Suspendisse potenti. Fusce rutrum aliquam augue, nec gravida nisl. Proin euismod eros ac eros placerat, nec bibendum odio semper. Ut porta nec felis sit amet rutrum. Praesent maximus volutpat ex, vitae dapibus metus congue a. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Morbi viverra et tortor ut dapibus.

Resources

- item 1
- item 2
- item 3

CSS

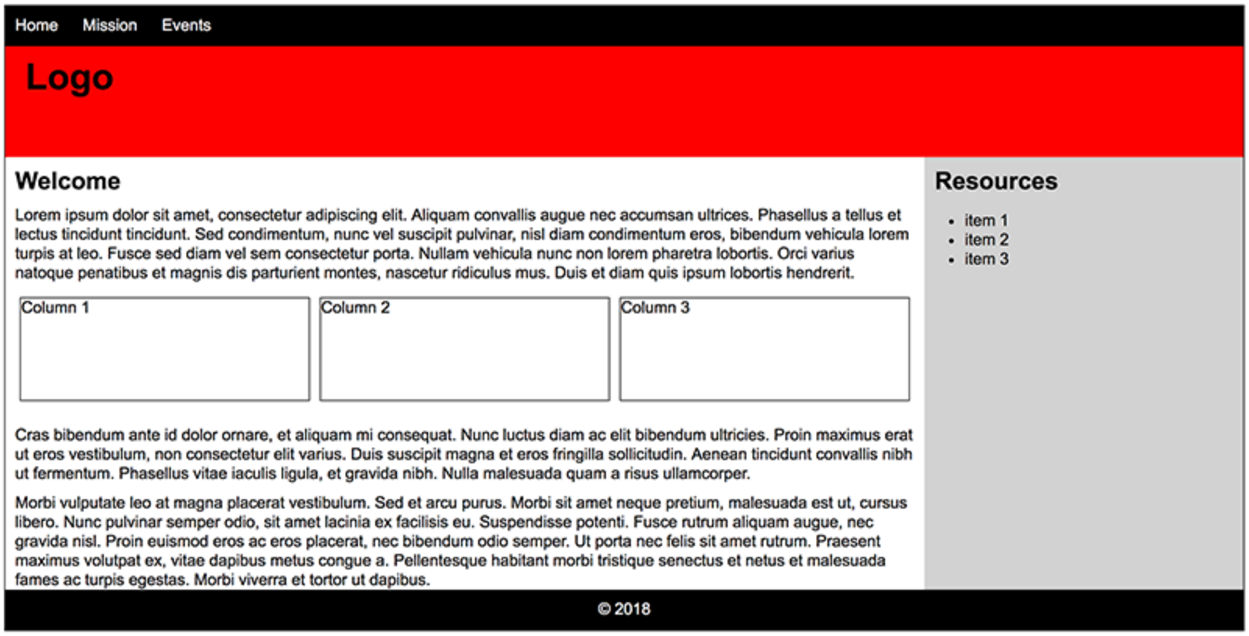
```
header {
        height: 150px;
        width: 100%;
        background: red;
    }

    nav {
        height: 40px;
        width: 100%;
        background: black;
    }

    .row {
        display: flex;
    }

    #item1 {
        width: 70%;
    }

    #item2 {
        width: 30%;
        background: lightgray;
    }
    footer {
        height: 40px;
        width: 100%;
        background: black;
    }
```

