

What's New in Safari and WebKit for Web Developers

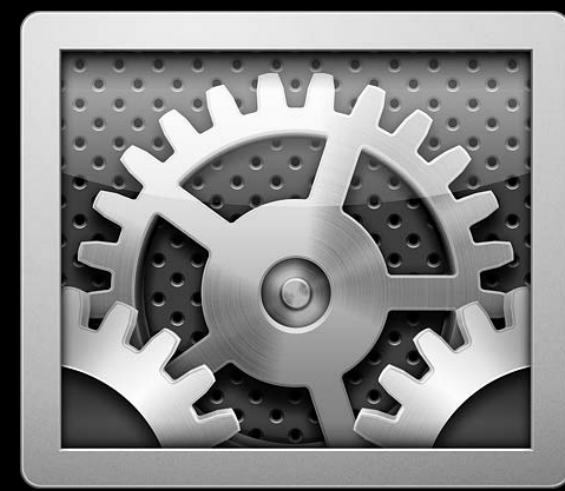
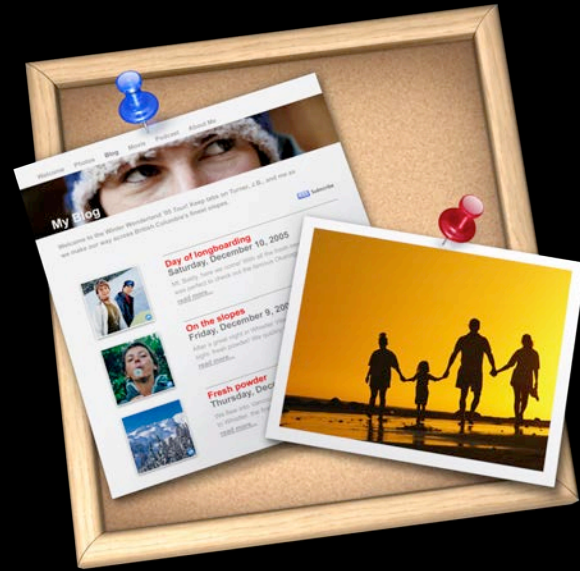
Session 600

Beth Dakin

Safari and WebKit Engineer

These are confidential sessions—please refrain from streaming, blogging, or taking pictures







-webkit-image-set

Web Speech API

requestAnimationFrame

Grid Layout

background-blend-mode

-webkit-user-select

Canvas Blending Modes

CSS Regions

AirPlay API

CSS calc()

CSS Flexbox

CSS Sticky Position

-webkit-line-break

Page Visibility

Pagination

Web VTT

JavaScript Objective-C API

Canvas Line Dashing

CSS Clip Path

Canvas Path()

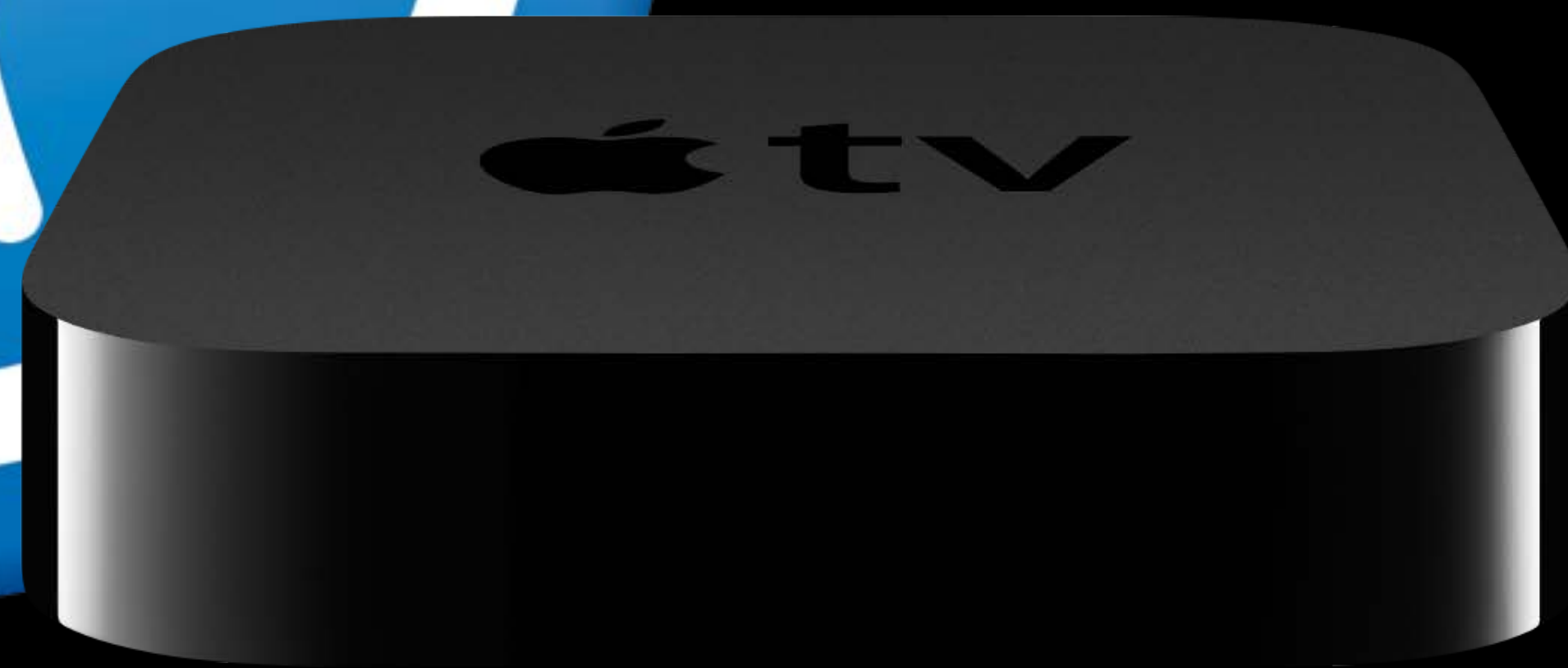
Mutation Observers

Widows and Orphans

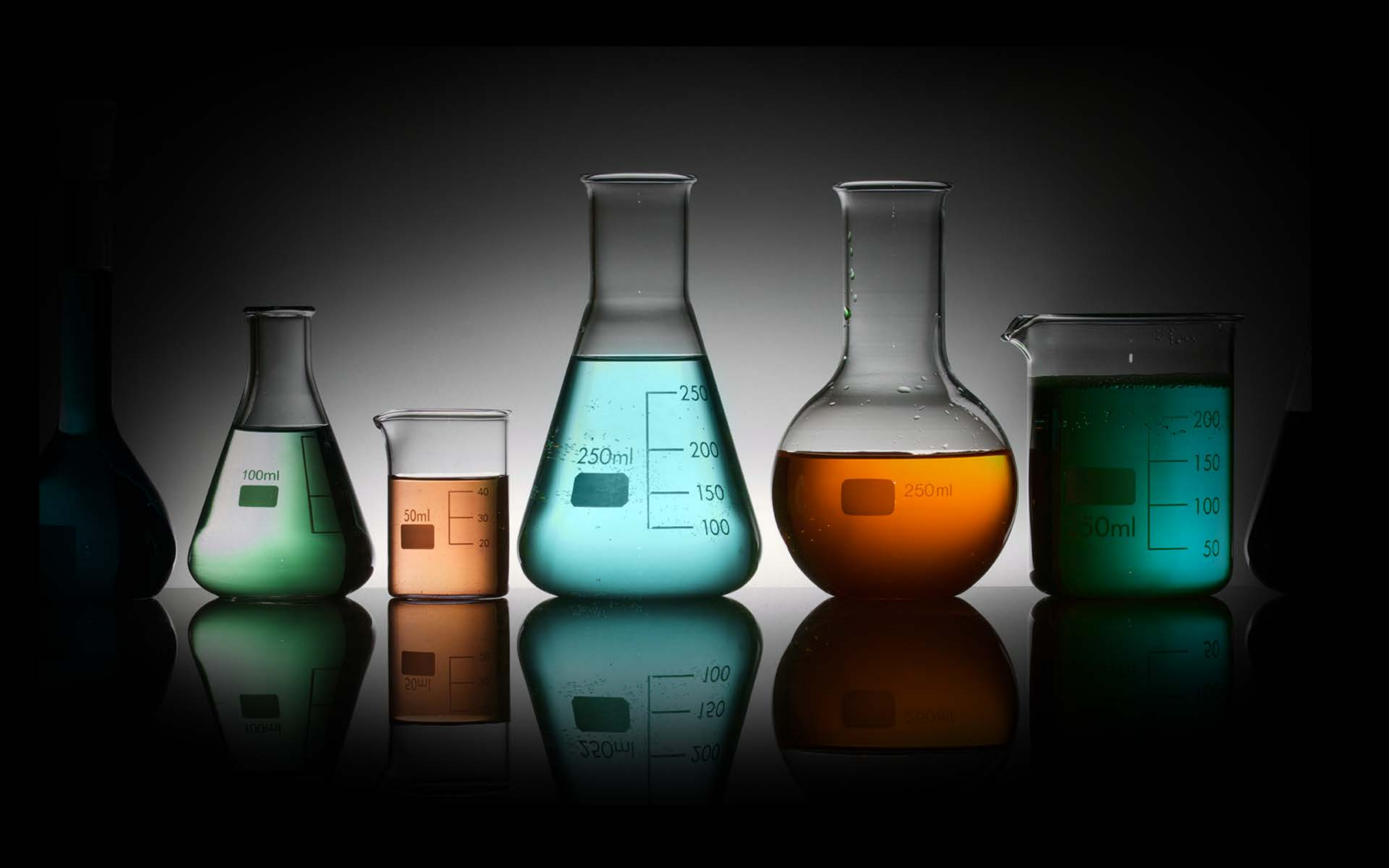
Faster Scrolling

Push Notifications









What You Will Learn

- New layout models
- Media features
- Enhancements

New Layout Models

New Layout Models



New Layout Models

- Columns and pagination



New Layout Models

- Columns and pagination
- CSS Regions



New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes



New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes




Columns and Pagination

My Pizza is Amazing

<http://www.mycookingwebsite.com/pizza> Reader

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu

Columns and Pagination

My Pizza is Amazing

<http://www.mycookingwebsite.com/pizza>

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor.

