<p>

<h1> - <h6>

<article> A document, page or site. This is usually a root container element after body

<section> Generic section of a document

<header> Intro section of a document

<footer> Footer at end of a document or section

<nav> Navigational section

Use these **before** div when appropriate.

flexbox

Flex Basics

Flex layouts are composed of:

a **Flex container**, which contains one or more:

Flex item(s)

You can then apply CSS properties on the **Flex container** to dictate how the **Flex item(s)** are displayed

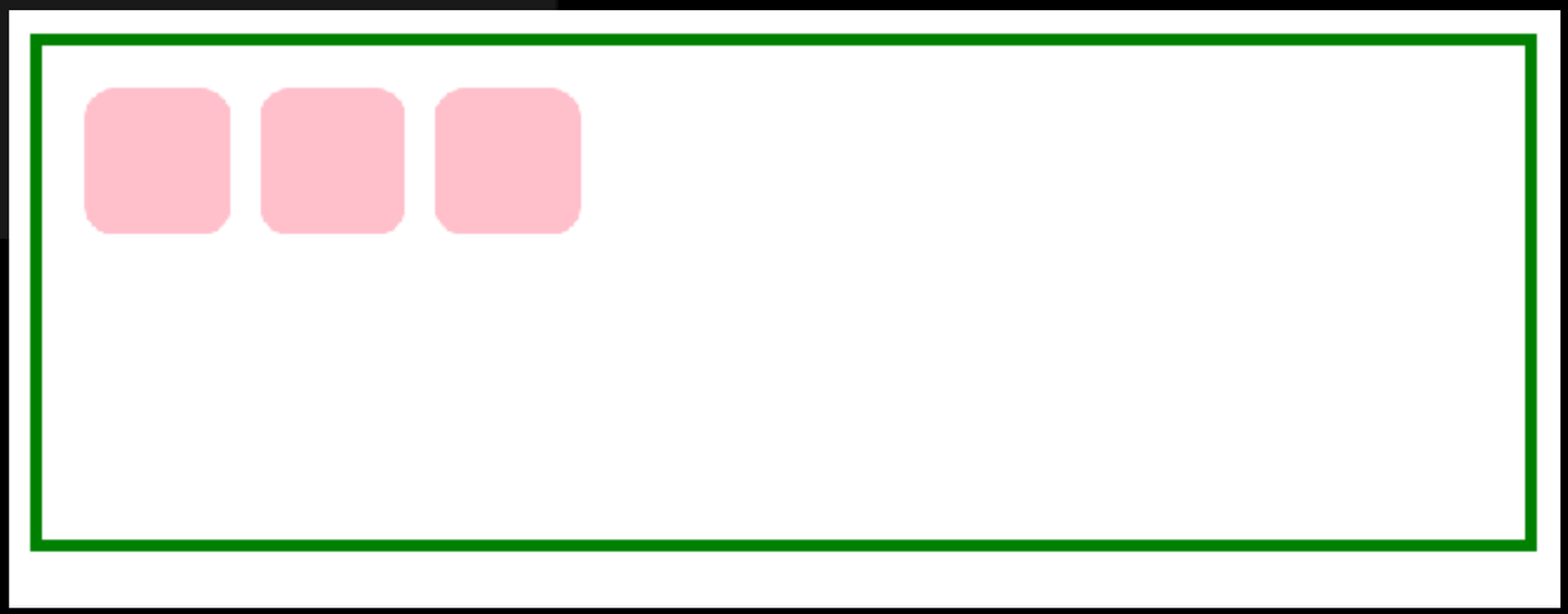
To make an element a flex container, change display:

- Block container: display: flex;
- Inline container: display: inline-flex;

Flex Basics: justify-content

You can control where the item is horizontally in the box by setting **justify-content** in the flex container.

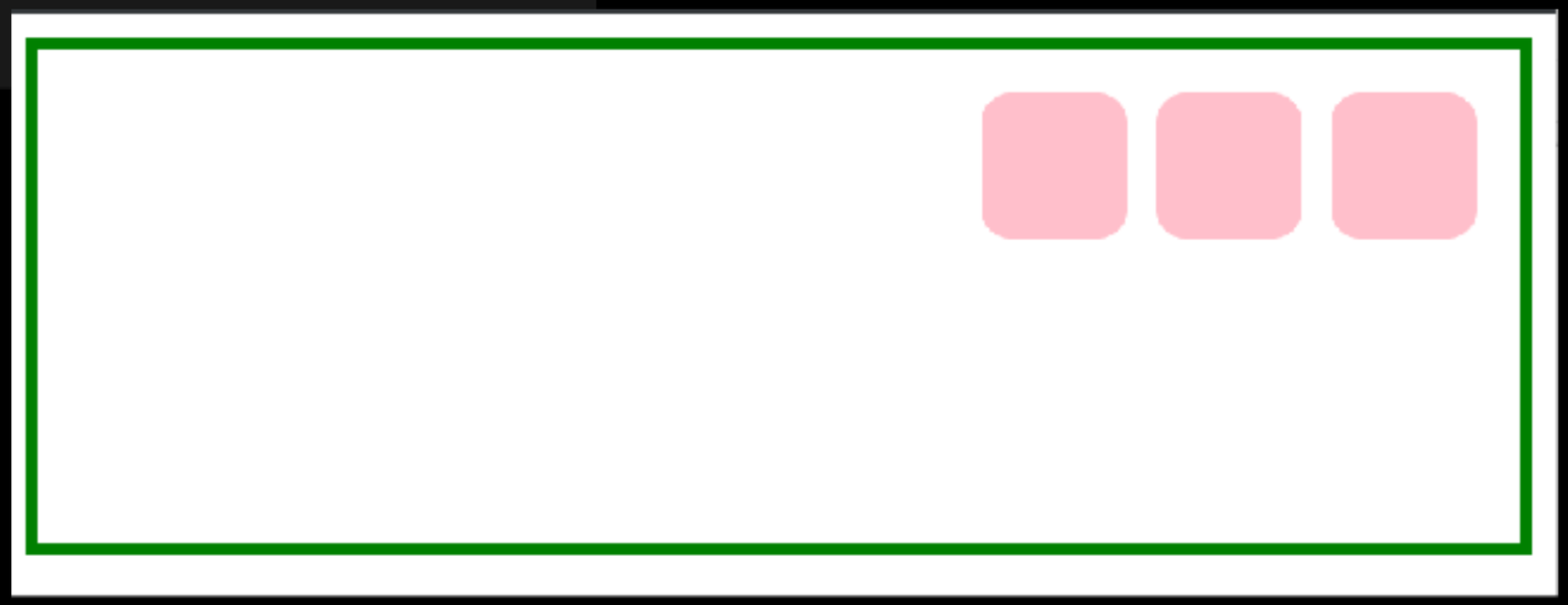
```
#flexBox {
    display: flex;
    border: 4px solid Green;
    justify-content: flex-start;
    padding: 10px;
    height: 150px;
}
```



Flex Basics: justify-content

You can control where the item is horizontally in the box by setting **justify-content** in the flex container.