HTML

```
<!DOCTYPE html>
<html>
<head>
<title>Flexbox Example</title>
<link rel=”stylesheet” href=”style.css” type=”text/css”>
<!--use relative link to your stylesheet in href above -->
</head>

<body>
<header>
<nav>
</nav>
<h1>Logo</h1>
</header>
<section class="row">
<div id="item1">
<h2>Welcome</h2>
<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam convallis augue nec accumsan
ultrices. Phasellus a tellus et lectus tincidunt tincidunt. Sed condimentum, nunc vel suscipit pulvinar, nisl
diam condimentum eros, bibendum vehicula lorem turpis at leo. Fusce sed diam vel sem consectetur
porta. Nullam vehicula nunc non lorem pharetra lobortis. Orci varius natoque penatibus et magnis dis
parturient montes, nascetur ridiculus mus. Duis et diam quis ipsum lobortis hendrerit.</p>

<p>Cras bibendum ante id dolor ornare, et aliquam mi consequat. Nunc luctus diam ac elit bibendum
ultricies. Proin maximus erat ut eros vestibulum, non consectetur elit varius. Duis suscipit magna et eros
fringilla sollicitudin. Aenean tincidunt convallis nibh ut fermentum. Phasellus vitae iaculis ligula, et gravida
nibh. Nulla malesuada quam a risus ullamcorper.</p>

<p>Morbi vulputate leo at magna placerat vestibulum. Sed et arcu purus. Morbi sit amet neque pretium,
malesuada est ut, cursus libero. Nunc pulvinar semper odio, sit amet lacinia ex facilisis eu. Suspendisse
potenti. Fusce rutrum aliquam augue, nec gravida nisl. Proin euismod eros ac eros placerat, nec
bibendum odio semper. Ut porta nec felis sit amet rutrum. Praesent maximus volutpat ex, vitae dapibus
metus congue a. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis
egestas. Morbi viverra et tortor ut dapibus.
</p>
</div>
 <div id="item2">
    <h2>Resources</h2>
    <ul>
        <li>item 1</li>
        <li>item 2</li>
        <li>item 3</li>
    </ul>

</div>
</section>
<footer></footer>
</body>
</html>
```

Example 2
The following example uses Flexbox to create a two-columns of unequal widths, horizontal layout. There is also a set of three columns of equal width within the content area. This example uses the flex-wrap on the parent element and the flex-grow and flex-basis properties on the child elements to achieve the desired layouts. Notice that these properties provide some responsiveness to the layout without using media queries, but media queries can also be implemented to create additional breakpoints or functionality.

HTML5 elements are used for certain items, but divs with appropriate ids or classes may also be used. The entire layout is included in a #main div to achieve the centered layout with a max-width. Greeking is used as placeholder for paragraphs in the html. Working example at http://webdesign.cindyroyal.net/examples/flexbox.html.



Welcome

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam convallis augue nec accumsan ultrices. Phasellus a tellus et lectus tincidunt tincidunt. Sed condimentum, nunc vel suscipit pulvinar, nisl diam condimentum eros, bibendum vehicula lorem turpis at leo. Fusce sed diam vel sem consectetur porta. Nullam vehicula nunc non lorem pharetra lobortis. Orci varius natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Duis et diam quis ipsum lobortis hendrerit.

Column 1 | Column 2 | Column 3

Cras bibendum ante id dolor ornare, et aliquam mi consequat. Nunc luctus diam ac elit bibendum ultricies. Proin maximus erat ut eros vestibulum, non consectetur elit varius. Duis suscipit magna et eros fringilla sollicitudin. Aenean tincidunt convallis nibh ut fermentum. Phasellus vitae iaculis ligula, et gravida nibh. Nulla malesuada quam a risus ullamcorper.

Morbi vulputate leo at magna placerat vestibulum. Sed et arcu purus. Morbi sit amet neque pretium, malesuada est ut, cursus libero. Nunc pulvinar semper odio, sit amet lacinia ex facilisis eu. Suspendisse potenti. Fusce rutrum aliquam augue, nec gravida nisl. Proin euismod eros ac eros placerat, nec bibendum odio semper. Ut porta nec felis sit amet rutrum. Praesent maximus volutpat ex, vitae dapibus metus congue a. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Morbi viverra et tortor ut dapibus.