Columns and Pagination

What columns have to offer



Columns and Pagination

What columns have to offer

- Common design in print media



Columns and Pagination

What columns have to offer

- Common design in print media
- Improved readability



Columns and Pagination

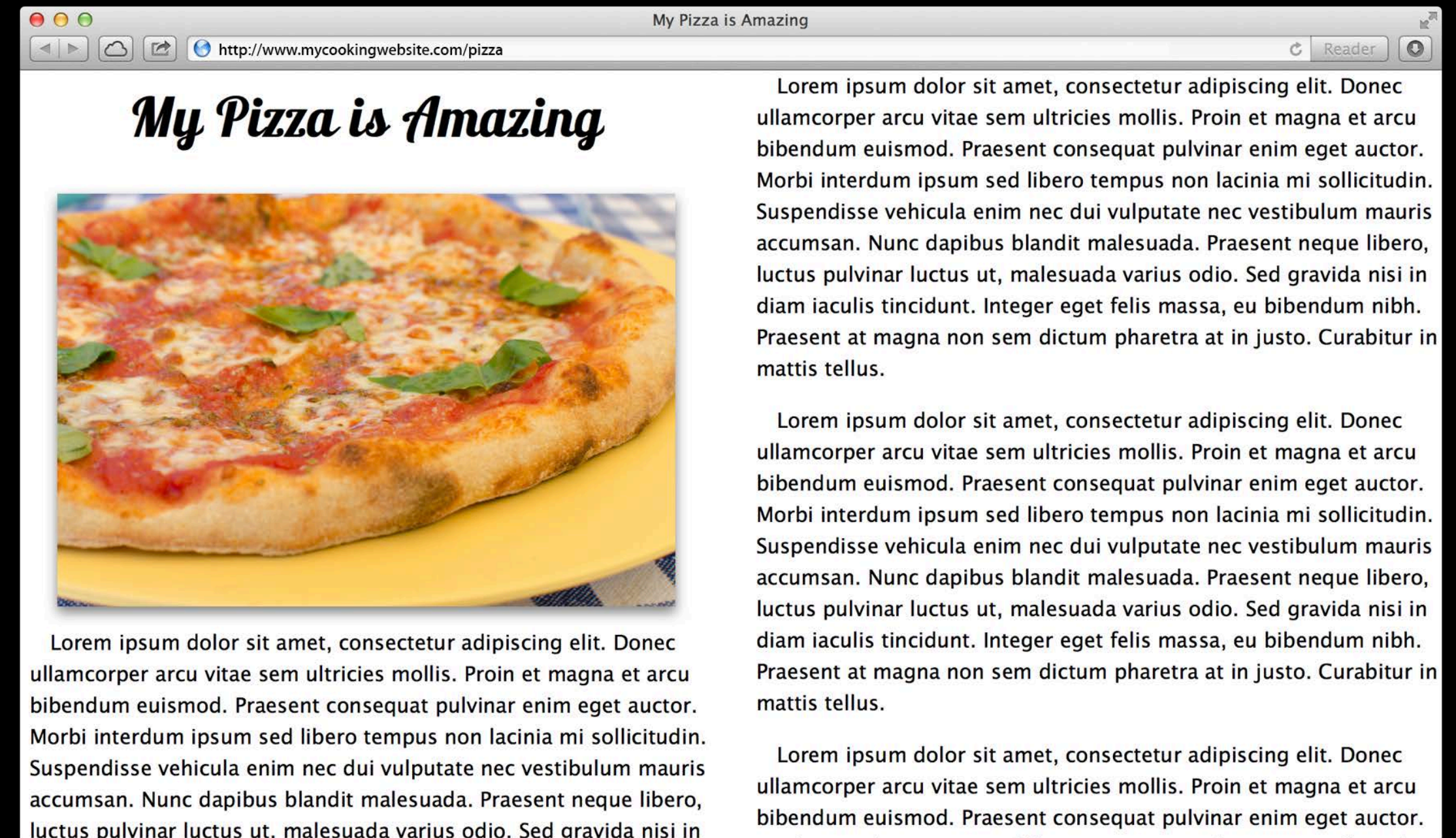
What columns have to offer

- Common design in print media
- Improved readability
- Less wasted space



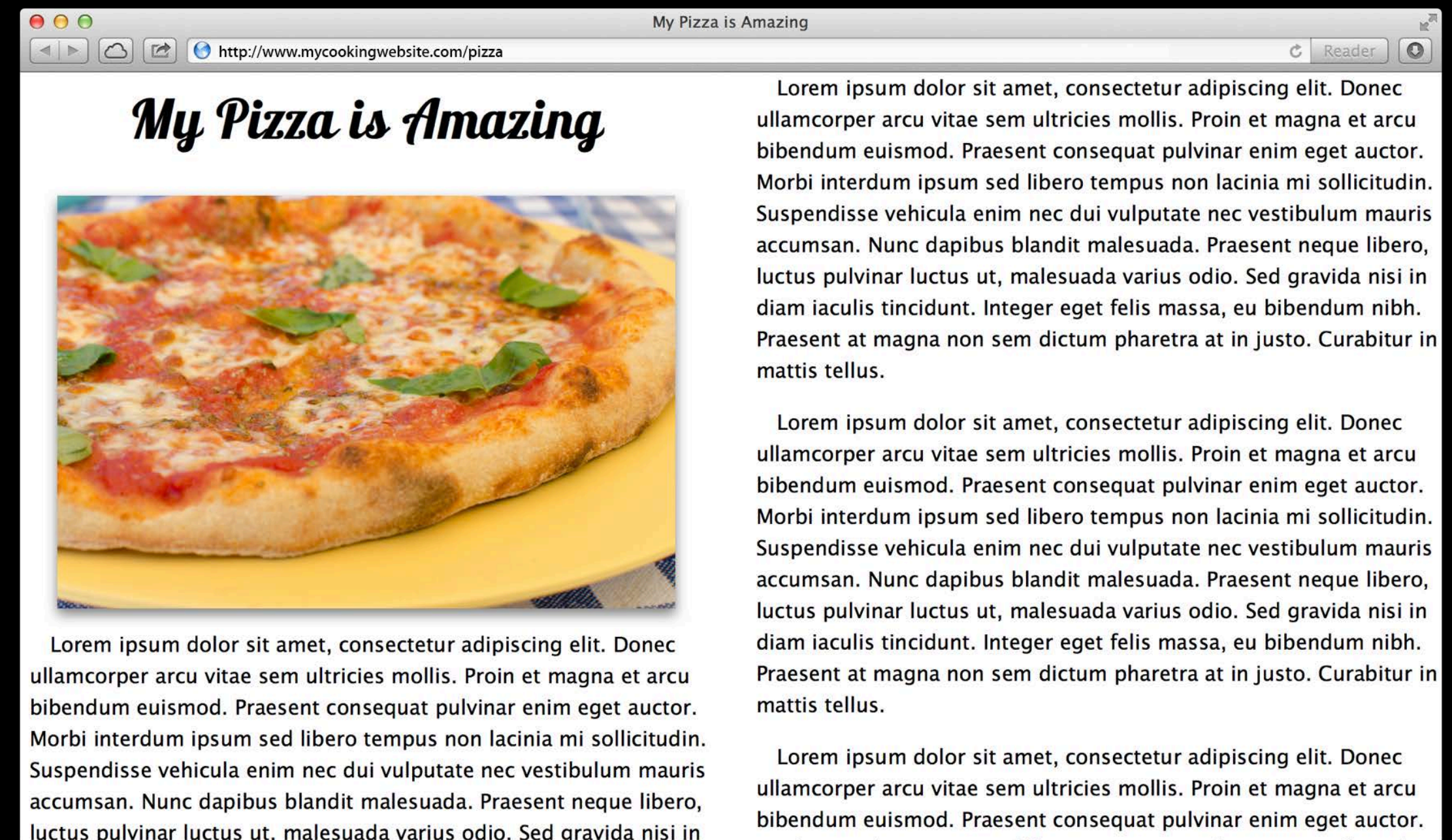
Columns and Pagination

```
#main-content {  
  -webkit-column-width: 550px;  
}
```