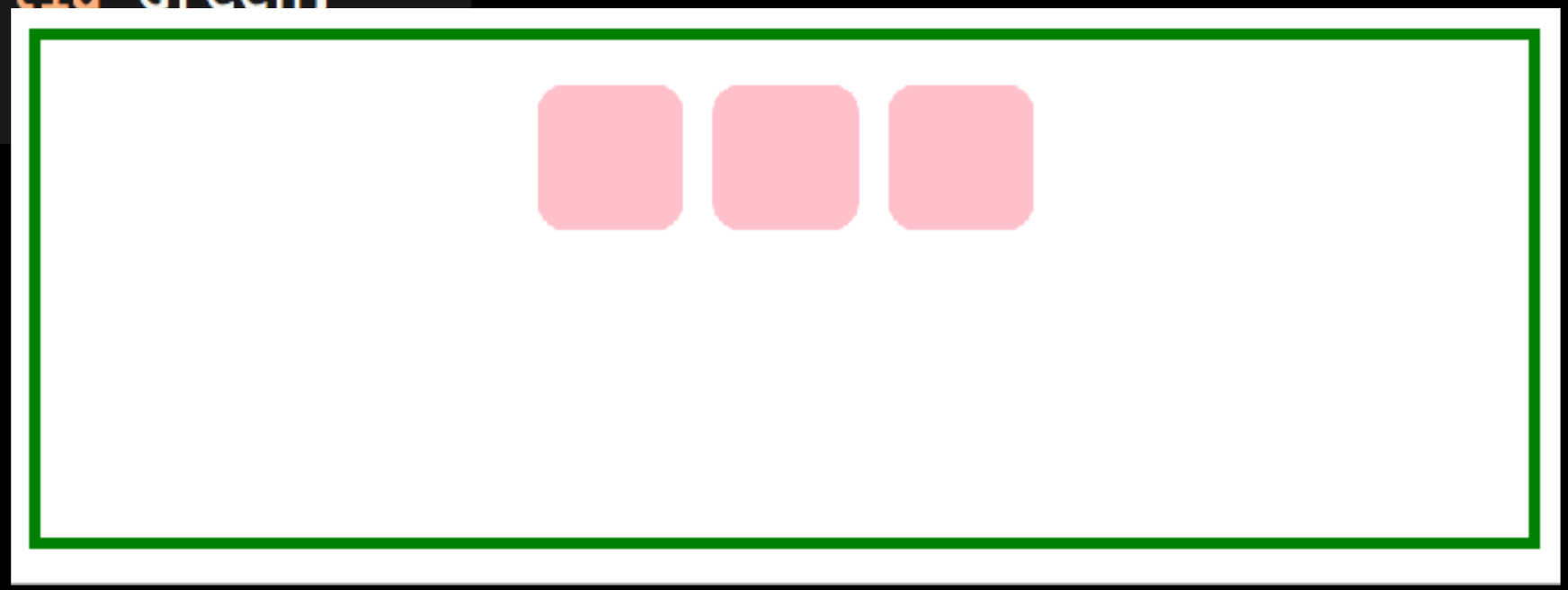
```
#flexBox {
    display: flex;
    justify-content: flex-end;
    padding: 10px;
    height: 150px;
    border: 4px solid Green;
}
```



Flex Basics: justify-content

You can control where the item is horizontally in the box by setting **justify-content** in the flex container.

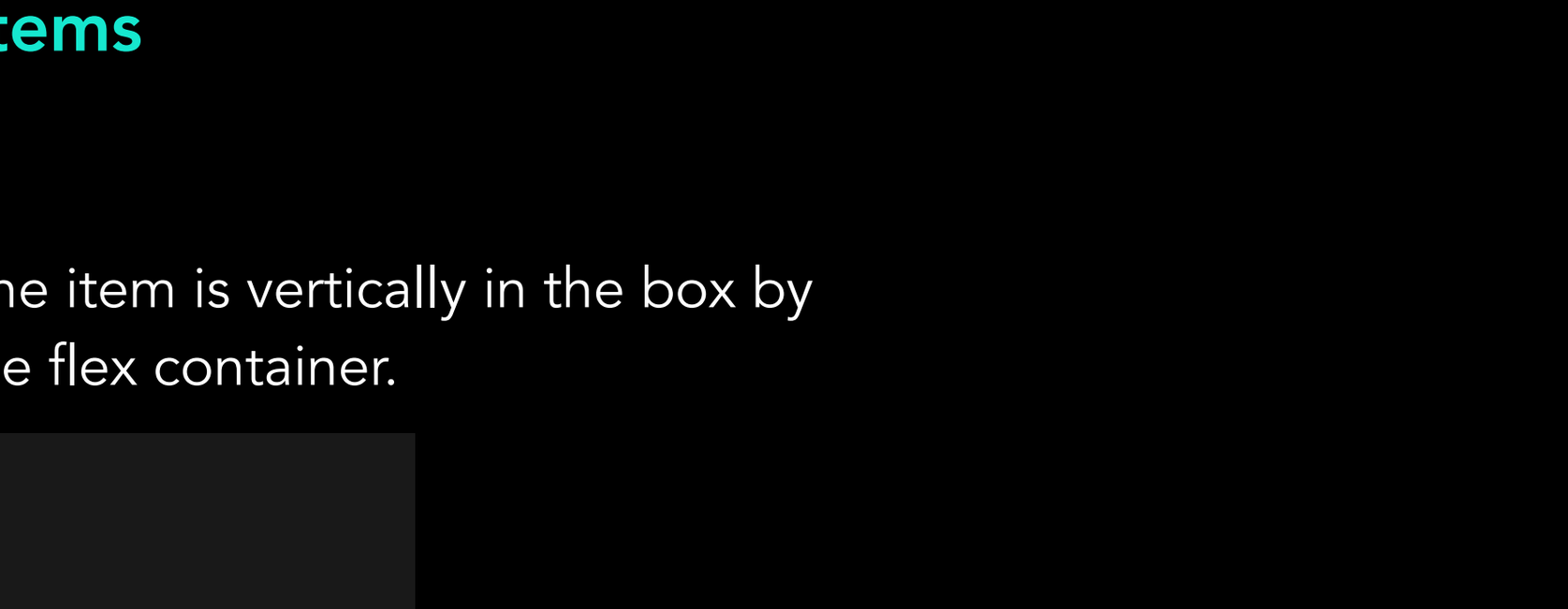
```
#flexBox {
    display: flex;
    justify-content: center;
    padding: 10px;
    height: 150px;
    border: 4px solid Green;
}
```



Flex Basics: align-items

You can control where the item is vertically in the box by setting **align-items** in the flex container.

