

CSS Essentials

CSS Layout



- 1. Overview of CSS Layout**
- 2. Normal flow**
- 3. Float**
- 4. Flex**
- 5. Grid**
- 6. Position**
- 7. Responsive**

1. Overview of CSS Layout

- **CSS page layout** techniques allow us to take elements contained in a web page and control where they are positioned relative to their default position in normal layout flow, the other elements around them, their parent container, or the main viewport/window.
- **The page layout techniques:**
 - Normal flow
 - The display property
 - Flexbox
 - Grid
 - Multiple-column layout
 - Floats
 - Positioning
 - Table layout

2. Normal flow

- **Normal flow** is how the browser lays out HTML pages by default when you do nothing to control page layout.

```
1 <p>I love my cat.</p>
2
3 <ul>
4   <li>Buy cat food</li>
5   <li>Exercise</li>
6   <li>Cheer up friend</li>
7 </ul>
8
9 <p>The end!</p>
```

I love my cat.

- Buy cat food
- Exercise
- Cheer up friend

The end!

3. Float

- The **float** property specifies how an element should float.
 - **Floating** an element changes the behavior of that element and the block level elements that follow it in **normal flow**.
 - The element is moved to the **left** or **right** and removed from **normal flow**, and the surrounding content floats around the floated item.
- ❖ **Note:**
- Absolutely positioned elements ignore the float property
 - Elements after a floating element will flow around it. To avoid this, use the clear property or the clearfix hack.

3. Float

- The CSS **clear** property specifies what elements can float beside the cleared element and on which side.
- The **clear** property can have one of the following values:
 - none - Allows floating elements on both sides. This is default
 - left - No floating elements allowed on the left side
 - right- No floating elements allowed on the right side
 - both - No floating elements allowed on either the left or the right side
 - inherit - The element inherits the clear value of its parent

3. Float

- The **float** property has four possible values:
 - *left* — Floats the element to the left.
 - *right* — Floats the element to the right.
 - *none* — Specifies no floating at all. This is the default value.
 - *inherit* — Specifies that the value of the float property should be inherited from the element's parent element.

3. Float

- The **clearfix Hack**: If an element is taller than the element containing it, and it is floated, it will "overflow" outside of its container
- Then we can add ***overflow: auto;*** to the containing element to fix this problem

Without Clearfix

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus imperdiet, nulla et dictum interdum...



With Clearfix

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus imperdiet, nulla et dictum interdum...



4. Flexbox

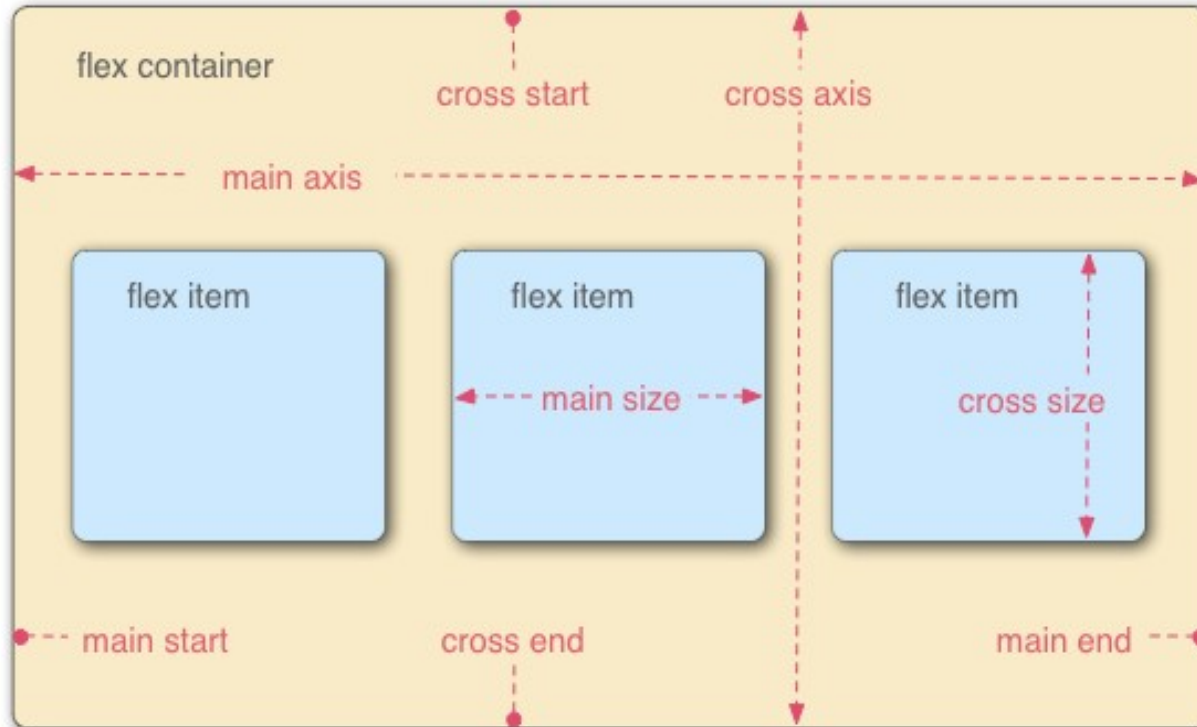
➤ Why flexbox?

The following simple layout requirements are either difficult or impossible to achieve with such tools, in any kind of convenient, flexible way:

- Vertically centering a block of content inside its parent.
- Making all the children of a container take up an equal amount of the available width/height, regardless of how much width/height is available.
- Making all columns in a multiple column layout adopt the same height even if they contain a different amount of content.