Columns and Pagination

```
#main-content {  
  -webkit-column-count: 2;  
}
```



Columns and Pagination

CSS properties to style columns

Columns and Pagination

CSS properties to style columns

`-webkit-column-gap`

`-webkit-column-rule`

`-webkit-column-rule-color`

`-webkit-column-rule-style`

`-webkit-column-rule-width`

`-webkit-column-break-after`

`-webkit-column-break-before`

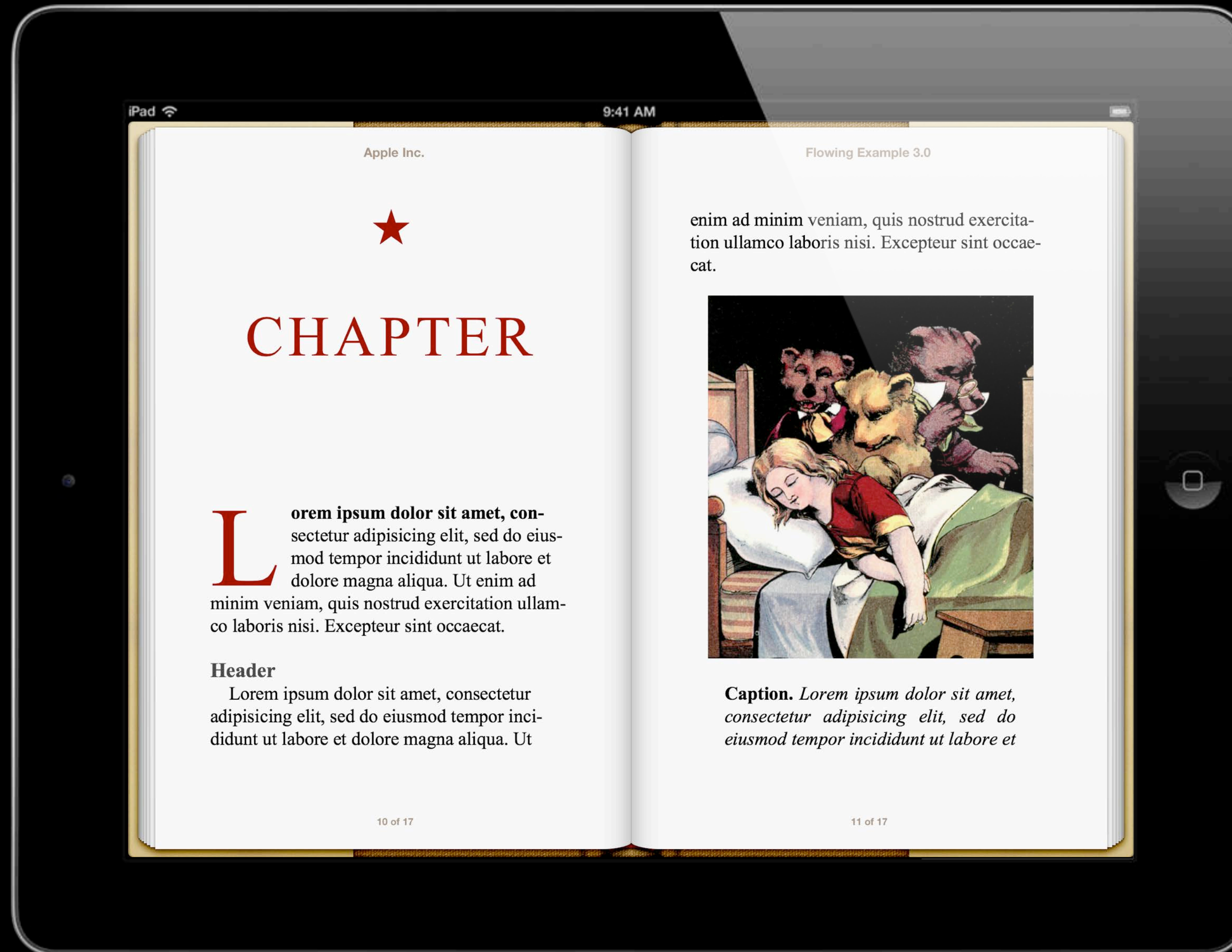
`-webkit-column-break-inside`

`-webkit-column-span`

`-webkit-column-axis`

`-webkit-column-progression`

Columns and Pagination



Columns and Pagination

UIWebView with a long document

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

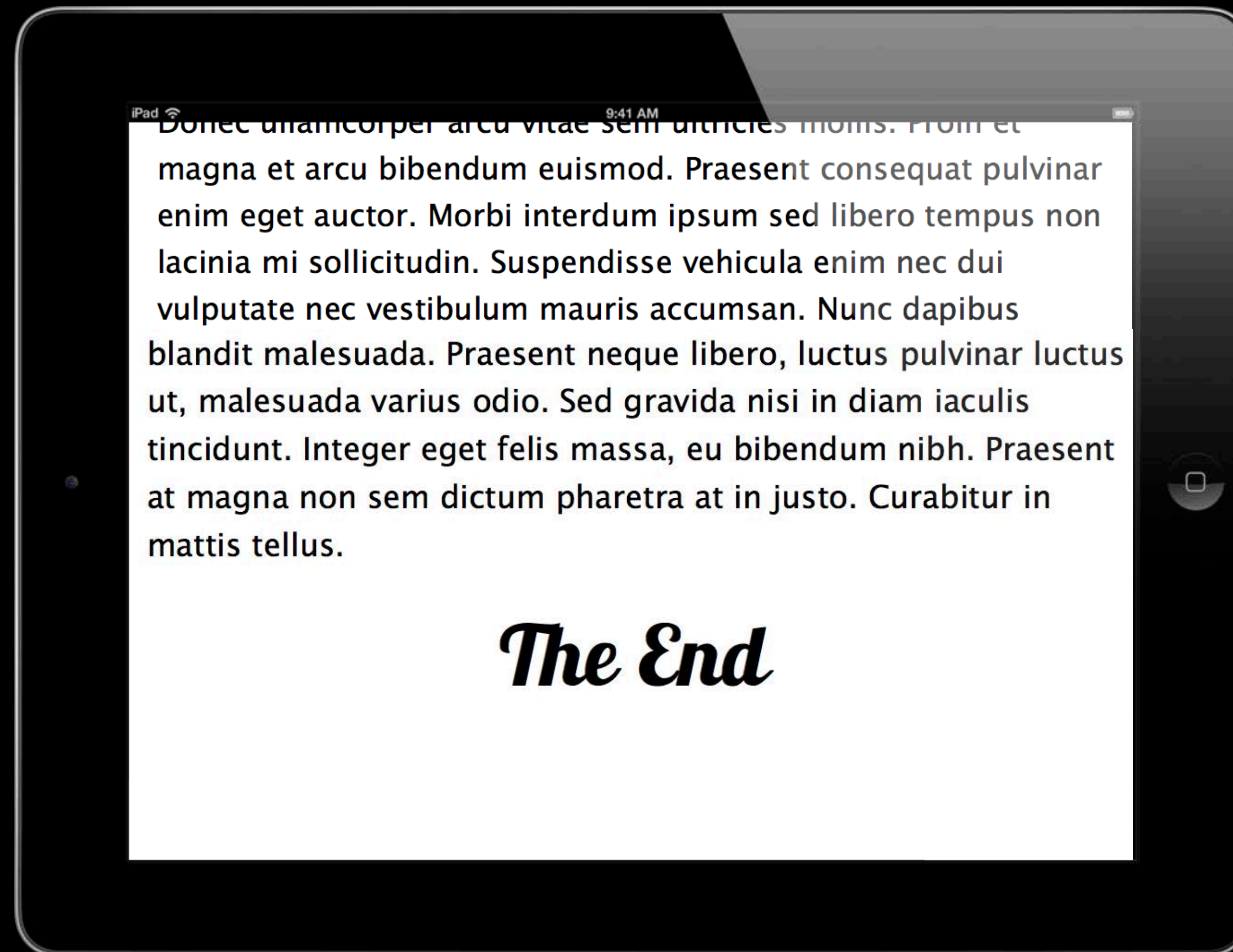
Columns and Pagination

UIWebView with a long document



Columns and Pagination

UIWebView with a long document



Columns and Pagination

UIWebView with a long document

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

Columns and Pagination

UIWebView with a long document

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

Columns and Pagination

iOS API is for you if...

- You want to paginate the entire UIWebView as a whole
- You don't control the content your app displays

Columns and Pagination

iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;  
myUIWebView.pageLength = 600;  
myUIWebView.pageGap = 25;  
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

Columns and Pagination

iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;
```

```
myUIWebView.pageLength = 600;
```

```
myUIWebView.pageGap = 25;
```

```
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

Columns and Pagination

iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;
```

```
myUIWebView.pageLength = 600;
```

```
myUIWebView.pageGap = 25;
```

```
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

Columns and Pagination

iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;
```

```
myUIWebView.pageLength = 600;
```

```
myUIWebView.pageGap = 25;
```

```
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

My Pizza is Amazing



>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End



pageLength

Columns and Pagination

iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;  
myUIWebView.pageLength = 600;  
myUIWebView.pageGap = 25;  
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

Columns and Pagination

iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;  
myUIWebView.pageLength = 600;  
myUIWebView.pageGap = 25;  
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

My Pizza is Amazing



>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

...

...

The End

↔
pageGap

Columns and Pagination

iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;
```

```
myUIWebView.pageLength = 600;
```

```
myUIWebView.pageGap = 25;
```

```
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

Columns and Pagination

iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;  
myUIWebView.pageLength = 600;  
myUIWebView.pageGap = 25;  
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

My Pizza is Amazing



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

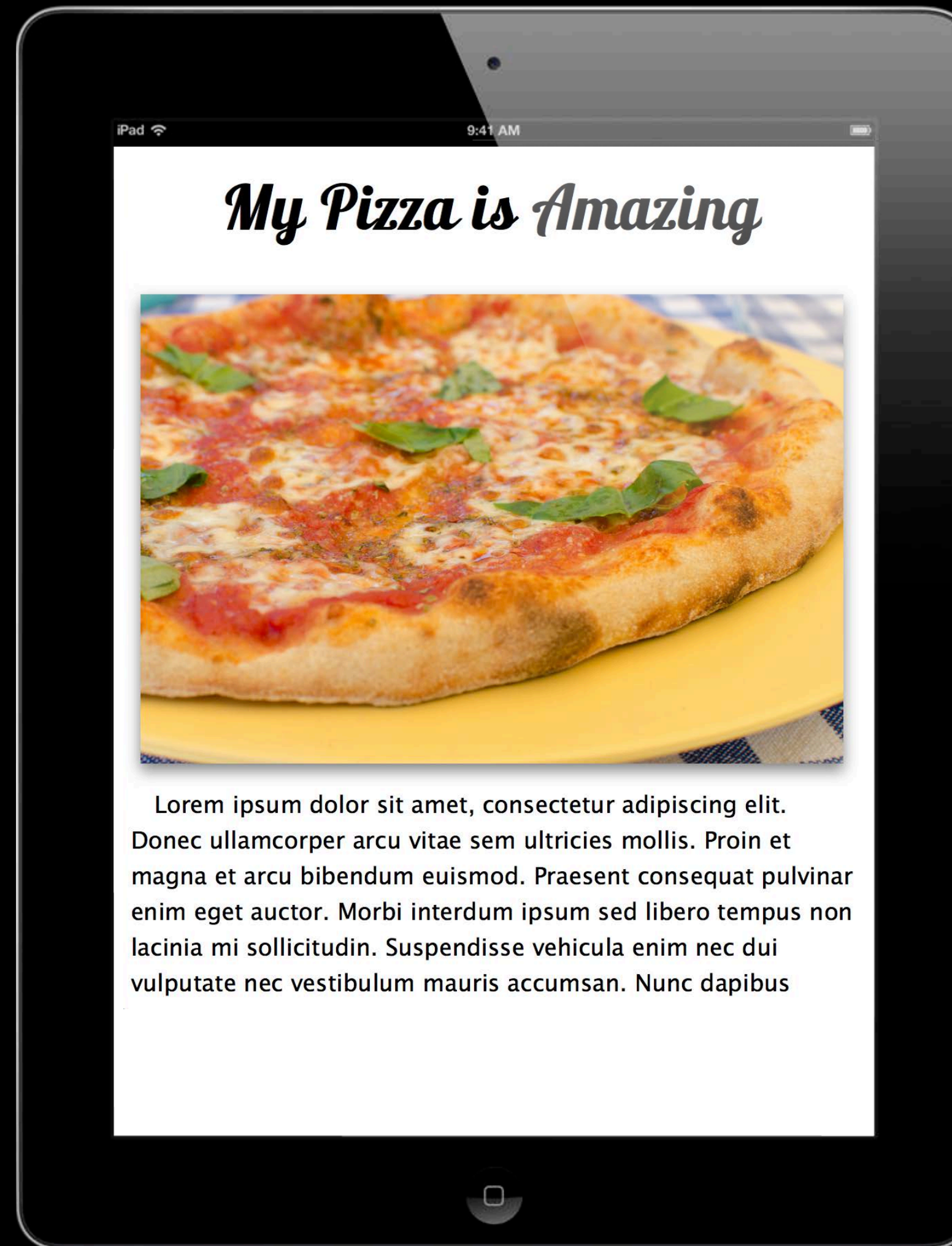
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ullamcorper arcu vitae sem ultricies mollis. Proin et magna et arcu bibendum euismod. Praesent consequat pulvinar enim eget auctor. Morbi interdum ipsum sed libero tempus non lacinia mi sollicitudin. Suspendisse vehicula enim nec dui vulputate nec vestibulum mauris accumsan. Nunc dapibus