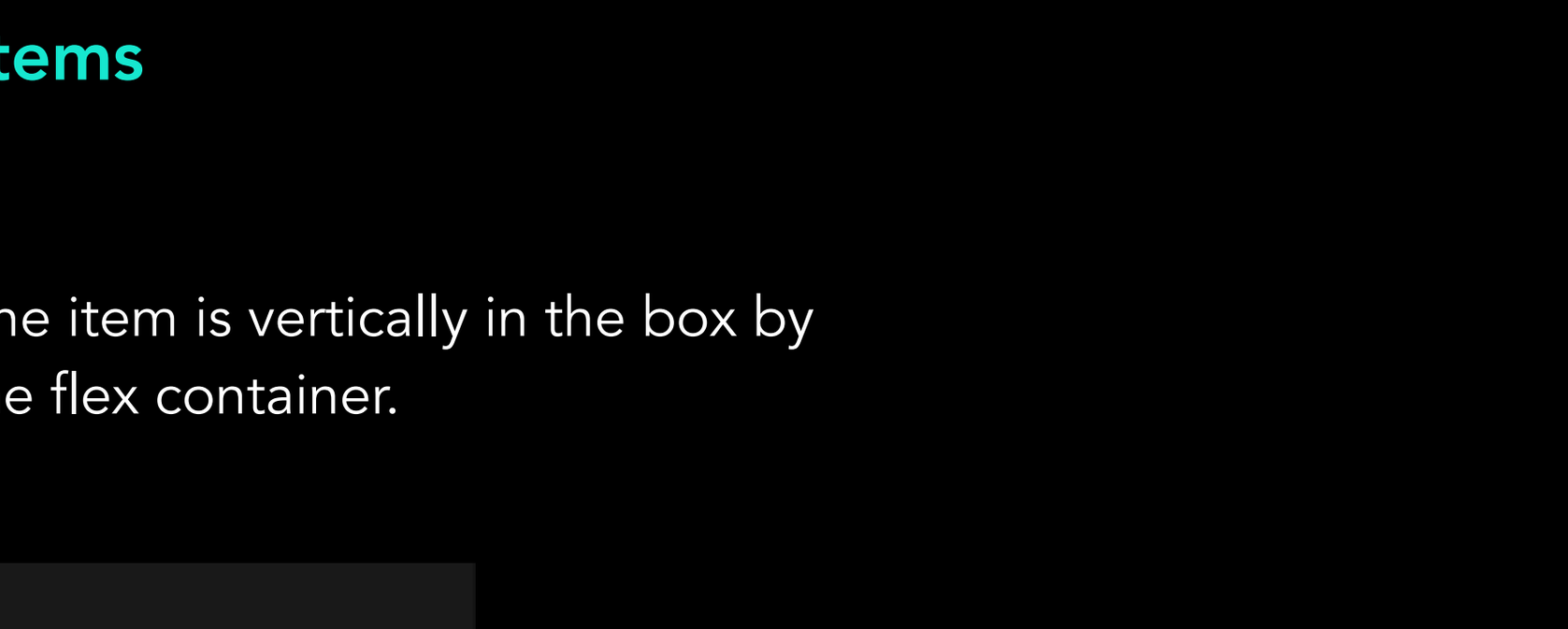
```
#flexBox {
    display: flex;
    align-items: flex-start;
    padding: 10px;
    height: 150px;
    border: 4px solid Green;
}
```



Flex Basics: align-items

You can control where the item is vertically in the box by setting **align-items** in the flex container.

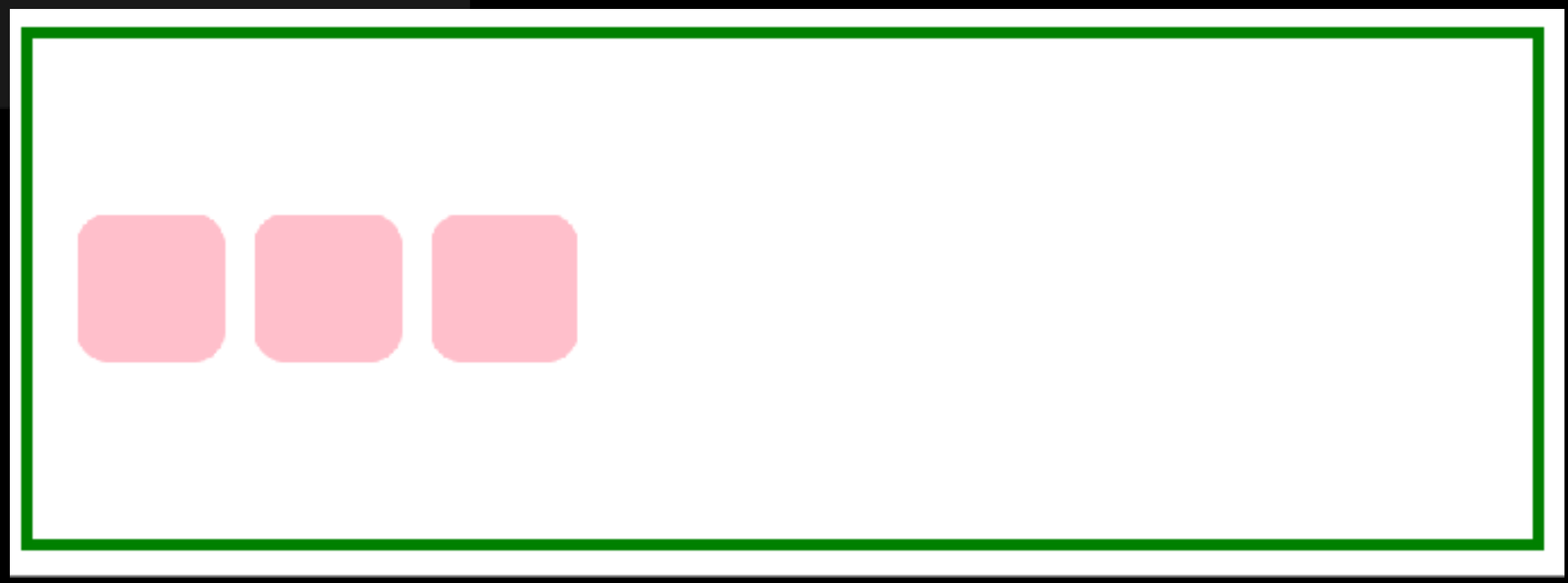
```
#flexBox {
    display: flex;
    align-items: flex-end;
    padding: 10px;
    height: 150px;
    border: 4px solid
}
```



Flex Basics: align-items

You can control where the item is vertically in the box by setting **align-items** in the flex container.

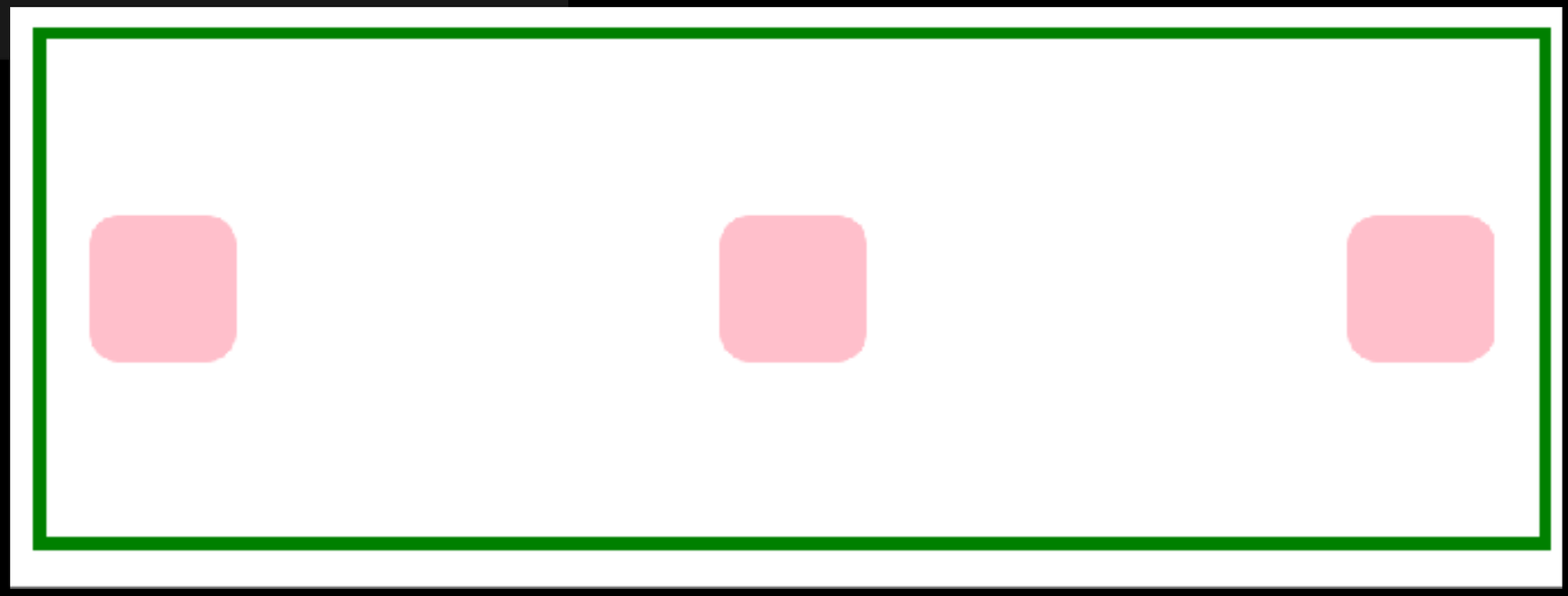
```
#flexBox {
    display: flex;
    align-items: center;
    padding: 10px;
    height: 150px;
    border: 4px solid Green;
}
```