4. Flexbox

An aside on the flex model



4. Flexbox

➤ How to use flexbox?

- To start using the Flexbox model, you need to first define a **flex container**.
- The flex container becomes flexible by setting the **display property to flex**.
- The **flex container properties** are:
 - flex-direction
 - flex-wrap
 - flex-flow
 - justify-content
 - align-items
 - align-content

4. Flexbox

- **Flex direction:** The flex-direction property specifies the direction of the flexible items - by default this is set to row
- Below are values of the **flex-direction** property

Value	Description
row	Default value. The flexible items are displayed horizontally, as a row
row-reverse	Same as row, but in reverse order
column	The flexible items are displayed vertically, as a column
column-reverse	Same as column, but in reverse order
initial	Sets this property to its default value. Read about <i>initial</i>
inherit	Inherits this property from its parent element. Read about <i>inherit</i>

4. Flexbox

- **Flex wrap:** The flex-wrap property specifies whether the flexible items should wrap or not.
- Below are values of the **flex-wrap** property

Value	Description
nowrap	Default value. Specifies that the flexible items will not wrap
wrap	Specifies that the flexible items will wrap if necessary
wrap-reverse	Specifies that the flexible items will wrap, if necessary, in reverse order
initial	Sets this property to its default value. <u>Read about <i>initial</i></u>
inherit	Inherits this property from its parent element. <u>Read about <i>inherit</i></u>

4. Flexbox

- **Flex flow:** The flex-flow property is a shorthand property for:
 - flex-direction
 - Flex-wrap
- **Syntax:** *flex-flow: flex-direction flex-wrap/initial/inherit;*
- **Flex - shorthand versus longhand:** flex is a shorthand property that can specify up to three different values
 - *flex-grow*
 - *flex-shrink*
 - *flex-basis*

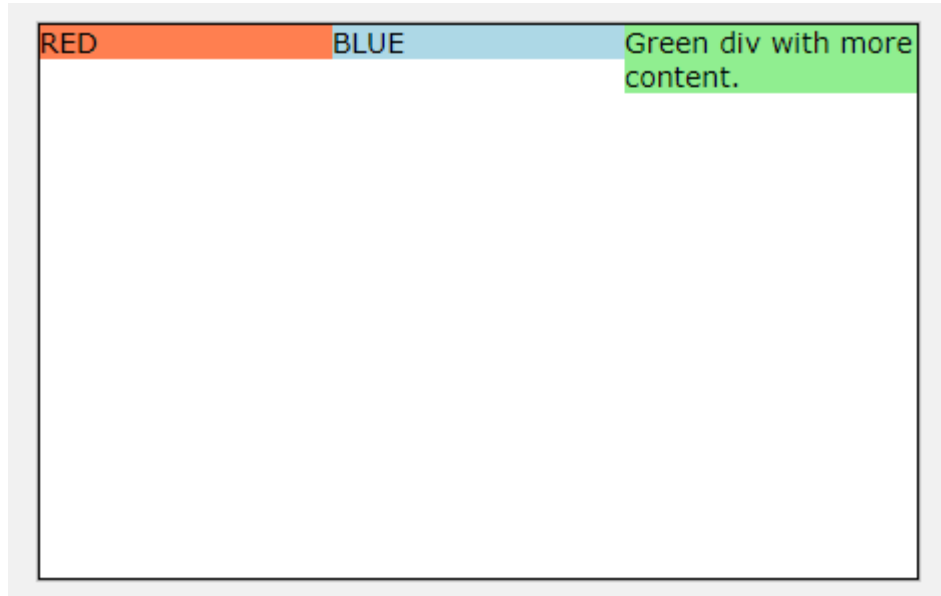
4. Flexbox

- **Align items:** The align-items property specifies the default alignment for items inside the flexible container.
- Below are values of the **align-items** property:

Value	Description
stretch	Default. Items are stretched to fit the container
center	Items are positioned at the center of the container
flex-start	Items are positioned at the beginning of the container
flex-end	Items are positioned at the end of the container
baseline	Items are positioned at the baseline of the container
initial	Sets this property to its default value. Read about <i>initial</i>
inherit	Inherits this property from its parent element. Read about <i>inherit</i>

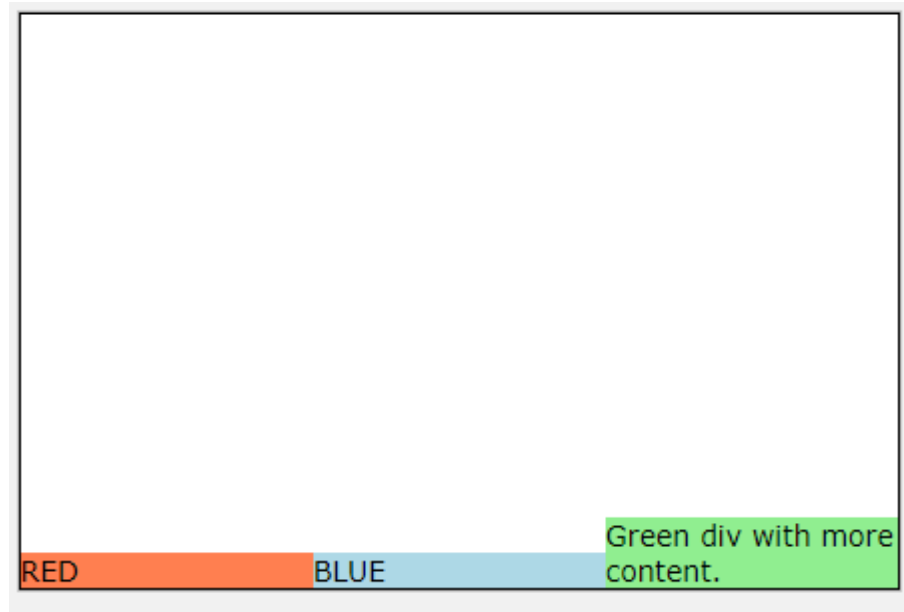
2. Text and font styling

- align-items
 - Flex-start:



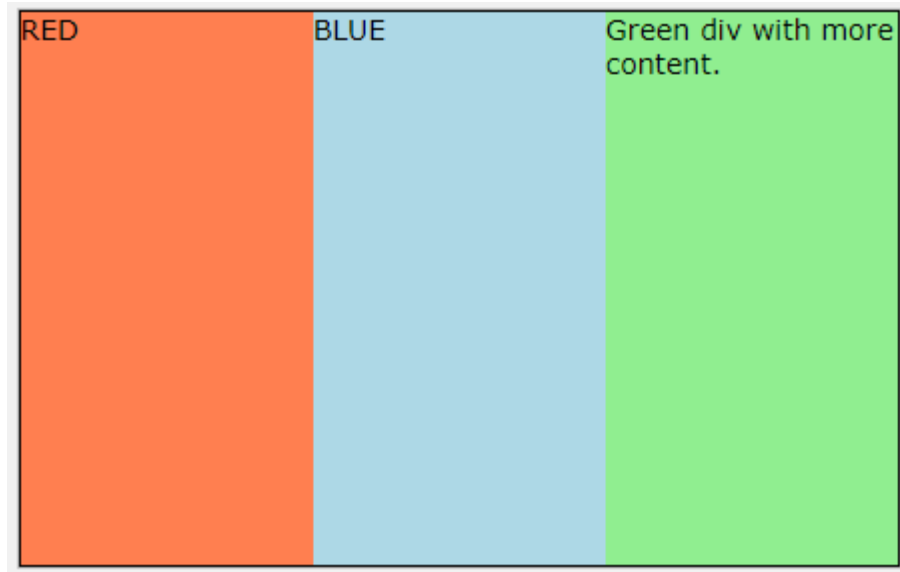
2. Text and font styling

- align-items
 - Flex-end:



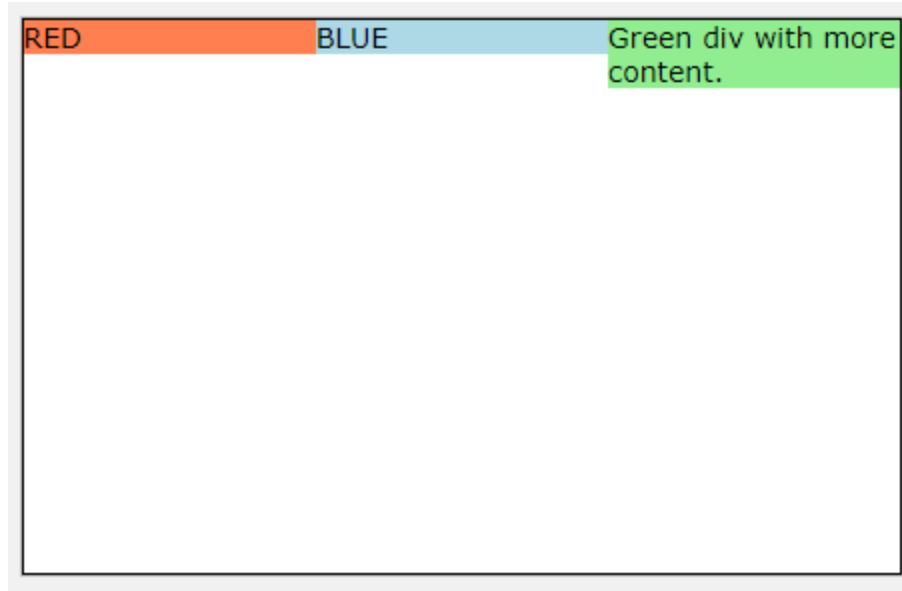
2. Text and font styling

- align-items
 - stretch:



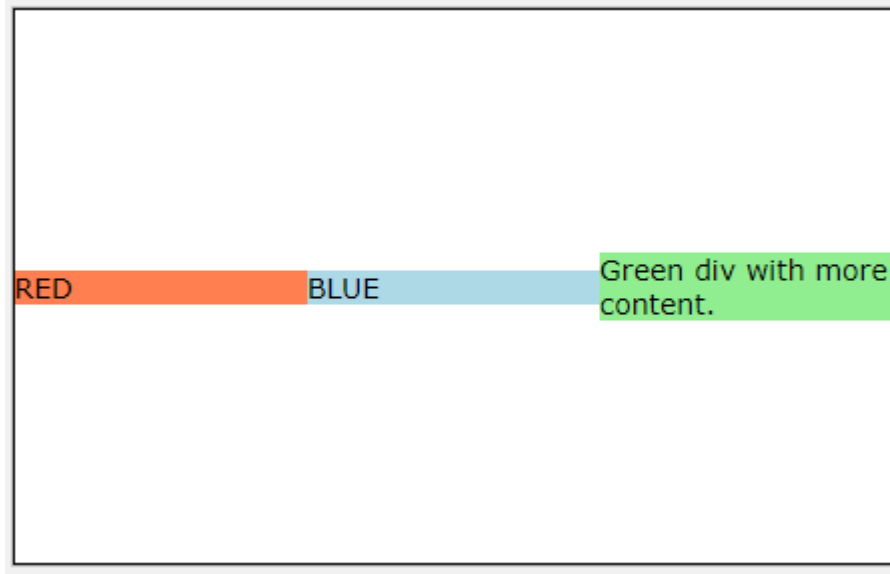
2. Text and font styling

- align-items
 - Base-line:



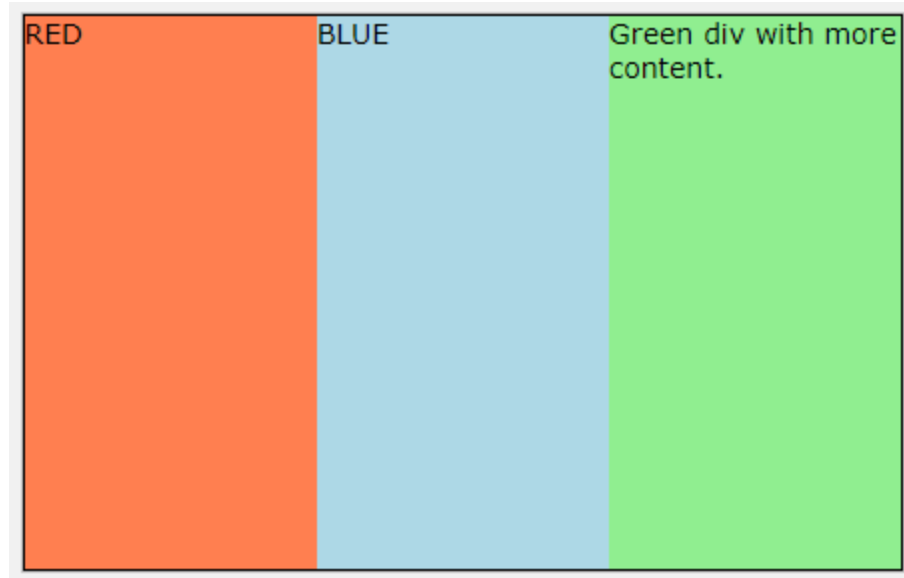
2. Text and font styling

- align-items
 - center:



2. Text and font styling

- align-items
 - initial:



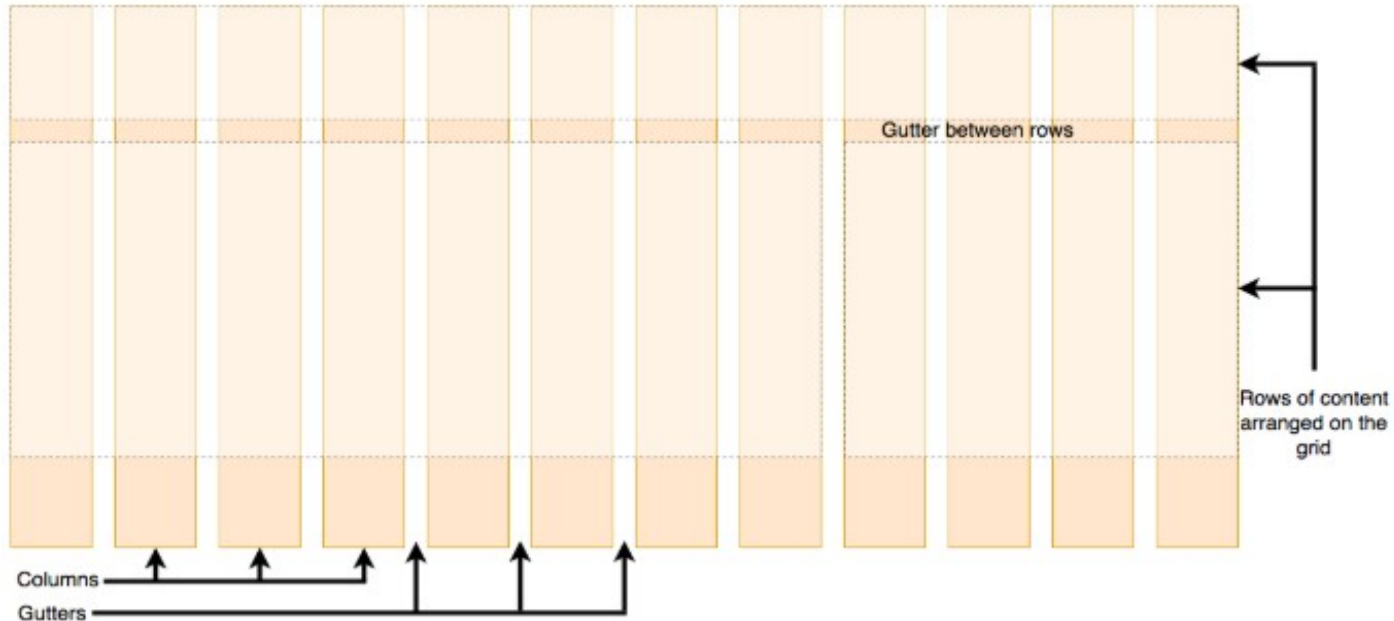
4. Flexbox

- **Align content:** The align-content property modifies the behavior of the flex-wrap property. It is similar to align-items, but instead of aligning flex items, it aligns flex lines.
- Below are values of the **align-items** property:

Value	Description
stretch	Default value. Lines stretch to take up the remaining space
center	Lines are packed toward the center of the flex container
flex-start	Lines are packed toward the start of the flex container
flex-end	Lines are packed toward the end of the flex container
space-between	Lines are evenly distributed in the flex container
space-around	Lines are evenly distributed in the flex container, with half-size spaces on either end
initial	Sets this property to its default value. Read about <i>initial</i>
inherit	Inherits this property from its parent element. Read about <i>inherit</i>

5. Grid

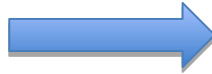
- **Grid:** The CSS Grid Layout Module offers a grid-based layout system, with rows and columns, making it easier to design web pages without having to use floats and positioning.