blandit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

The End

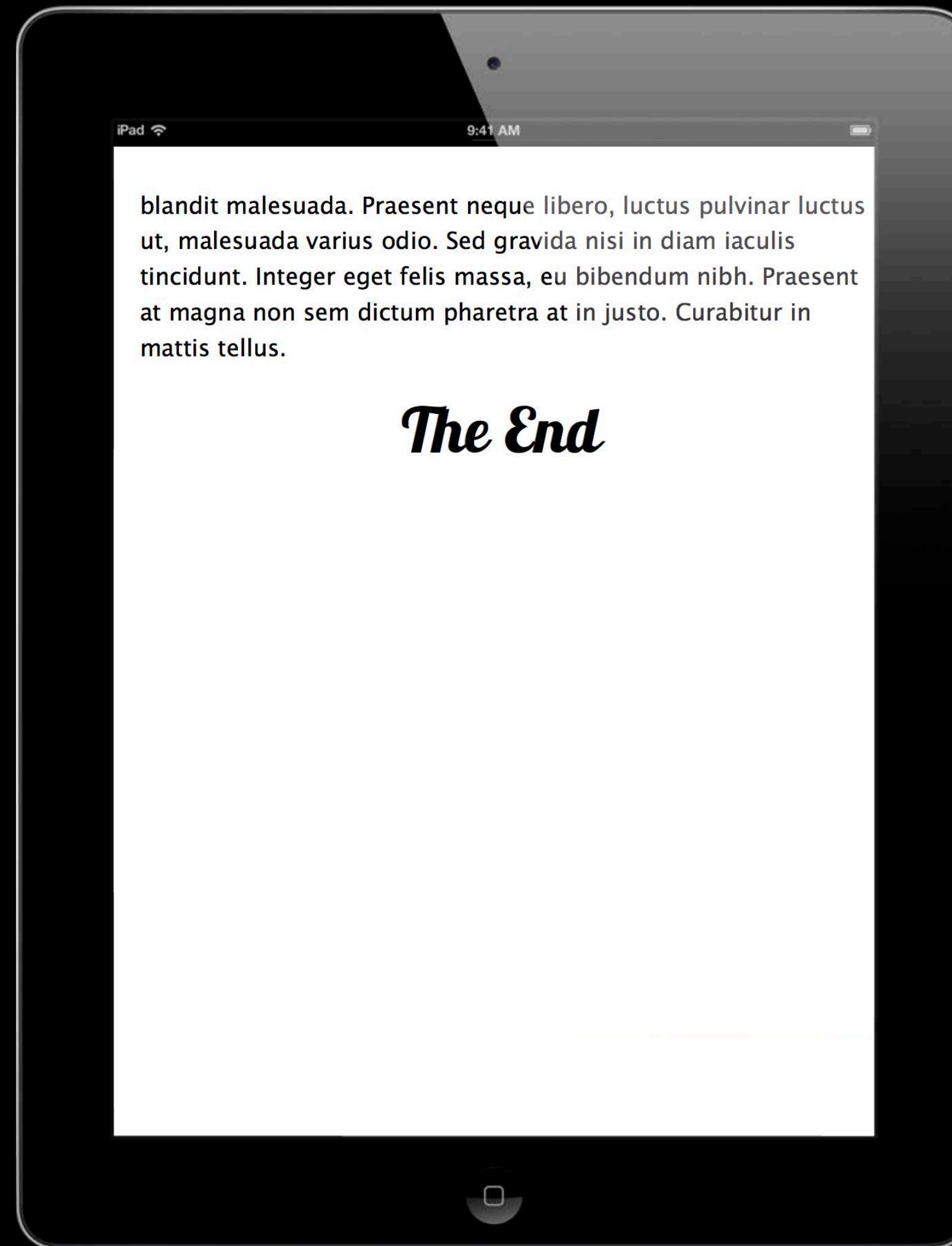
Columns and Pagination

iOS API



Columns and Pagination

iOS API



New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes

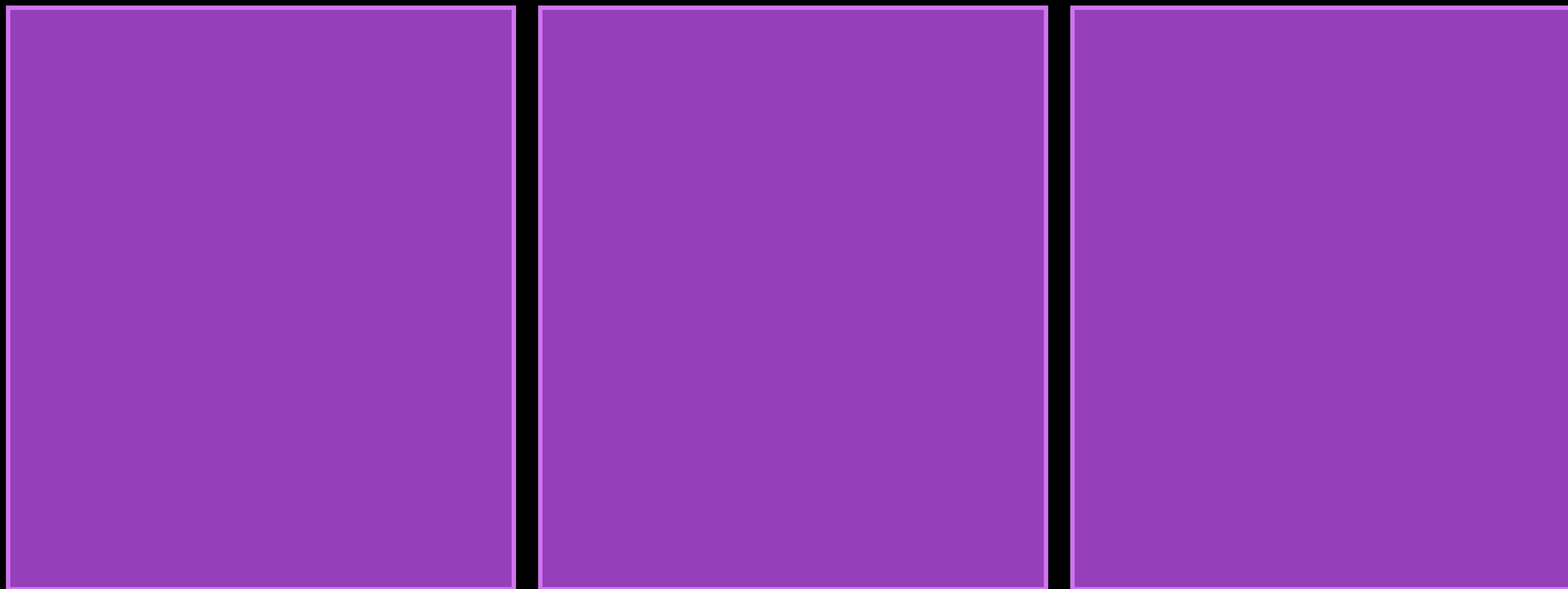


New Layout Models

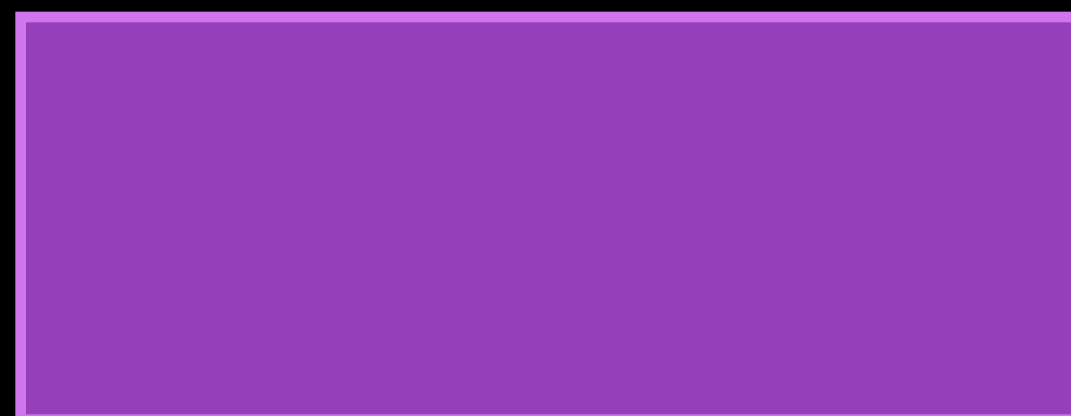
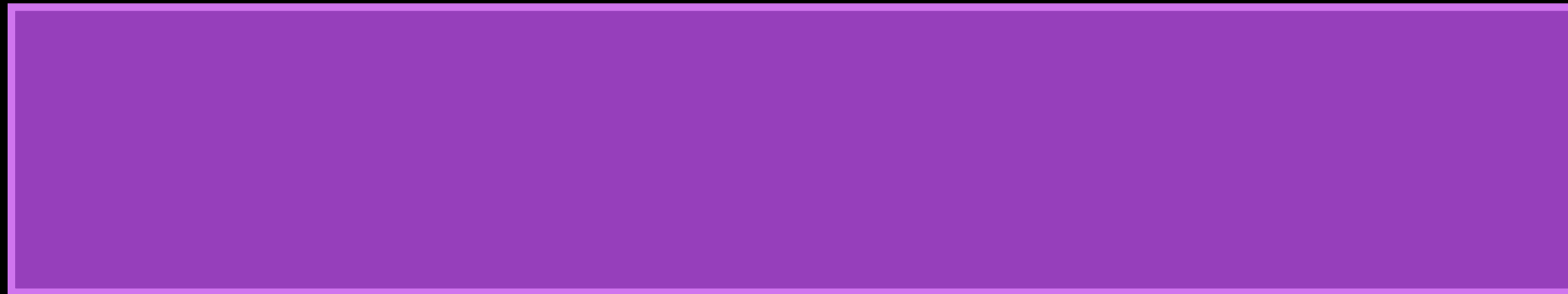
- Columns and pagination
- CSS Regions
- Flexible boxes