Flex Basics:

space-between + space-around

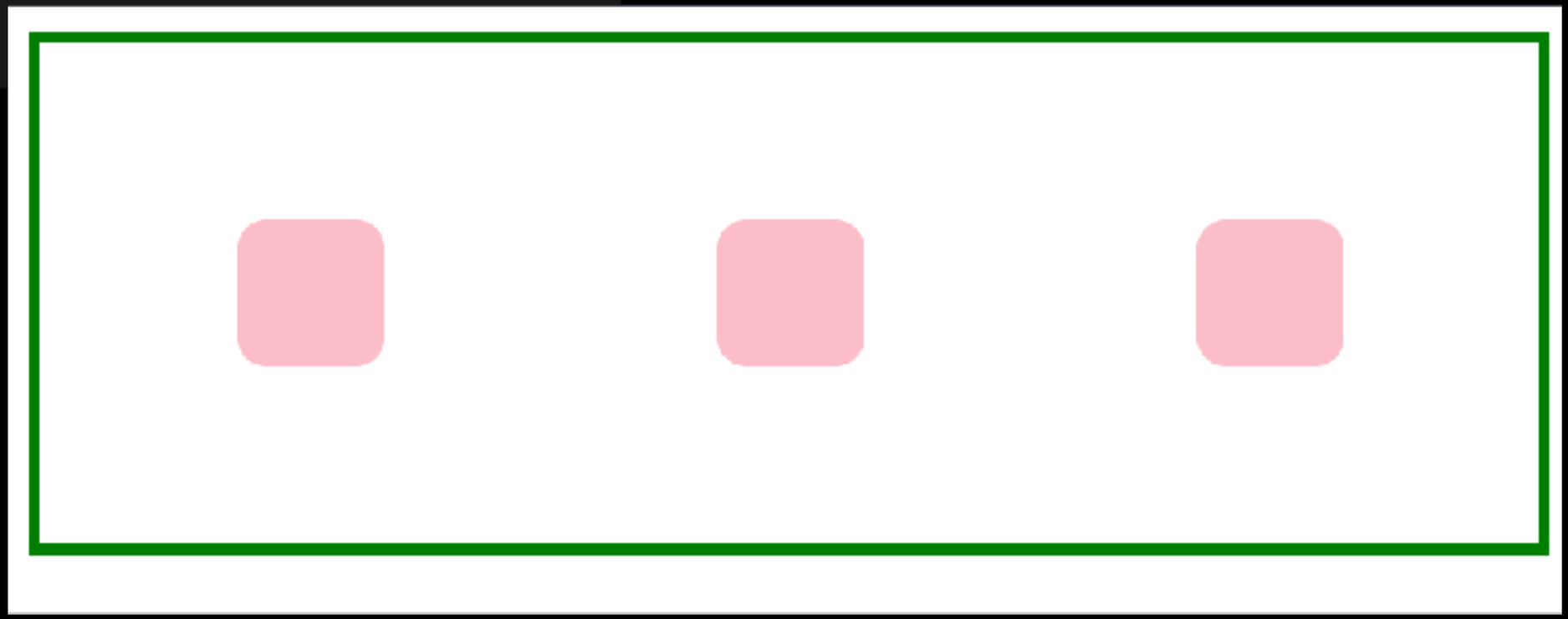
```
#flexBox {
    display: flex;
    justify-content: space-between;
    align-items: center;
    padding: 10px;
    height: 150px;
    border: 4px solid Green;
}
```



Flex Basics:

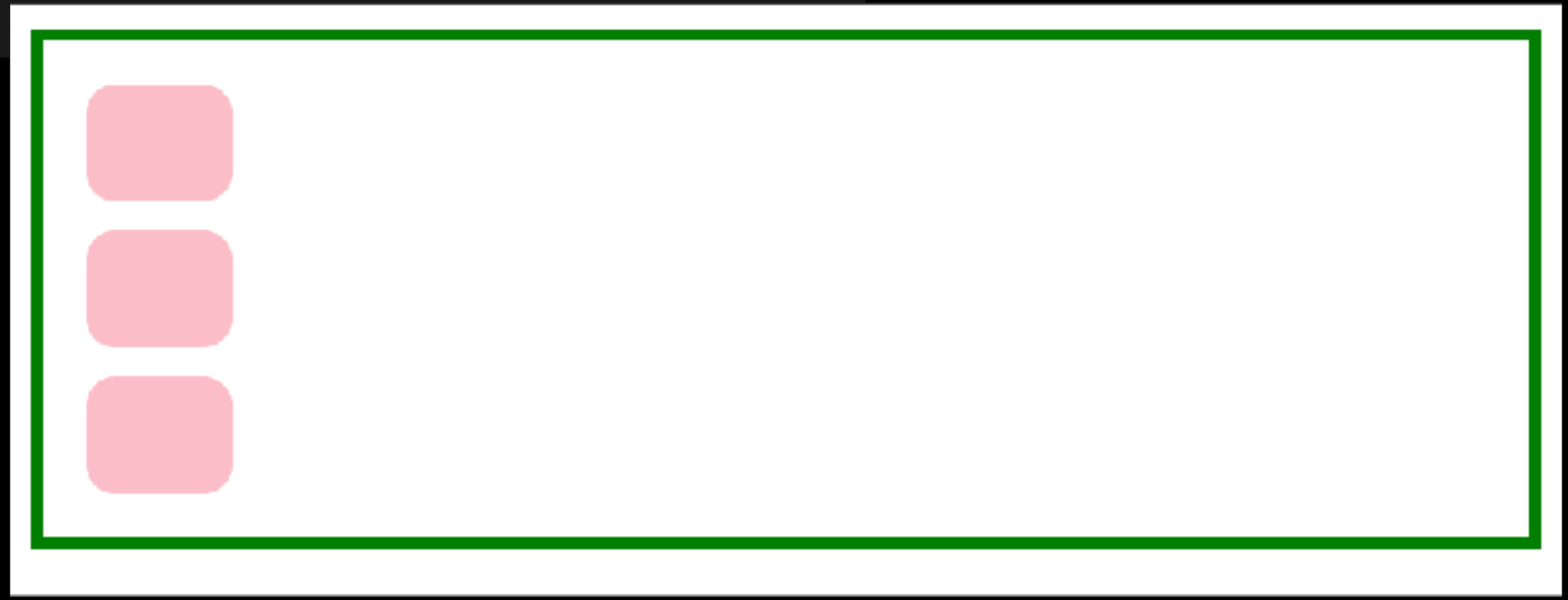
space-between + space-around

```
#flexBox {
    display: flex;
    justify-content: space-around;
    align-items: center;
    padding: 10px;
    height: 150px;
    border: 4px solid Green;
}
```



Flex Basics: flex-direction

```
#flexBox {
    display: flex;
    flex-direction: column;
    padding: 10px;
    height: 150px;
    border: 4px solid Green;
}
```



Flex Basics: flex-direction

```
#flexBox {
    display: flex;
    flex-direction: column;
    justify-content: center;
    padding: 10px;
    height: 300px;
    border: 4px solid Green;
}
```

Now **justify-content** controls where the column is vertically in the box.