5. Grid

- A grid layout consists of a parent element, with one or more child elements.:

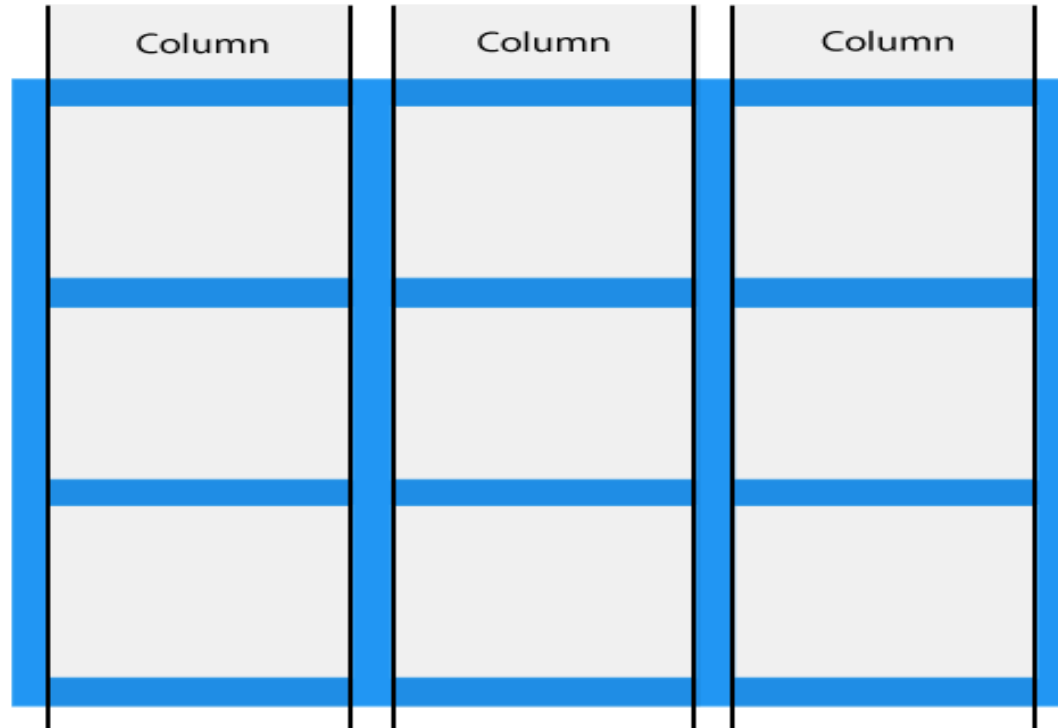
```
<div class="grid-container">  
  <div class="grid-item">1</div>  
  <div class="grid-item">2</div>  
  <div class="grid-item">3</div>  
  <div class="grid-item">4</div>  
  <div class="grid-item">5</div>  
  <div class="grid-item">6</div>  
  <div class="grid-item">7</div>  
  <div class="grid-item">8</div>  
  <div class="grid-item">9</div>  
</div>
```



1	2	3
4	5	6
7	8	9

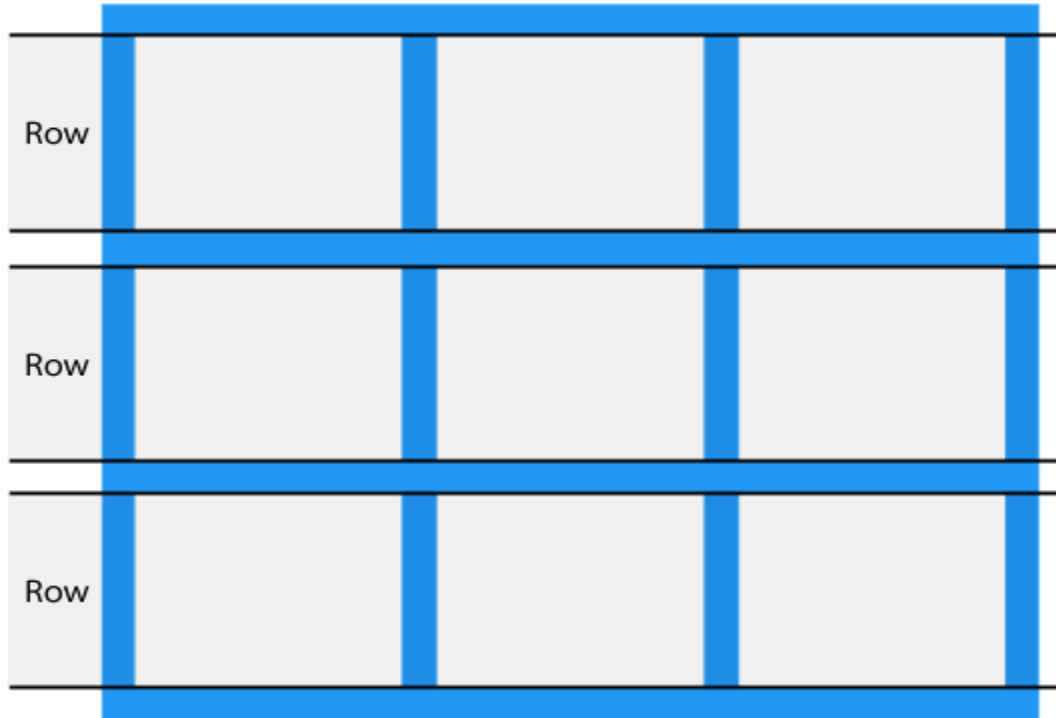
5. Grid

- **Grid Columns:** The vertical lines of grid items are called *columns*.