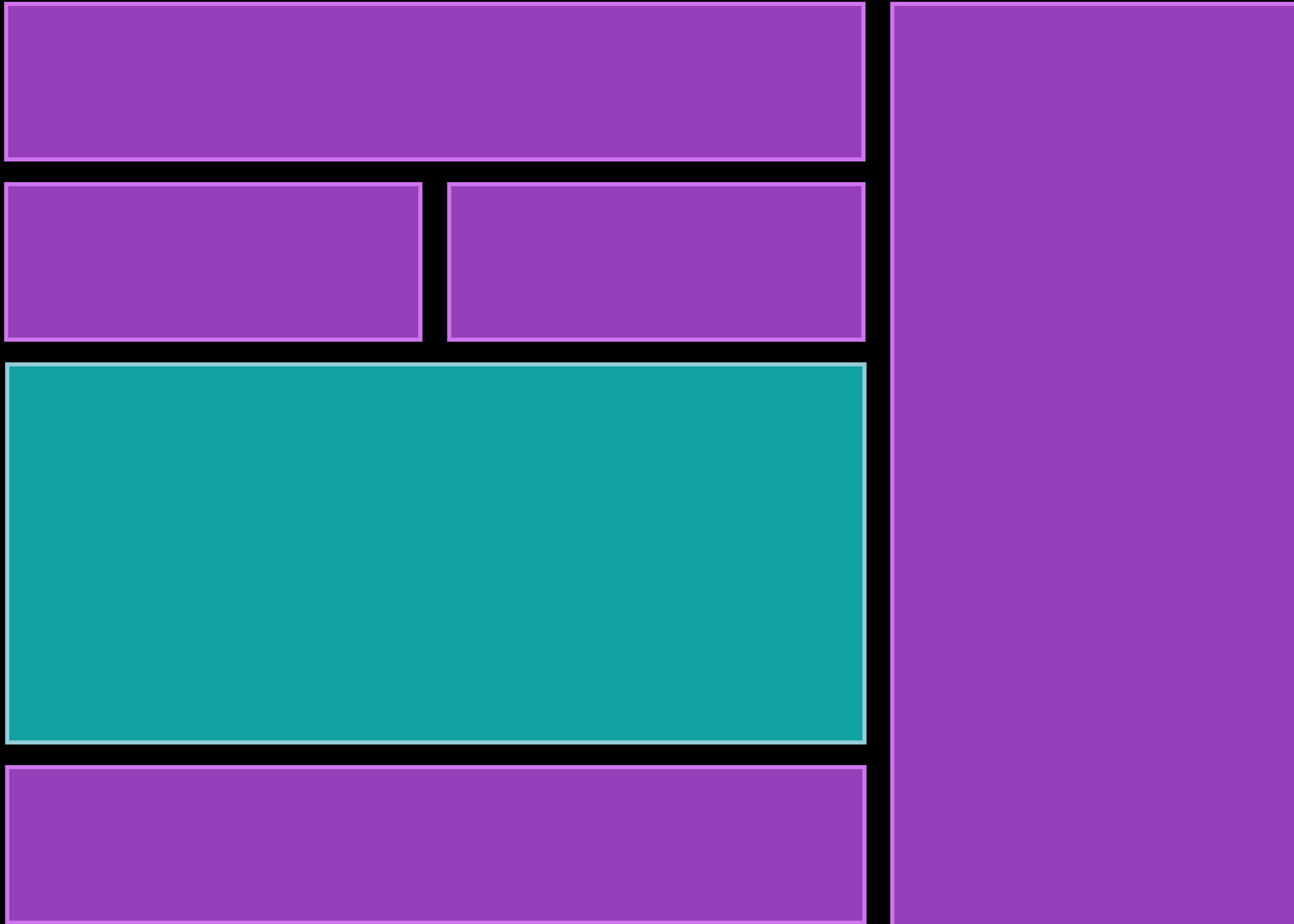
CSS Regions



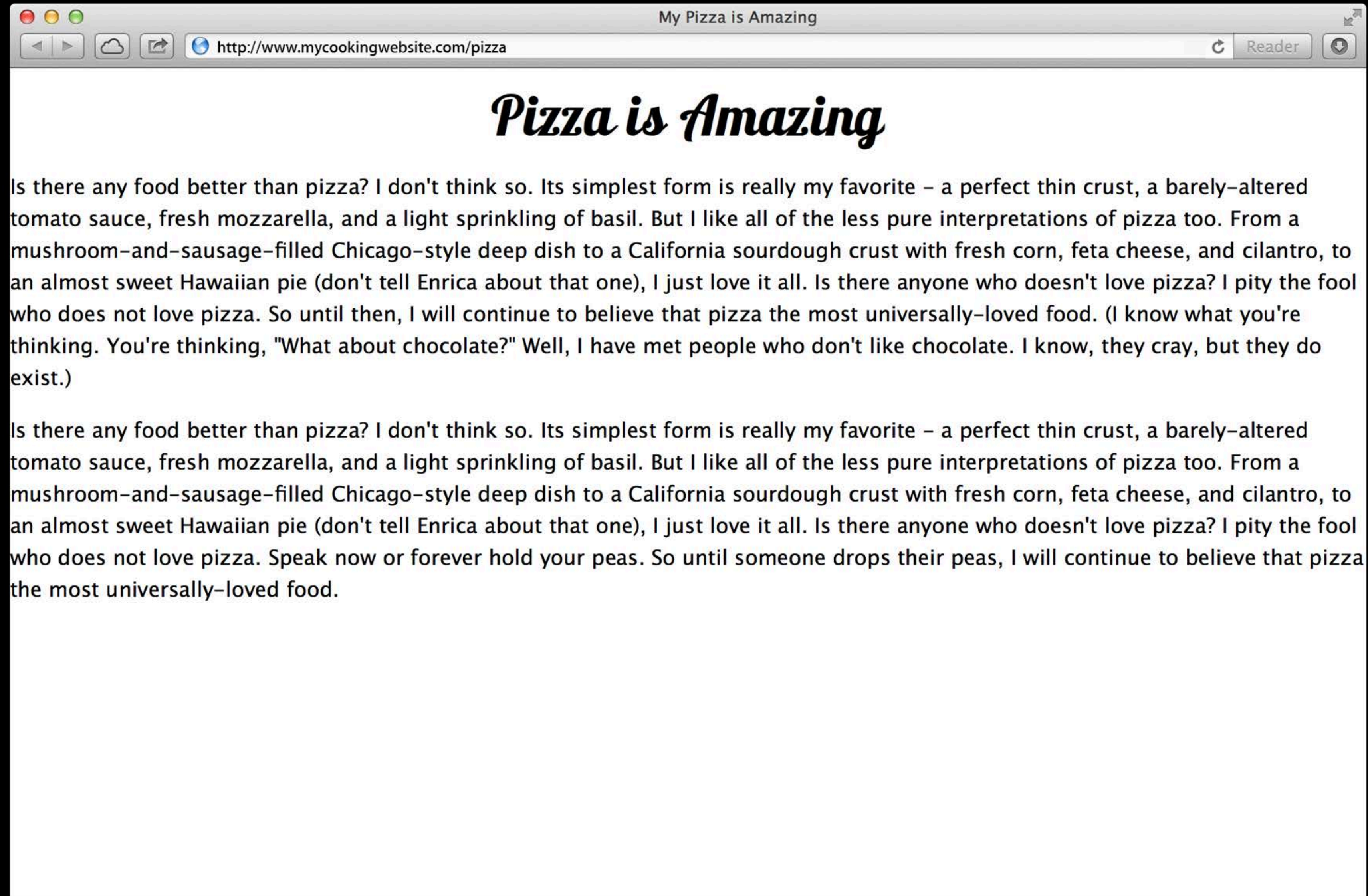
CSS Regions



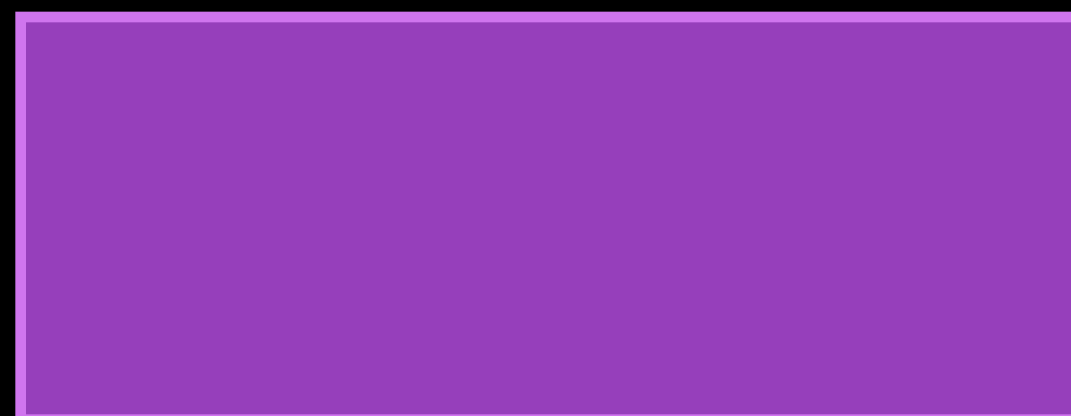
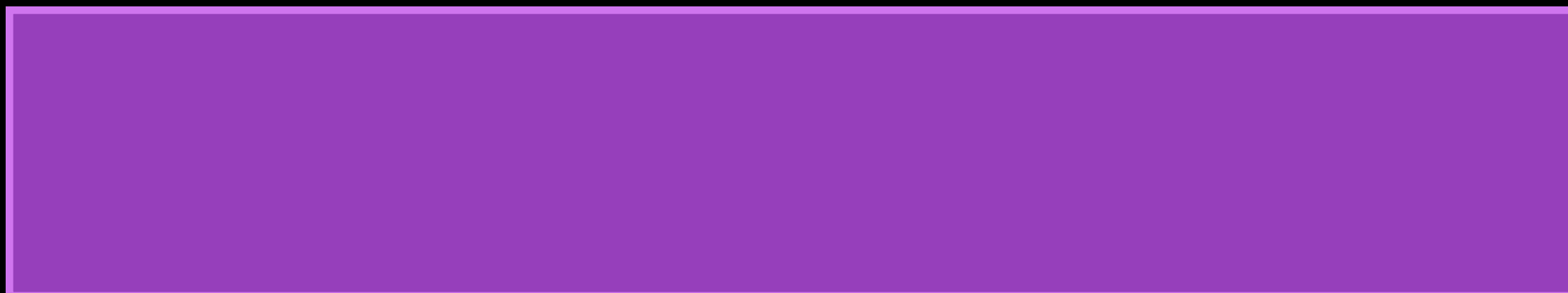
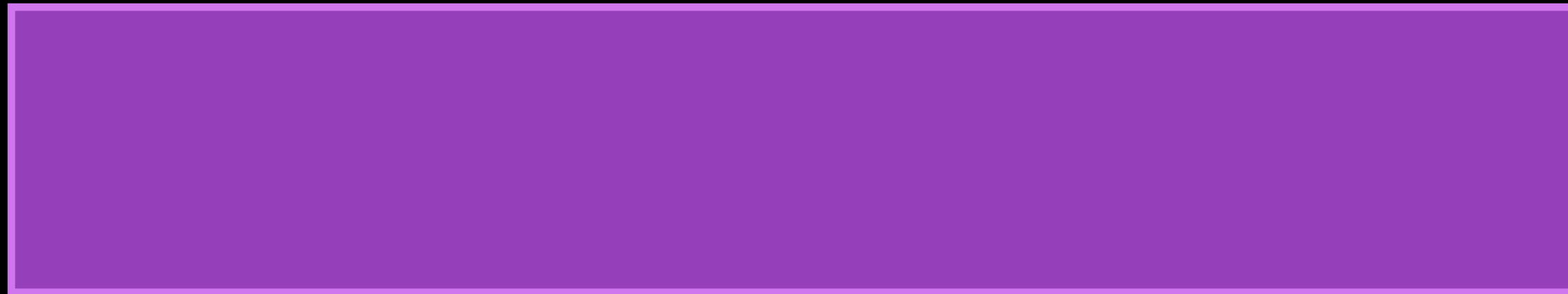
CSS Regions



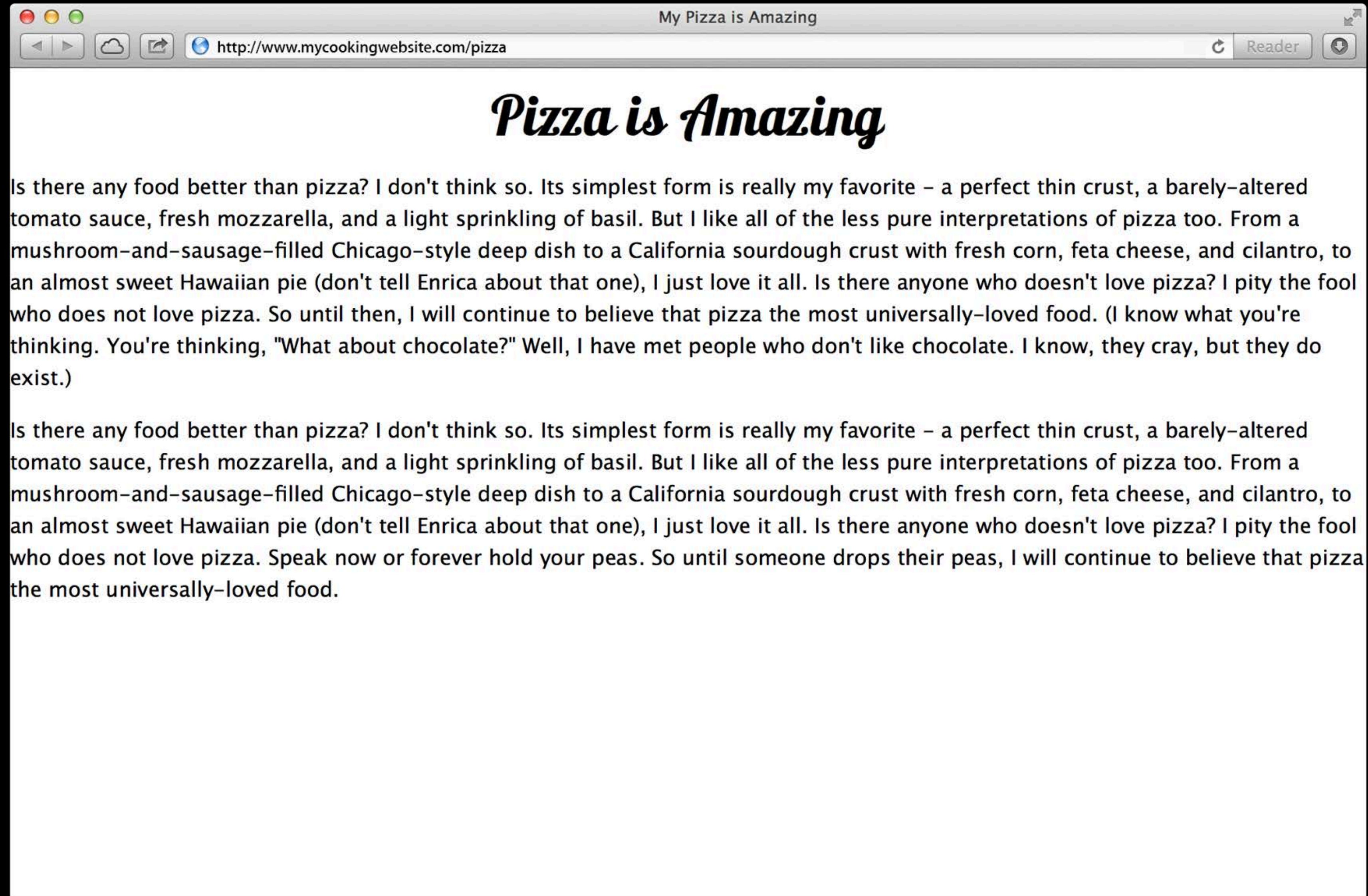
CSS Regions



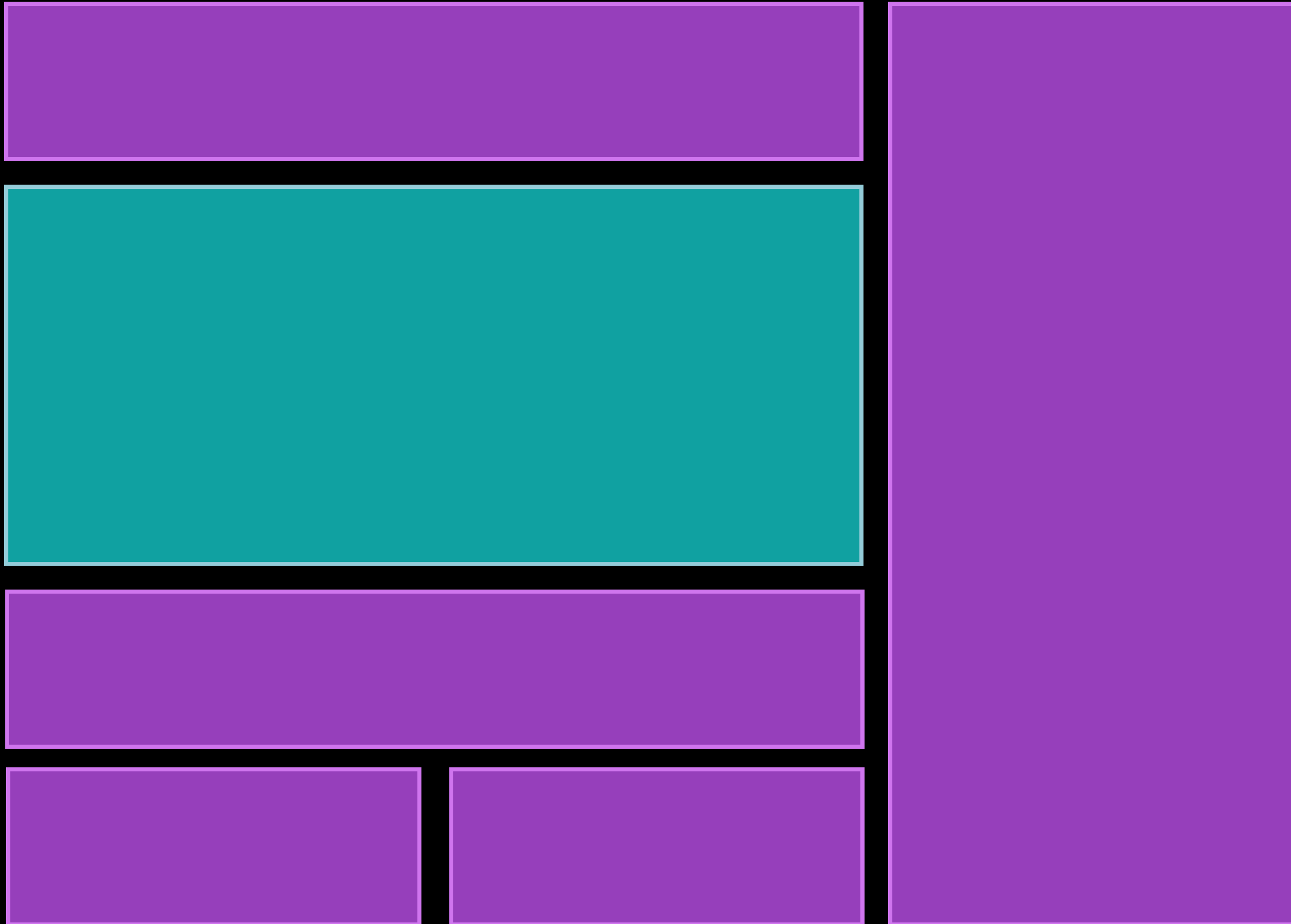
CSS Regions



CSS Regions



CSS Regions



CSS Regions

Pizza is Amazing

Is there any food better than pizza? I don't think so. Its simplest form is

really my favorite
- a perfect thin

crust, a barely-
-altered tomato

sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust.