Flex Basics: flex-direction

```
#flexBox {
    display: flex;
    flex-direction: column;
    justify-content: space-around;
    padding: 10px;
    height: 300px;
    border: 4px solid Green;
}
```

And you can also lay out columns instead of rows.

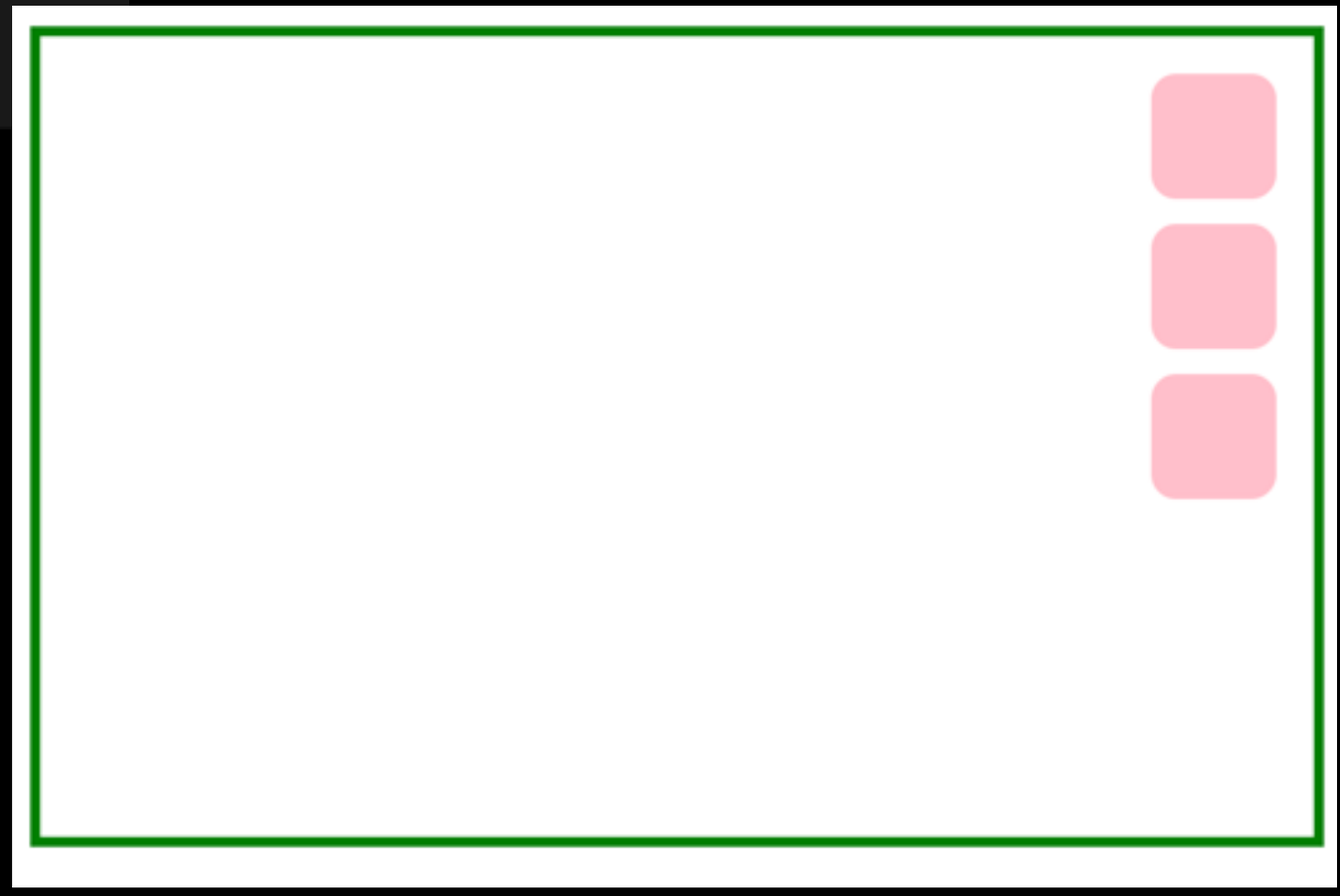
Now **justify-content** controls where the column is vertically in the box.

Flex Basics: flex-direction

```
#flexBox {
    display: flex;
    flex-direction: column;
    align-items: flex-end;
    padding: 10px;
    height: 300px;
    border: 4px solid Green;
}
```

And you can also lay out columns instead of rows.

Now **align-items** controls where the column is horizontally in the box.



Flex - different rendering model

When you set a container to **display: flex**, the direct children in that container are **flex items** + follow a new set of rules.

Flex items are not block or inline; they have different rules for their height, width + layout.

- The **contents** of a flex item follow the usual block/inline rules, relative to the flex item's boundary.

Flex Basis

Flex items have an initial width*, which, by default is either:

- The content width, or

- The explicitly set **width** property of the element, or

- The explicitly set **flex-basis** property of the element

This initial width* of the flex item is called the **flex basis**.

The explicit width* of a flex item is respected **for all flex items**, regardless of whether the flex item is inline, block, or inline-block.