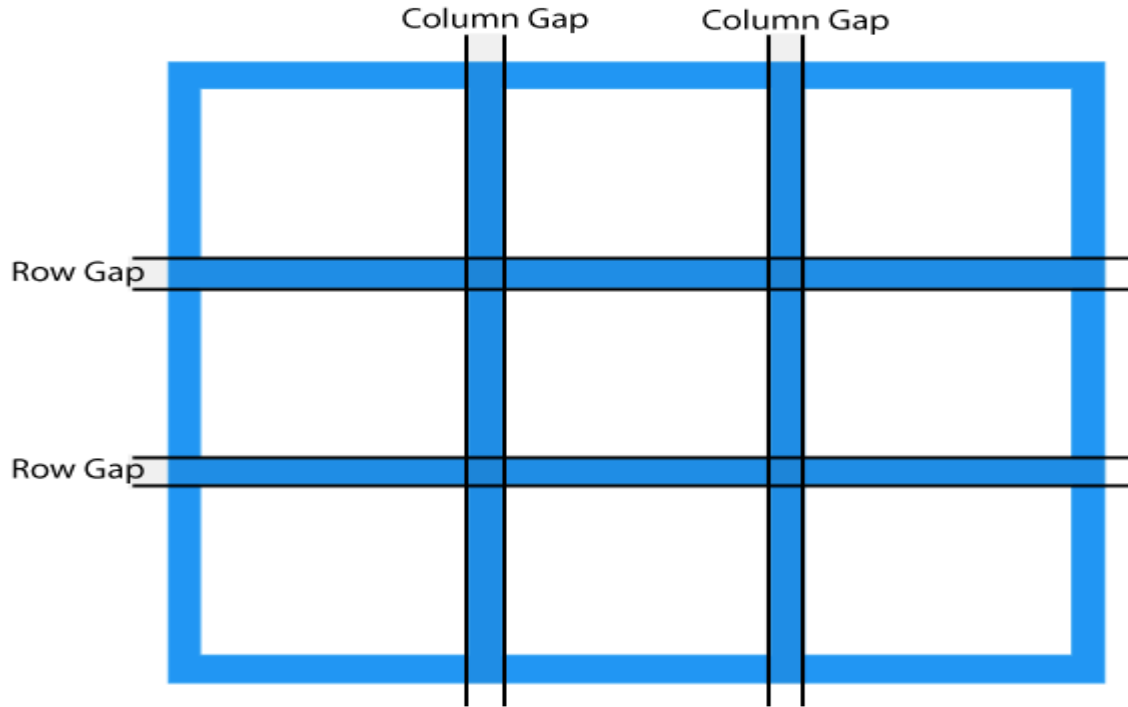
5. Grid

- **Grid Rows:** The horizontal lines of grid items are called *rows*.



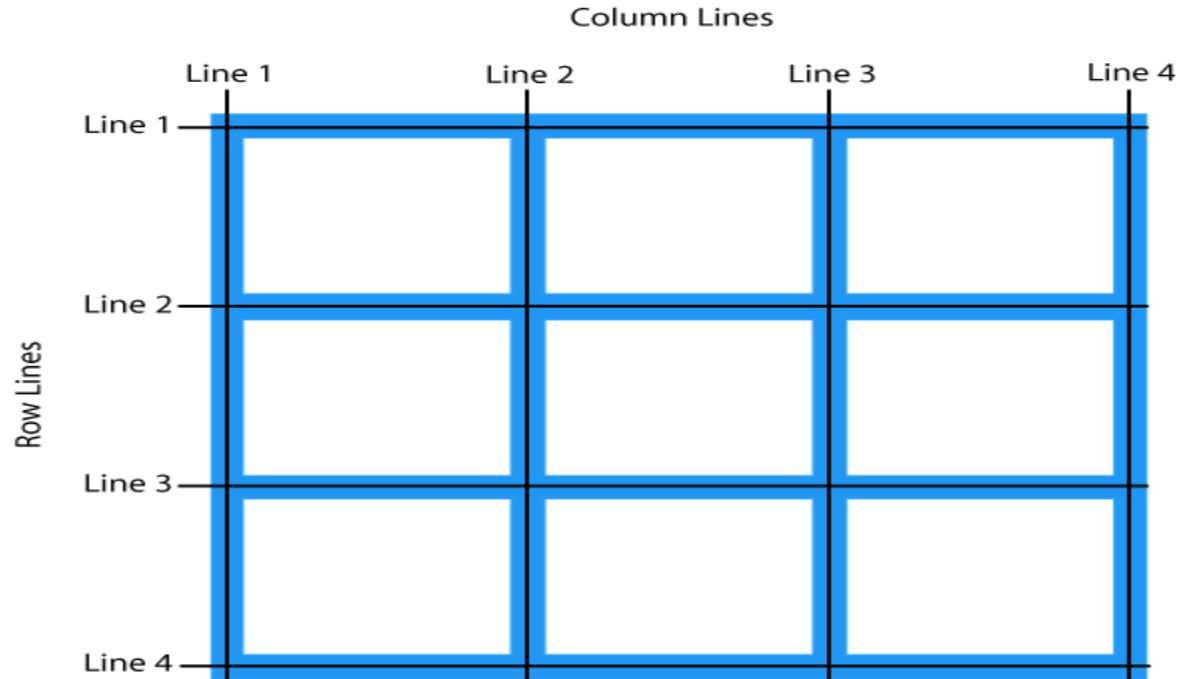
5. Grid

- **Grid Gaps:** The spaces between each column/row are called *gaps*.