Resources

- item 1
- item 2
- item 3

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CSS

```
  #main {
      margin: auto;
      max-width: 1400px;
      border: 1px solid black;
  }

  body {
      color: black;
      font-family: Arial;
  }

  p, h1, h2 {
      padding: 10px 10px 0 10px;
      margin-top: 0;
      margin-bottom: 0;
  }
```

```
header {
   height: 150px;
   width: 100%;
   background: red;
}

header h1 {
   padding-left: 20px;
   font-size: 36px;
}

nav {
   height: 40px;
   width: 100%;
   background: black;
}

nav li {
   padding-right: 20px;
   display: inline;
}


nav ul {
   padding: 10px 0 0 10px;
   margin-top: 0;
}

nav a {
   color: white; text-decoration: none;
}

nav a:hover {
   color: gray;
}

.row {
   display: flex;
   flex-wrap: wrap;
}

#item1 {
   flex-grow: 2;
   flex-basis: 480px;
}

#item2 {
   flex-grow: 1;
   flex-basis: 100px;
   background: lightgray;
}

#cols {
   display: flex;
   flex-wrap: wrap;
```

```
        margin: 10px;
    }

    .col {
        flex-grow: 1;
        flex-basis: 200px;
        height: 100px;
        border: 1px solid black;
        margin: 5px;
    }

    footer {
        height: 40px;
        width: 100%;
        background: black;
    }

    footer p {
        color: white;
        text-align: center;
        margin-top: 0;
    }
```

HTML

```
<!DOCTYPE html>
<html>
<head>
<title>Flexbox Example</title>
<link rel=”stylesheet” href=”style.css” type=”text/css”>
<!--use relative link to your stylesheet in href above -->
</head>
<body>
<section id="main">
<header>
<nav>
  <ul>
    <li><a href="index.html">Home</a></li>
    <li><a href="mission.html">Mission</a></li>
    <li><a href="events.html">Events</a></li>
  </ul>
</nav>
<h1>Logo</h1>
</header>
<section class="row">
 <div id="item1">
     <h2>Welcome</h2>
     <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam convallis augue nec accumsan
ultrices. Phasellus a tellus et lectus tincidunt tincidunt. Sed condimentum, nunc vel suscipit pulvinar, nisl
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porta. Nullam vehicula nunc non lorem pharetra lobortis. Orci varius natoque penatibus et magnis dis
parturient montes, nascetur ridiculus mus. Duis et diam quis ipsum lobortis hendrerit.</p>

    <div id="cols">
        <div class="col">Column 1</div>
        <div class="col">Column 2</div>
```

```
      <div class="col">Column 3</div>
    </div>

<p>Cras bibendum ante id dolor ornare, et aliquam mi consequat. Nunc luctus diam ac elit bibendum
ultricies. Proin maximus erat ut eros vestibulum, non consectetur elit varius. Duis suscipit magna et eros
fringilla sollicitudin. Aenean tincidunt convallis nibh ut fermentum. Phasellus vitae iaculis ligula, et gravida
nibh. Nulla malesuada quam a risus ullamcorper.</p>

<p>Morbi vulputate leo at magna placerat vestibulum. Sed et arcu purus. Morbi sit amet neque pretium,
malesuada est ut, cursus libero. Nunc pulvinar semper odio, sit amet lacinia ex facilisis eu. Suspendisse
potenti. Fusce rutrum aliquam augue, nec gravida nisl. Proin euismod eros ac eros placerat, nec
bibendum odio semper. Ut porta nec felis sit amet rutrum. Praesent maximus volutpat ex, vitae dapibus
metus congue a. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis
egestas. Morbi viverra et tortor ut dapibus.
</p>
</div>

 <div id="item2">
    <h2>Resources</h2>
    <ul>
       <li>item 1</li>
       <li>item 2</li>
       <li>item 3</li>
    </ul>

</div>
</section>
 <footer>
    <p>&copy; 2018</p>
</footer>
</section>
</body>
</html>
```