*width in the case of rows; height in the case of columns

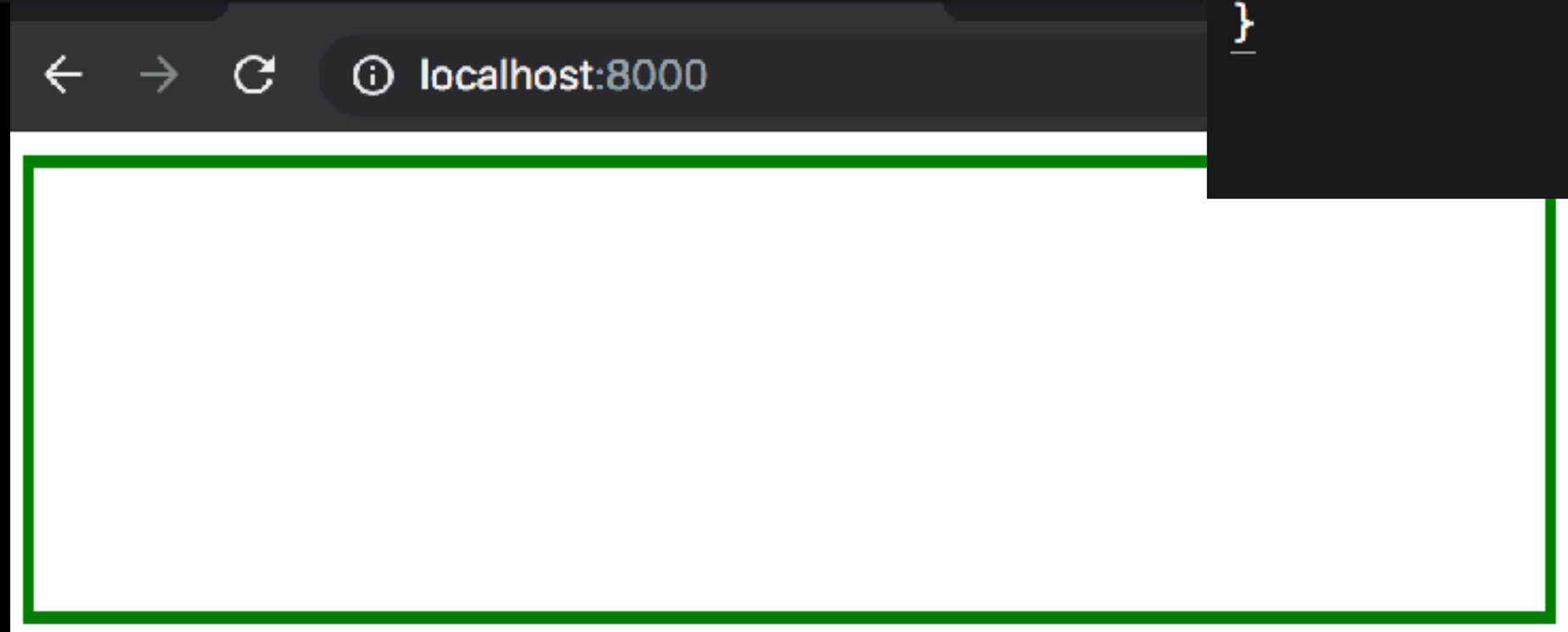
Flex Basis

If we unset the height and width, our flex items disappears, because the **flex basis** is now the content size, which is empty:

```
<div id="flexBox">
 <span class="flexThing"></span>
 <div class="flexThing"></div>
 <span class="flexThing"></span>
</div>
```

```
#flexBox {
    display: flex;
    border: 4px solid Green;
    height: 150px;
}

.flexThing {
    border-radius: 10px;
    background-color: pink;
    margin: 5px;
}
```



flex-shrink

The width* of the flex item can automatically shrink **smaller** than the **flex basis** via the **flex-shrink** property:

flex-shrink:

- If set to **1**, the flex item shrinks itself as small as it can in the space available
- If set to **0**, the flex item does not shrink.

Flex items have **flex-shrink**: **1 by default**.

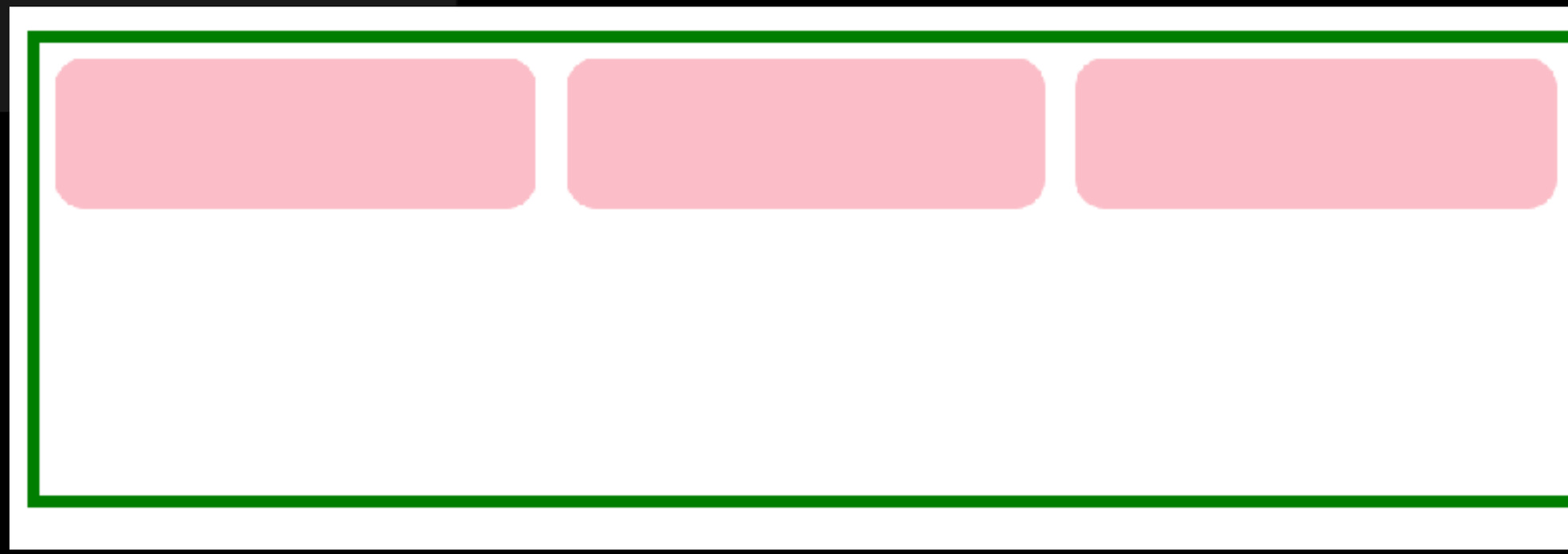
*width in the case of rows;
height in the case of columns

flex-shrink

```
#flexBox {
    display: flex;
    align-items: flex-start;
    border: 4px solid Green;
    height: 150px;
}

.flexThing {
    width: 500px;
    height: 50px;
    border-radius: 10px;
    background-color: pink;
    margin: 5px;
}
```

The flex items' widths all shrink to fit the width of the container.



flex-shrink

```
.flexThing {
    width: 500px;
    height: 50px;
    flex-shrink: 0;
    border-radius: 10px;
    background-color: pink;
    margin: 5px;
}
```

Setting **flex-shrink**: **0**;
undoes the shrinking behavior,
and the flex items do not
shrink in any circumstance:

flex-grow

The width* of the flex item can automatically **grow larger** than the **flex basis** via the **flex-grow** property:

flex-grow:

- If set to **1**, the flex item grows itself as large as it can in the space remaining
- If set to **0**, the flex item does not grow

Flex items have **flex-grow**: **0 by default**.