5. Grid

- **Grid Lines:** The lines between columns are called column lines. The lines between rows are called row lines..



5. Grid

- The **grid-template-columns** property defines the number of columns in your grid layout, and it can define the width of each column.

The value is a space-separated-list, where each value defines the length of the respective column.

- The **grid-template-rows** property defines the height of each row.

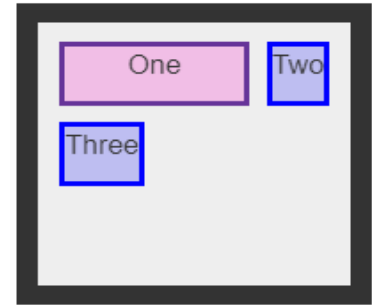
The value is a space-separated-list, where each value defines the height of the respective row

- The **align-content** property is used to vertically align the whole grid inside the container.

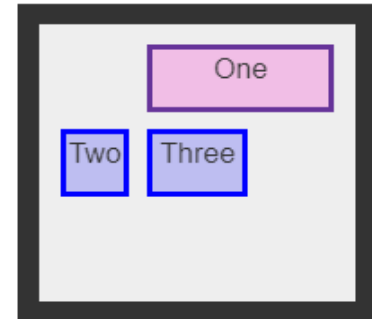
5. Grid

- The **grid-column** property defines on which column(s) to place an item. The value is a space-separated-list, where each value defines the length of the respective column.

```
grid-column: 1 / 3;
```



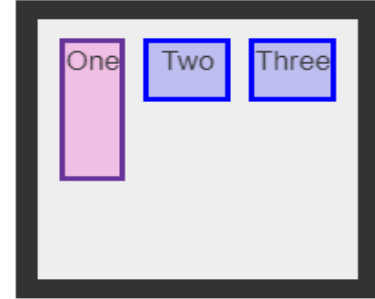
```
grid-column: 2 / -1;
```



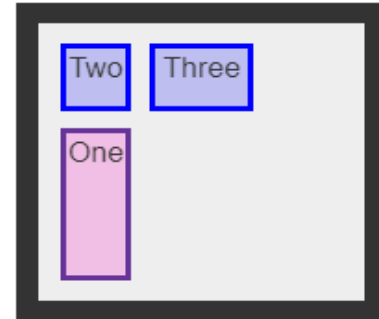
5. Grid

- The **grid-row** property defines on which row to place an item.

```
grid-row: 1 / 3;
```



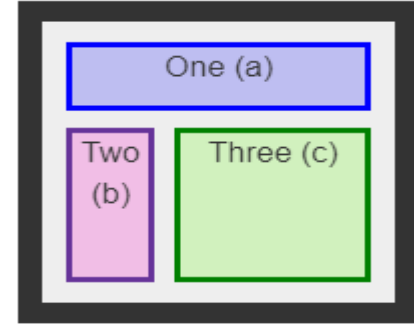
```
grid-row: 2 / -1;
```



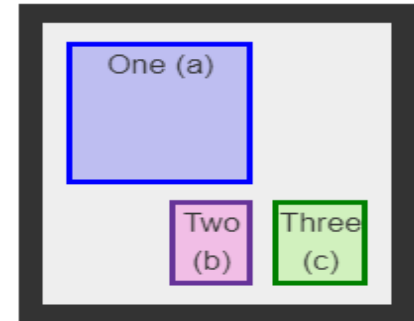
5. Grid

- **Grid template area:** The **grid-template-areas** property specifies areas within the grid layout.

```
grid-template-areas:  
    "a a a"  
    "b c c"  
    "b c c";
```



```
grid-template-areas:  
    "a a ."  
    "a a ."  
    ". b c";
```



6. Positioning

- The **position** property specifies the type of positioning method used for an element.
- There are five different position values:
 - *Static*
 - *Relative*
 - *Fixed*
 - *Absolute*
 - *Sticky*

6. Positioning

➤ **static:**

- HTML elements are positioned **static** by default.
- **Static positioned elements** are not affected by the *top*, *bottom*, *left*, and *right* properties.
- An element with “*position: static;*” is not positioned in any special way; it is always positioned according to the normal flow of the page.

6. Positioning

➤ relative:

- An element with “*position: relative;*” is positioned relative to its normal position.
- Setting the top, right, bottom, and left properties of a **relatively-positioned element** will cause it to be adjusted away from its normal position. Other content will not be adjusted to fit into any gap left by the element.

6. Positioning

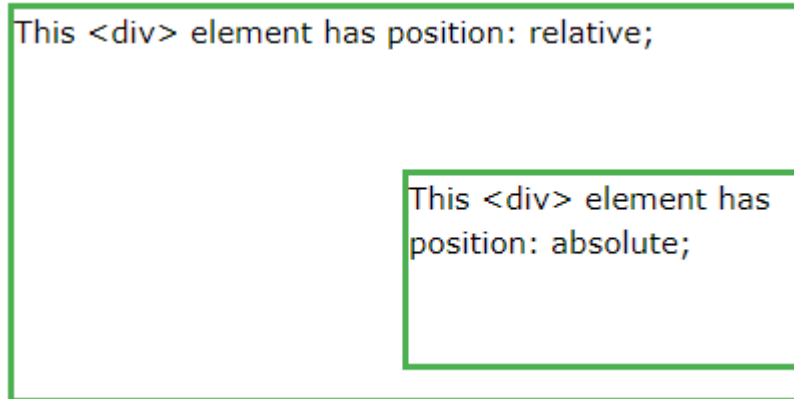
➤ fixed:

- An element with “*position: fixed;*” is positioned relative to the viewport, which means it always stays in the same place even if the page is scrolled.
- The *top*, *right*, *bottom*, and *left* properties are used to position the element.
- **A fixed element** does not leave a gap in the page where it would normally have been located.