CSS Regions

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>  
  
<div class="region" id="region-2"></div>  
<div class="region" id="region-3"></div>  
<div class="region" id="region-4"></div>  
<div class="region" id="region-5"></div>
```

CSS Regions

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>  
  
<div class="region" id="region-2"></div>  
<div class="region" id="region-3"></div>  
<div class="region" id="region-4"></div>  
<div class="region" id="region-5"></div>
```


CSS Regions

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>  
  
<div class="region" id="region-2"></div>  
<div class="region" id="region-3"></div>  
<div class="region" id="region-4"></div>  
<div class="region" id="region-5"></div>
```

CSS Regions

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>  
  
<div class="region" id="region-2"></div>  
<div class="region" id="region-3"></div>  
<div class="region" id="region-4"></div>  
<div class="region" id="region-5"></div>
```

CSS Regions

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>
```

```

```

```
<div class="region" id="region-2"></div>
```

```
<div class="region" id="region-3"></div>
```

```
<div class="region" id="region-4"></div>
```

```
<div class="region" id="region-5"></div>
```

CSS Regions

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>  
  
<div class="region" id="region-2"></div>  
<div class="region" id="region-3"></div>  
<div class="region" id="region-4"></div>  
<div class="region" id="region-5"></div>
```

CSS Regions

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>  
  
<div class="region" id="region-2"></div>  
<div class="region" id="region-3"></div>  
<div class="region" id="region-4"></div>  
<div class="region" id="region-5"></div>
```

CSS Regions



```
<style>
.region {
  -webkit-flow-from: pizza-manifesto;
}
</style>
```

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>
```

```
...
```

```
<div class="region" id="region-5"></div>
```

CSS Regions



```
<style>
#flow-content {
    -webkit-flow-into: pizza-manifesto;
}

.region {
    -webkit-flow-from: pizza-manifesto;
}
</style>

<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>

<div class="region" id="region-1"></div>
...
<div class="region" id="region-5"></div>
```

CSS Regions



```
<style>
#flow-content {
  -webkit-flow-into: pizza-manifesto;
}

.region {
  -webkit-flow-from: pizza-manifesto;
}
</style>

<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>


<div class="region" id="region-1"></div>
...
<div class="region" id="region-5"></div>
```


CSS Regions

My Pizza is Amazing

http://www.mycookingwebsite.com/pizza

Pizza is Amazing



Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too.

From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who

doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)


Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until someone drops their peas, I will continue to believe that pizza the most universally-loved food.

CSS Regions

My Pizza is Amazing

http://www.mycookingwebsite.com/pizza

Pizza is Amazing



Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too.

From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who

doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)

Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until someone drops their peas, I will continue to believe that pizza the most universally-loved food.

CSS Regions



```
<style>
@-webkit-region #region-2 {
  p {
    color: green;
  }
}
</style>
```

```
<div class="region" id="region-1"></div>

<div class="region" id="region-2"></div>
<div class="region" id="region-3"></div>
<div class="region" id="region-4"></div>
<div class="region" id="region-5"></div>
```