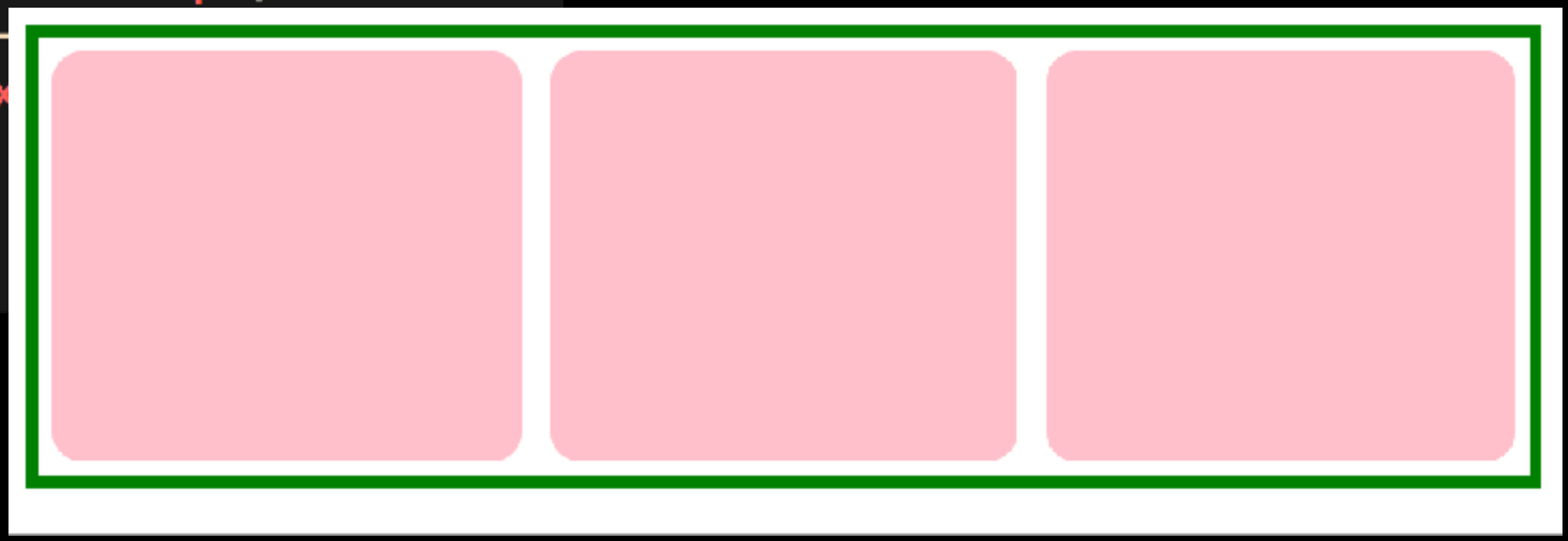
*width in the case of rows;
height in the case of columns

flex-grow

if we set **flex-grow: 1;**
the flex items fill the empty space.

```
#flexBox {
    display: flex;
    border: 4px solid Green;
    height: 150px;
}

.flexThing {
    flex-grow: 1;
    border-radius: 10px;
    background-
    margin: 5px
}
```



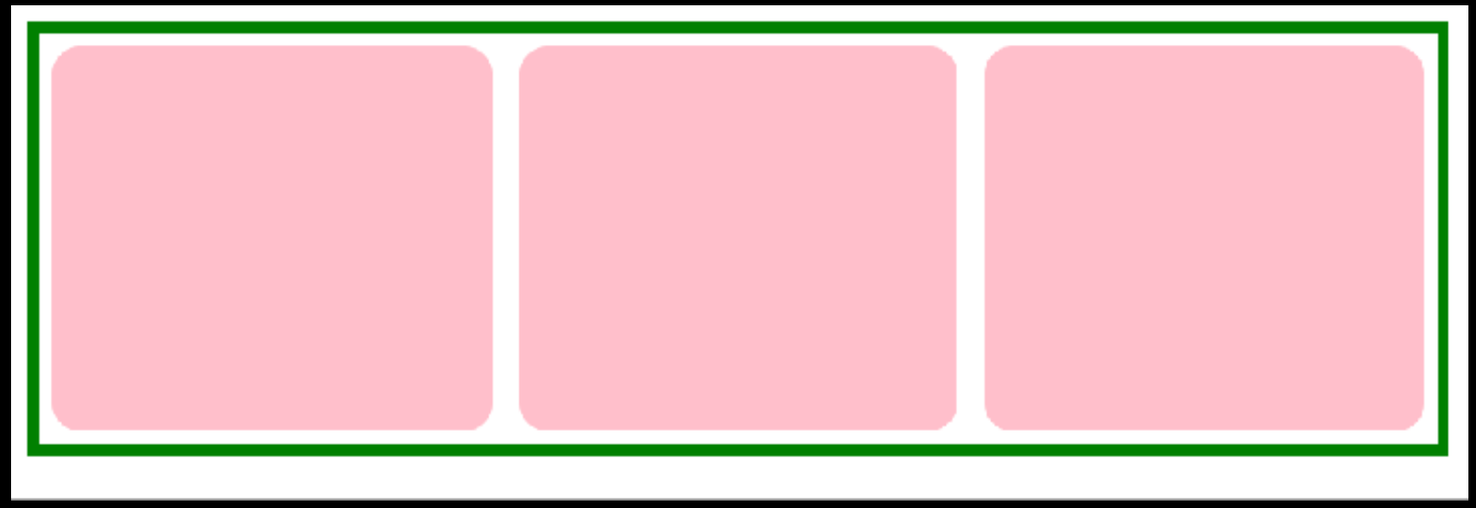
align-items: stretch;

The default value of **align-items** is stretch, which means every flex item grows vertically* to fill the container by default.

(This will not happen if the height on the flex item is set)

```
#flexBox {
    display: flex;
    border: 4px solid Green;
    height: 150px;
}

.flexThing {
    flex-grow: 1;
    border-radius: 10px;
    background-color: pink;
    margin: 5px;
}
```



*veritcally in the case of rows; horizontally in the case of columns

responsive web design

Responsive Text

The text size can be set with a "vw" unit, which means the "viewport width".

That way the text size will follow the size of the browser window.

```
<h1 style="font-size:10vw">Hello World</h1>
```

Metadata: `viewport`

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.

```
<!
—  - Tells the browser to match the device's width for the viewport
     - Sets an initial zoom value -->

<meta name="viewport" content="width=device-width, initial-scale=1”>
```

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

without

with

Let's breakdown the `content` value of this responsive <meta> tag:

Values are comma separated, letting you specify a list of values for `content`

The `width` value is set to `device-width`. This will cause the browser to render the page at the same width of the device's screen size.

`initial-scale` set to `1` indicates the "zoom" value if your web page when it is first loaded. `1` means "no zoom."

There are other values you can specify for the `content` list -

Mobile First

Common device widths

- 320px (x-small mobile)
- 375px (small mobile)
- 768px (tablet)
- 1024px (laptop)
- 1440px (desktop)

Although it is good practice to create and test your responsive design with these sizes in mind, it is also important that you test beyond the suggested sizes as well.

Media Queries

the @media rule tells the browser to include a block of CSS properties only if a certain condition is true.

So this:

```
@media only screen and (max-width: 500px)  {
    body {
        background-color: light blue;
    }
}
```

Translates to:

```
if (the maximum width of the web page is 500 pixels) {
        then do this stuff
}
```

Media Queries

Breakpoint

```
/* For mobile phones: */
[class*="col-"] {
    width: 100%;
}
@media only screen and (min-width: 768px) {
    /* For desktop: */
    .col-1 {width: 8.33%;}
    .col-2 {width: 16.66%;}
    .col-3 {width: 25%;}
    .col-4 {width: 33.33%;}
    .col-5 {width: 41.66%;}
    .col-6 {width: 50%;}
    .col-7 {width: 58.33%;}
    .col-8 {width: 66.66%;}
    .col-9 {width: 75%;}
    .col-10 {width: 83.33%;}
    .col-11 {width: 91.66%;}
    .col-12 {width: 100%;
}
```

add a **breakpoint** where certain parts of the design will behave differently on each side of the breakpoint

many examples: https://www.w3schools.com/Css/css_rwd_mediaqueries.asp

Mobile-first! (Images)

```
/* For width smaller than 400px: */
body {
    background-image: url(‘void_newspaper.jpg’);
}

/* For width 400px and larger: */
@media only screen and (min-width: 400px) {
    body {
        background-image: url('void.jpg');
    }
}
```