6. Positioning

➤ absolute:

- An element with “*position: absolute;*” is positioned relative to the nearest positioned ancestor (instead of positioned relative to the viewport, like fixed).
- If an **absolute positioned element** has no positioned ancestors, it uses the document body, and moves along with page scrolling.



6. Positioning

➤ sticky:

- An element with `position: sticky;` is positioned based on the user's scroll position.
- **A sticky element** toggles between relative and fixed, depending on the scroll position. It is positioned relative until a given offset position is met in the viewport - then it "sticks" in place (like `position: fixed`)..

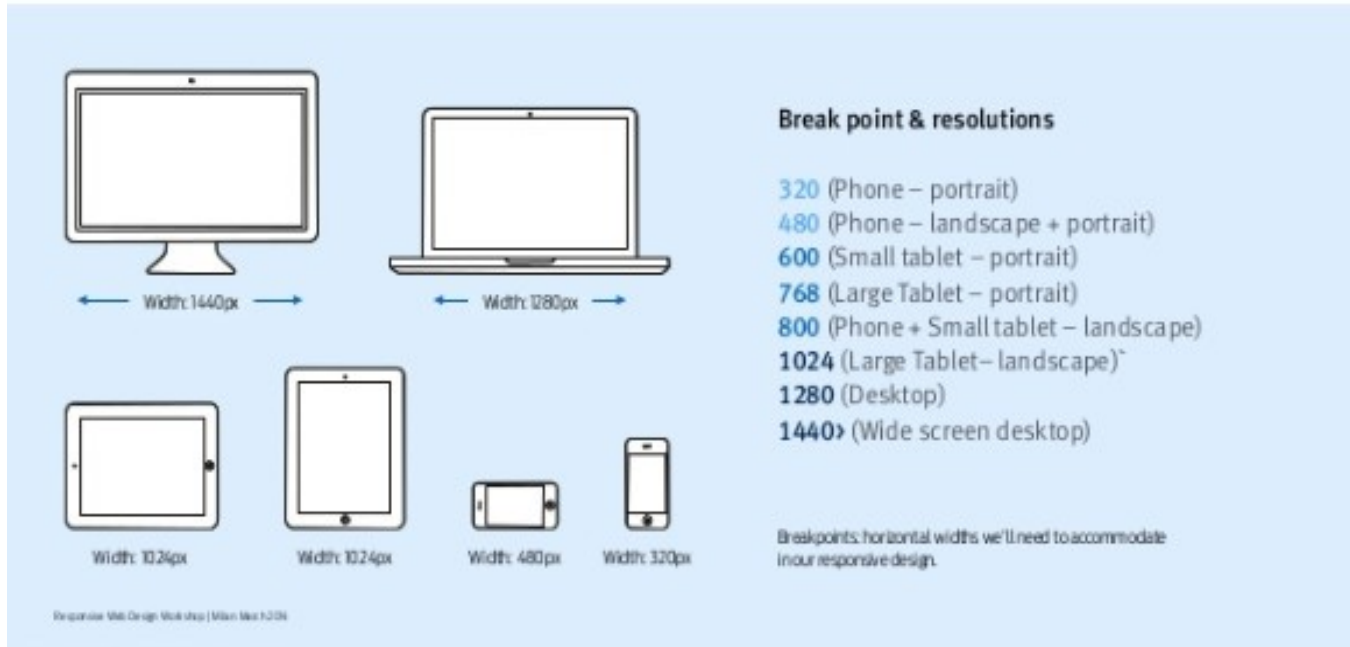
7. Responsive Design

- **Responsive** web design allows you to use CSS and HTML to resize, hide, shrink, enlarge, or move the content to make it look good on any screen.
- The **viewport** is the user's visible area of a web page.
- HTML5 introduced a method to let web designers take control over the viewport, through the `<meta>` tag.

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

7. Responsive Design

- **Break point:** CSS breakpoints are points where the website content responds according to the device width, allowing you to show the best possible layout to the user.



7. Responsive Design

- **Media Queries** is a CSS technique introduced in CSS3. It uses the **@media** rule to include a block of CSS properties only if a certain condition is true.



7. Responsive Design

- **Media Queries** is a CSS technique introduced in CSS3. It uses the **@media** rule to include a block of CSS properties only if a certain condition is true.
- The **@media** rule is used in media queries to apply different styles for different media types/devices.
- **Media queries** can be used to check many things, such as:
 - width and height of the viewport
 - width and height of the device
 - orientation (is the tablet/phone in landscape or portrait mode?)
 - resolution

7. Responsive Design

➤ Syntax of media query

```
@media not|only mediatype and (mediafeature and|or|not  
mediafeature) {  
    CSS-Code;  
}
```

IF THE SCREEN IS THIS SIZE

```
@media (max-width: 768px) {  
    .example-class {  
        margin: 0 auto !important;  
        padding: 0 !important;  
    }  
}
```

THEN THIS IS WHAT THIS CLASS
SHOULD DO

7. Responsive Design

➤ Media types

Value	Description
all	Default. Used for all media type devices
print	Used for printers
screen	Used for computer screens, tablets, smart-phones etc.
speech	Used for screenreaders that "reads" the page out loud

7. Responsive Design

➤ Media features

Value	Description
all	Default. Used for all media type devices
print	Used for printers
screen	Used for computer screens, tablets, smart-phones etc.
speech	Used for screenreaders that "reads" the page out loud

Thank you