Demo

Enrica Casucci

Safari and WebKit Engineer

New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes

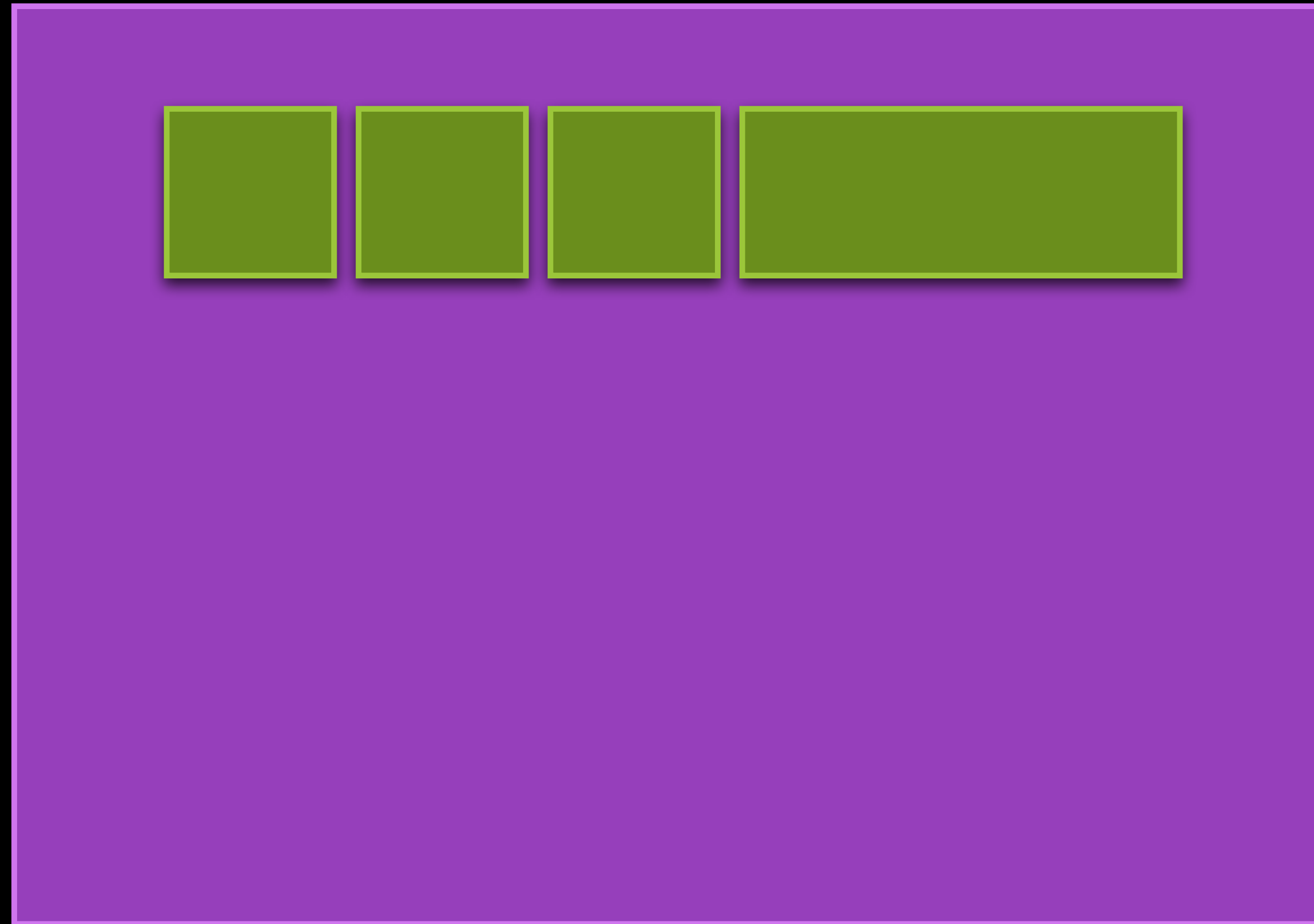


New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes



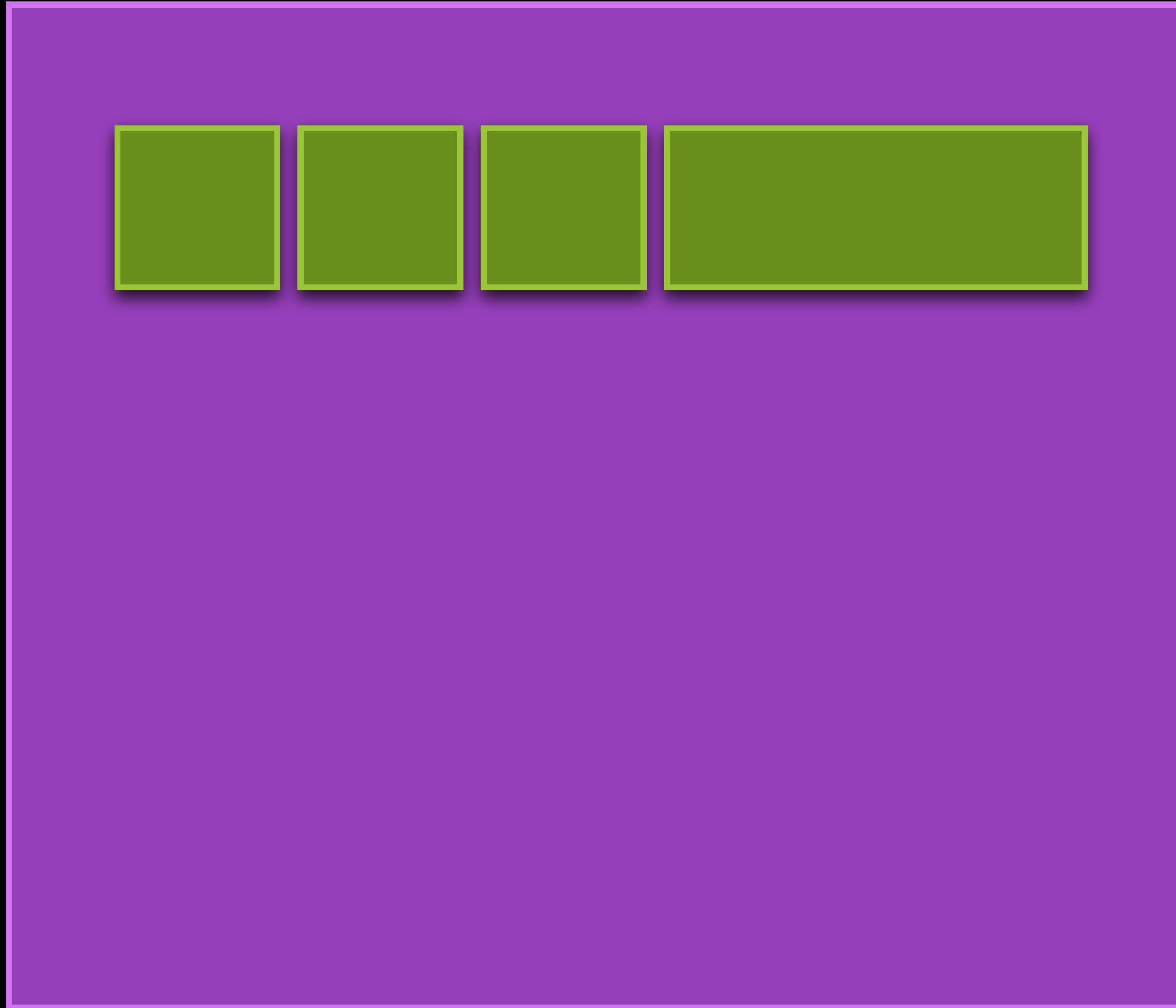
Flexbox



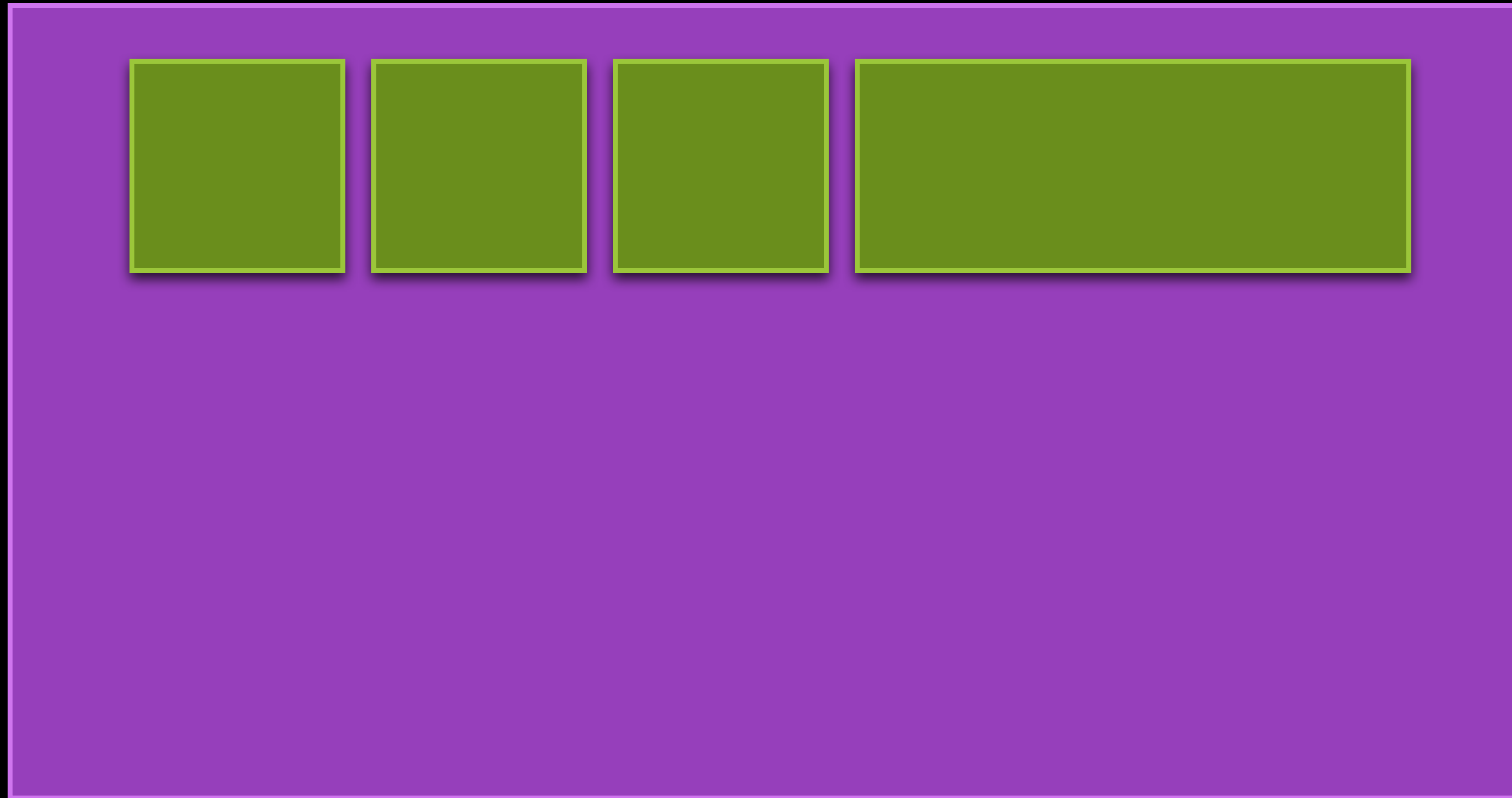
Flexbox



Flexbox



Flexbox



Flexbox

Old syntax

```
.flex-container {  
    display: -webkit-box;  
}
```

```
.flex-child {  
    -webkit-box-flex: 1;  
}
```

Flexbox

Old syntax

```
.flex-container {  
  display: -webkit-box;  
}
```

```
.flex-child {  
  -webkit-box-flex: 1;  
}
```



Flexbox

The screenshot displays the Mac App Store interface with a navigation bar at the top containing icons for Featured, Top Charts, Categories, Purchases, and Updates. A search bar is located in the top right corner. The main content area is divided into several sections:

- Editors' Choice:** A large banner for the game "BLAST AWAY" featuring a character on a red platform. Below the banner, it says: "An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages."
- New and Noteworthy:** A grid of 16 app tiles, each with an icon, title, category, ratings, and price. The apps include:
 - Blast-A-Way (Games, 11 Ratings, \$4.99)
 - MacFamilyTree 7 (Productivity, 14 Ratings, \$29.99)
 - Gears (Games, 5 Ratings, \$4.99)
 - Human Japanese Intermediate (Education, 7 Ratings, \$9.99)
 - Clear Day - (Form... (Weather, 266 Ratings, \$3.99)
 - Tweetbot for Twitter (Social Networking, 15 Ratings, \$19.99)
 - ReadKit (News, 9 Ratings, \$4.99)
 - rubiTrack 3 (Health & Fitness, 14 Ratings, \$19.99)
 - DocWallet (Productivity, 6 Ratings, FREE)
 - City Of Secrets 2 E... (Games, \$2.99)
 - FLASHOUT 3D (Games, 6 Ratings, \$4.99)
 - The Mirror Mysteri... (Games, \$6.99)
 - Fire & Forget The F... (Games, \$9.99)
 - Desert Stormfront (Games, \$9.99)
 - Supreme Ruler Col... (Games, \$19.99)
 - Secret of the Magic... (Games, \$2.99)
- Quick Links:** A list of links including "Welcome Beth", "Account", "Redeem", "Support", "All Categories", "OS X Mountain Lion", "Apple Apps", "New to the Mac App Store?", "Editors' Choice", "App Development", "Game Center", "Great Free Apps", "Better Together", and "Macs In Class".
- Top Paid:** A section titled "Top Paid" with a "See All" link, showing a list of top-selling apps:
 - OS X Mountain Lion (Productivity)
 - Pages (Productivity)

At the bottom of the screen, there are several category banners: "GAMES", "New to the Mac App Store?", "New to the Mac App Store?", "Great Free Apps", "@WORK", and "Quick-Fix Games".

Flexbox

The screenshot displays the Mac App Store interface with a navigation bar at the top containing icons for Featured, Top Charts, Categories, Purchases, and Updates, along with a search bar. The main content area features an 'Editors' Choice' banner for the game 'Blast-A-Way' with a 3D character on a red platform. Below this is a grid of app tiles under the 'New and Noteworthy' section. On the right, there are 'Quick Links' and 'Top Paid' sections.

Editors' Choice

BLAST AWAY

An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.

GAME CENTER

Human Japanese INTERMEDIATE

MacFamilyTree 7

New and Noteworthy See All >

Blast-A-Way Games ★★★★☆ 11 Ratings \$4.99	MacFamilyTree 7 Productivity ★★★★☆ 14 Ratings \$29.99	Gears Games ★★★★☆ 5 Ratings \$4.99
Human Japanese Int... Education ★★★★☆ 7 Ratings \$9.99	Clear Day - (Formerl... Weather ★★★★☆ 266 Ratings \$3.99	Tweetbot for Twitter Social Networking ★★★★☆ 15 Ratings \$19.99
ReadKit News ★★★★☆ 9 Ratings \$4.99	rubiTrack 3 Health & Fitness ★★★★☆ 14 Ratings \$19.99	DocWallet Productivity ★★★★☆ 6 Ratings FREE
City Of Secrets 2 Epi... Games \$2.99	FLASHOUT 3D Games ★★★★☆ 6 Ratings \$4.99	The Mirror Mysteries... Games \$6.99

Quick Links

- Welcome Beth
- Account
- Redeem
- Support

All Categories

- OS X Mountain Lion
- Apple Apps
- New to the Mac App Store?
- Editors' Choice
- App Development
- Game Center
- Great Free Apps
- Better Together
- Macs In Class

Top Paid See All >

Flexbox

The screenshot displays the Mac App Store interface. At the top, there are navigation tabs: Featured, Top Charts, Categories, Purchases, and Updates. A search bar is located on the right. The main banner features the 'Editors' Choice' app, 'Blast-A-Way', with a description: 'An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.' To the right of the banner are two smaller app tiles: 'GAME CENTER' and 'Human Japanese INTERMEDIATE'. Below the banner is a 'New and Noteworthy' section with a 'See All >' link. This section contains a grid of app tiles, with three highlighted in yellow: 'Blast-A-Way' (Games, \$4.99, 11 Ratings), 'MacFamilyTree 7' (Productivity, \$29.99, 14 Ratings), and 'Gears' (Games, \$4.99, 5 Ratings). Other visible app tiles include 'Human Japanese Int...', 'Clear Day - (Formerl...', 'Tweetbot for Twitter', 'ReadKit', 'rubiTrack 3', 'DocWallet', 'City Of Secrets 2 Epi...', 'FLASHOUT 3D', and 'The Mirror Mysteries...'. On the right side, there is a 'Quick Links' section with links like 'Welcome Beth', 'Account', 'Redeem', 'Support', and a list of categories including 'OS X Mountain Lion', 'Apple Apps', 'New to the Mac App Store?', 'Editors' Choice', 'App Development', 'Game Center', 'Great Free Apps', 'Better Together', and 'Macs In Class'. At the bottom right, there is a 'Top Paid' section with a 'See All >' link.

Flexbox

The screenshot displays the Mac App Store interface. At the top, navigation tabs include 'Featured', 'Top Charts', 'Categories', 'Purchases', and 'Updates'. A search bar is located in the top right corner. The main banner features the 'Editors' Choice' app 'Blast-A-Way' with a description: 'An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.' Below the banner is a 'New and Noteworthy' section with a 'See All >' link. This section contains a grid of app cards, with 'Blast-A-Way', 'MacFamilyTree 7', and 'Gears' highlighted with a yellow border. Other visible app cards include 'Human Japanese Intermediate', 'Clear Day - (Formerly Weather)', 'Tweetbot for Twitter', 'ReadKit', 'rubiTrack 3', 'DocWallet', 'City Of Secrets 2 Episode 1', 'FLASHOUT 3D', and 'The Mirror Mysteries'. On the right side, there is a 'Quick Links' section with options like 'Welcome Beth', 'Account', 'Redeem', and 'Support', along with an 'All Categories' dropdown menu. At the bottom right, a 'Top Paid' section is partially visible.

Editors' Choice

BLAST-A-WAY

An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.

GAME CENTER

Human Japanese INTERMEDIATE

MacFamilyTree 7

New and Noteworthy See All >

Blast-A-Way
Games
★★★★☆ 11 Ratings
\$4.99

MacFamilyTree 7
Productivity
★★★★☆ 14 Ratings
\$29.99

Gears
Games
★★★★☆ 5 Ratings
\$4.99

Human Japanese Int...
Education
★★★★☆ 7 Ratings
\$9.99

Clear Day - (Formerl...
Weather
★★★★☆ 266 Ratings
\$3.99

Tweetbot for Twitter
Social Networking
★★★★☆ 15 Ratings
\$19.99

ReadKit
News
★★★★☆ 9 Ratings
\$4.99

rubiTrack 3
Health & Fitness
★★★★☆ 14 Ratings
\$19.99

DocWallet
Productivity
★★★★☆ 6 Ratings
FREE

City Of Secrets 2 Epi...
Games
\$2.99

FLASHOUT 3D
Games
★★★★☆ 6 Ratings
\$4.99

The Mirror Mysteries...
Games
\$6.99

Quick Links

- Welcome Beth
- Account
- Redeem
- Support

All Categories

- OS X Mountain Lion
- Apple Apps
- New to the Mac App Store?
- Editors' Choice
- App Development
- Game Center
- Great Free Apps
- Better Together
- Macs In Class

Top Paid See All >

Flexbox

The screenshot displays the Mac App Store interface. At the top, navigation tabs include 'Featured', 'Top Charts', 'Categories', 'Purchases', and 'Updates'. A search bar is located in the top right corner. The main content area features a large 'Editors' Choice' banner for the game 'Blast-A-Way'. Below this banner is a section titled 'New and Noteworthy' with a 'See All >' link. This section contains a grid of app cards, each with an icon, title, category, ratings, and price. The 'Blast-A-Way' card is highlighted with a yellow border. To the right of the main content is a sidebar with a 'GAME CENTER' header, a 'Human Japanese INTERMEDIATE' app card, and a 'MacFamilyTree 7' app card. Below these are 'Quick Links' and 'All Categories' sections.

Editors' Choice

BLAST-A-WAY

An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.