Responsive Frameworks

Responsive frameworks are templates of responsive stylesheets

Examples: W3.CSS, Bootstrap (JavaScript)

Examples: https://www.w3schools.com/html/html_responsive.asp

rwd

Responsive Web Design

Most of these notes are verbatim txt from: Learning Web Design - Jennifer Niederst Robbins

Responsive layout patterns

The manner in which a site transitions from a small-screen layout to a wide-screen layout must make sense for that particular site, but there are a few patterns (common and repeated approaches) that have emerged over the years. We can thank Luke Wroblewski (known for his “Mobile First” approach to web design, which has become the standard) for doing a survey of how responsive sites handle layout. Following are the top patterns Luke named in his **article**:

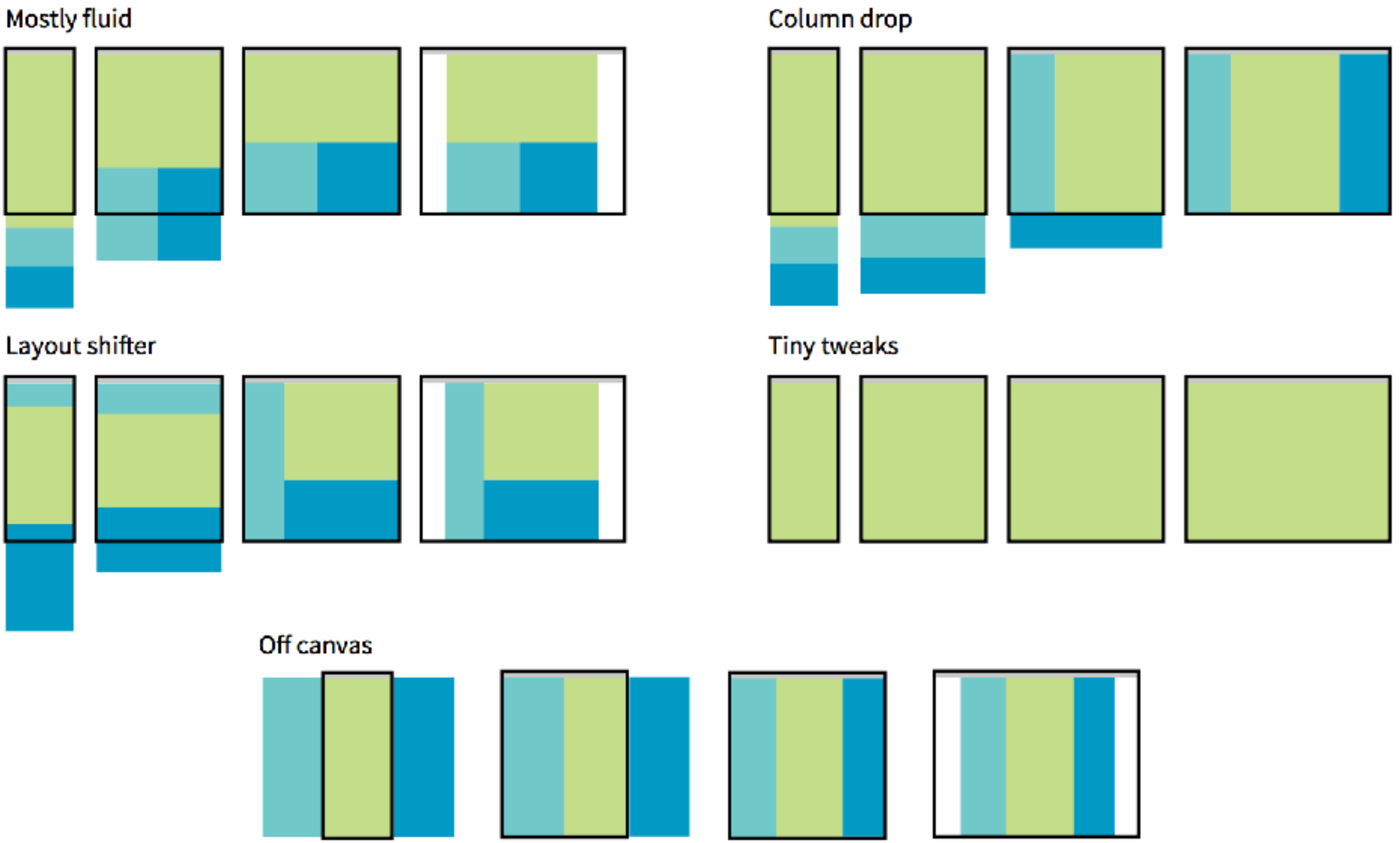


FIGURE 17-9. Examples of the responsive layout patterns identified by Luke Wroblewski.

Mostly fluid

This pattern uses a single-column layout for small screens, and another fluid layout that covers medium and large screens, with a maximum width set to prevent it from becoming too wide. It generally requires less work than other solutions.

Column drop

This solution shifts between one-, two-, and three-column layouts based on available space. When there isn't room for extra columns, the sidebar columns drop below the other columns until everything is stacked verti- cally in the one-column view.

Layout shifter

If you want to get really fancy, you can completely reinvent the layout for a variety of screen sizes. Although expressive and potentially cool, it is not necessary. In general, you can solve the problem of fitting your content to multiple environments without going overboard.

Tiny tweaks

Some sites use a single-column layout and make tweaks to type, spacing, and images to make it work across a range of device sizes.

Off canvas

As an alternative to stacking content vertically on small screens, you may choose to use an “off-canvas” solution. In this pattern, a page component is located just out of sight on the left or right of the screen and flies into view when requested. A bit of the main content screen remains visible on the edge to orient users as to the relationship of moving parts. This was made popular by Facebook, wherein Favorites and Settings were placed on a panel that slid in from the left when users clicked a menu icon

Navigation

Navigation feels a little like the Holy Grail of Responsive Web Design. It is critical to get it right. Because navigation at desktop widths has pretty much been conquered, the real challenges come in re-creating our navigation options on small screens. A number of successful patterns have emerged for small screens, which I will briefly summarize here

Top navigation

If your site has just a few navigation links, they may fit just fine in one or two rows at the top of the screen.

Priority +

In this pattern, the most important navigation links appear in a line across the top of the screen alongside a More link that exposes additional options. The pros are that the primary links are in plain view, and the number of links shown can increase as the device width increases. The cons include the difficulty of determining which links are worthy of the prime small-screen real estate.

Select menu

For a medium list of links, some sites use a select input form element. Tapping the menu opens the list of options using the select menu UI of the operating system, such as a scrolling list of links at the bottom of the screen or on an overlay. The advantage is that it is compact, but on the downside, forms aren't typically used for navigation, and the menu may be overlooked.

Link to footer menu

One straightforward approach places a Menu link at the top of the page that links to the full navigation located at the bottom of the page. The risk with this pattern is that it may be disorienting to users who suddenly find themselves at the bottom of the scroll.

Accordion sub-navigation

When there are a lot of navigation choices with sub-navigation menus, the small-screen solution becomes more challenging, particularly when you can't hover to get more options as you can with a mouse. Accordions that expand when you tap a small arrow icon are commonly used to reveal and hide sub-navigation. They may even be nested several levels deep. To avoid nesting navigation in accordion submenus, some sites simply link to separate landing pages that contain a list of the sub-navigation for that section.