New and Noteworthy See All >

App Name	Category	Ratings	Price
Blast-A-Way	Games	11 Ratings	\$4.99
MacFamilyTree 7	Productivity	14 Ratings	\$29.99
Gears	Games	5 Ratings	\$4.99
Human Japanese Int...	Education	7 Ratings	\$9.99
Clear Day - (Formerl...	Weather	266 Ratings	\$3.99
Tweetbot for Twitter	Social Networking	15 Ratings	\$19.99
ReadKit	News	9 Ratings	\$4.99
rubiTrack 3	Health & Fitness	14 Ratings	\$19.99
DocWallet	Productivity	6 Ratings	FREE
City Of Secrets 2 Epi...	Games		\$2.99
FLASHOUT 3D	Games	6 Ratings	\$4.99
The Mirror Mysteries...	Games		\$6.99

GAME CENTER

Human Japanese INTERMEDIATE

MacFamilyTree 7

Quick Links

- Welcome Beth
- Account
- Redeem
- Support

All Categories

- OS X Mountain Lion
- Apple Apps
- New to the Mac App Store?
- Editors' Choice
- App Development
- Game Center
- Great Free Apps
- Better Together
- Macs In Class

Top Paid See All >

Flexbox

The screenshot displays the Mac App Store interface with a navigation bar at the top containing icons for Featured, Top Charts, Categories, Purchases, and Updates. A search bar is located in the top right corner. The main content area is divided into several sections:

- Editors' Choice:** A large banner for the game "Blast-A-Way" featuring a character on a red platform. Below the banner, it says: "An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages."
- New and Noteworthy:** A grid of 16 app tiles, each with an icon, title, category, ratings, and price. The apps include:
 - Blast-A-Way (Games, 11 Ratings, \$4.99)
 - MacFamilyTree 7 (Productivity, 14 Ratings, \$29.99)
 - Gears (Games, 5 Ratings, \$4.99)
 - Human Japanese Intermediate (Education, 7 Ratings, \$9.99)
 - Clear Day - (Form... (Weather, 266 Ratings, \$3.99)
 - Tweetbot for Twitter (Social Networking, 15 Ratings, \$19.99)
 - ReadKit (News, 9 Ratings, \$4.99)
 - rubiTrack 3 (Health & Fitness, 14 Ratings, \$19.99)
 - DocWallet (Productivity, 6 Ratings, FREE)
 - City Of Secrets 2 E... (Games, \$2.99)
 - FLASHOUT 3D (Games, 6 Ratings, \$4.99)
 - The Mirror Mysteri... (Games, \$6.99)
 - Fire & Forget The F... (Games, \$9.99)
 - Desert Stormfront (Games, \$9.99)
 - Supreme Ruler Col... (Games, \$19.99)
 - Secret of the Magic... (Games, \$2.99)
- Quick Links:** A list of links including "Welcome Beth", "Account", "Redeem", "Support", "All Categories", "OS X Mountain Lion", "Apple Apps", "New to the Mac App Store?", "Editors' Choice", "App Development", "Game Center", "Great Free Apps", "Better Together", and "Macs In Class".
- Top Paid:** A section titled "Top Paid" with a "See All" link, showing a list of top-selling apps:
 1. OS X Mountain Lion (Productivity)
 2. Pages (Productivity)

At the bottom of the screen, there are several category banners: "GAMES", "New to the Mac App Store?", "New to the Mac App Store?", "Great Free Apps", "@WORK", and "Quick-Fix Games".

Flexbox

The screenshot displays the Mac App Store interface with a grid of app cards. The top navigation bar includes 'Featured', 'Top Charts', 'Categories', 'Purchases', and 'Updates'. A search bar is located in the top right corner. The main content area is divided into several sections:

- Editors' Choice:** A large banner for the game 'BLAST AWAY' with a description: 'An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.'
- New and Noteworthy:** A section with a 'See All >' link, containing a grid of app cards. The first row of cards is highlighted with a yellow border:
 - Blast-A-Way Games:** 11 Ratings, \$4.99
 - MacFamilyTree 7 Productivity:** 14 Ratings, \$29.99
 - Gears Games:** 5 Ratings, \$4.99
 - Human Japanese In... Education:** 7 Ratings, \$9.99
- Quick Links:** A sidebar on the right with links for 'Welcome Beth', 'Account', 'Redeem', and 'Support'. Below this is a 'All Categories' dropdown menu.
- Top Paid:** A section with a 'See All >' link, showing a list of top-selling apps, including 'OS X Mountain Lion Productivity' and 'Pages Productivity'.

At the bottom of the screen, there are several promotional banners for 'GAMES', 'New to the Mac App Store?', 'Great Free Apps', '@WORK', and 'Quick-Fix Games'.

Flexbox

The screenshot displays the Mac App Store interface with a grid of app cards. A yellow border highlights the 'Editors' Choice' section at the top and the first row of app cards. The 'Editors' Choice' section features the game 'Blast-A-Way' with a description: 'An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.' Below this, the 'New and Noteworthy' section is visible, followed by a grid of app cards including 'Blast-A-Way Games', 'MacFamilyTree 7', 'Gears Games', 'Human Japanese Intermediate', 'Clear Day - (Formerly Weather)', 'Tweetbot for Twitter', 'ReadKit', 'rubiTrack 3', 'DocWallet', 'City Of Secrets 2 Episode 1', 'FLASHOUT 3D', 'The Mirror Mystery', 'Fire & Forget The Fire', 'Desert Stormfront', 'Supreme Ruler Collection', and 'Secret of the Magic Crystals'. On the right side, there are 'Quick Links' and 'Top Paid' sections. The 'Quick Links' section includes 'Welcome Beth', 'Account', 'Redeem', and 'Support'. The 'Top Paid' section lists '1. OS X Mountain Lion' and '2. Pages'. At the bottom, there are navigation buttons for 'GAMES', 'New to the Mac App Store?', 'New to the Mac App Store?', 'Great Free Apps', '@WORK', and 'Quick-Fix Games'.

Featured Top Charts Categories Purchases Updates

Editors' Choice

Blast-A-Way
Games
★★★★★ 11 Ratings
\$4.99

An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.

MacFamilyTree 7
Productivity
★★★★★ 14 Ratings
\$29.99

Gears
Games
★★★★★ 5 Ratings
\$4.99

Human Japanese Intermediate
Education
★★★★★ 7 Ratings
\$9.99

New and Noteworthy See All >

Clear Day - (Formerly Weather)
Weather
★★★★★ 266 Ratings
\$3.99

Tweetbot for Twitter
Social Networking
★★★★★ 15 Ratings
\$19.99

ReadKit
News
★★★★★ 9 Ratings
\$4.99

rubiTrack 3
Health & Fitness
★★★★★ 14 Ratings
\$19.99

DocWallet
Productivity
★★★★★ 6 Ratings
FREE

City Of Secrets 2 Episode 1
Games
\$2.99

FLASHOUT 3D
Games
★★★★★ 6 Ratings
\$4.99

The Mirror Mystery
Games
\$6.99

Fire & Forget The Fire
Games
\$9.99

Desert Stormfront
Games
\$9.99

Supreme Ruler Collection
Games
\$19.99

Secret of the Magic Crystals
Games
\$2.99

Quick Links

Welcome Beth
Account
Redeem
Support

All Categories

OS X Mountain Lion
Apple Apps
New to the Mac App Store?
Editors' Choice
App Development
Game Center
Great Free Apps
Better Together
Macs In Class

Top Paid See All >

1. OS X Mountain Lion
Productivity

2. Pages
Productivity

GAMES

New to the Mac App Store?

New to the Mac App Store?

Great Free Apps

@WORK

Quick-Fix Games

Flexbox

The screenshot displays the Mac App Store interface. At the top, there are navigation icons for Featured, Top Charts, Categories, Purchases, and Updates. A search bar is located in the top right corner. The main content area is divided into several sections:

- Editors' Choice:** A large banner for the game "Blast-A-Way" with the text "An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages."
- New and Noteworthy:** A section with a "See All" link, containing a grid of app cards. The first row of cards is highlighted with a yellow border and includes:
 - Blast-A-Way Games:** 11 Ratings, \$4.99
 - MacFamilyTree 7 Productivity:** 14 Ratings, \$29.99
 - Gears Games:** 5 Ratings, \$4.99
 - Human Japanese In... Education:** 7 Ratings, \$9.99

The sidebar on the right contains the following sections:

- Quick Links:** Welcome Beth, Account, Redeem, Support
- All Categories:** A dropdown menu
- OS X Mountain Lion**
- Apple Apps**
- New to the Mac App Store?**
- Editors' Choice**
- App Development**
- Game Center**
- Great Free Apps**
- Better Together**
- Macs In Class**
- Top Paid:** A section with a "See All" link, featuring a circular profile picture of a lion and a list:
 - OS X Mountain Lion** Productivity
 - Pages** Productivity

At the bottom of the screen, there are several category banners: "GAMES", "New to the Mac App Store?", "New to the Mac App Store?", "Great Free Apps", "@WORK", and "Quick-Fix Games".

Flexbox

The screenshot displays the Mac App Store interface. At the top, there are navigation icons for Featured, Top Charts, Categories, Purchases, and Updates, along with a search bar. The main banner features the 'Editors' Choice' app 'Blast-A-Way' with a description: 'An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.' To the right of the banner are three app tiles: 'GAME CENTER', 'Human Japanese INTERMEDIATE', and 'MacFamilyTree 7'.

New and Noteworthy See All >

Blast-A-Way Games ★★★★☆ 11 Ratings \$4.99	MacFamilyTree 7 Productivity ★★★★☆ 14 Ratings \$29.99	Gears Games ★★★★☆ 5 Ratings \$4.99
Human Japanese Int... Education ★★★★☆ 7 Ratings \$9.99	Clear Day - (Formerl... Weather ★★★★☆ 266 Ratings \$3.99	Tweetbot for Twitter Social Networking ★★★★☆ 15 Ratings \$19.99
ReadKit News ★★★★☆ 9 Ratings \$4.99	rubiTrack 3 Health & Fitness ★★★★☆ 14 Ratings \$19.99	DocWallet Productivity ★★★★☆ 6 Ratings FREE
City Of Secrets 2 Epi... Games \$2.99	FLASHOUT 3D Games ★★★★☆ 6 Ratings \$4.99	The Mirror Mysteries... Games \$6.99

Quick Links

- Welcome Beth
- Account
- Redeem
- Support













All Categories

- OS X Mountain Lion
- Apple Apps
- New to the Mac App Store?
- Editors' Choice
- App Development
- Game Center
- Great Free Apps
- Better Together
- Macs In Class

Top Paid See All >

Flexbox

The screenshot displays the Mac App Store interface. At the top, there are navigation icons for Featured, Top Charts, Categories, Purchases, and Updates, along with a search bar. The main banner features the 'Editors' Choice' app 'Blast-A-Way' with a description: 'An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.' To the right of the banner are two smaller app cards: 'GAME CENTER' and 'Human Japanese INTERMEDIATE'. Below the banner is a 'New and Noteworthy' section with a grid of app cards. Each card includes an app icon, title, category, star ratings, and price. The 'Quick Links' sidebar on the right contains links for user account management, category filters, and featured content. The 'Top Paid' section is partially visible at the bottom right.

New and Noteworthy		
 Blast-A-Way Games ★ ★ ★ ★ ★ 11 Ratings \$4.99	 MacFamilyTree 7 Productivity ★ ★ ★ ★ ★ 14 Ratings \$29.99	 Gears Games ★ ★ ★ ★ ★ 5 Ratings \$4.99
 Human Japanese Intermediate Education ★ ★ ★ ★ ★ 7 Ratings \$9.99	 Clear Day - (Formerly Weather) Weather ★ ★ ★ ★ ★ 266 Ratings \$3.99	 Tweetbot for Twitter Social Networking ★ ★ ★ ★ ★ 15 Ratings \$19.99
 ReadKit News ★ ★ ★ ★ ★ 9 Ratings \$4.99	 rubiTrack 3 Health & Fitness ★ ★ ★ ★ ★ 14 Ratings \$19.99	 DocWallet Productivity ★ ★ ★ ★ ★ 6 Ratings FREE
 City Of Secrets 2 Episode 1 Games \$2.99	 FLASHOUT 3D Games ★ ★ ★ ★ ★ 6 Ratings \$4.99	 The Mirror Mysteries: Forgotten Games \$6.99

- Quick Links
 - Welcome Beth
 - Account
 - Redeem
 - Support
- All Categories
 - OS X Mountain Lion
 - Apple Apps
 - New to the Mac App Store?
 - Editors' Choice
 - App Development
 - Game Center
 - Great Free Apps
 - Better Together
 - Macs In Class
- Top Paid
 - See All

Flexbox

The screenshot displays the Mac App Store interface with a navigation bar at the top containing icons for Featured, Top Charts, Categories, Purchases, and Updates. A search bar is located in the top right corner. The main content area is divided into several sections:

- Editors' Choice:** A large banner for the game "BLAST AWAY" featuring a character on a red platform. Below the banner, it says: "An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages."
- New and Noteworthy:** A grid of 16 app tiles, each with an icon, title, category, ratings, and price. The apps include:
 - Blast-A-Way (Games, 11 Ratings, \$4.99)
 - MacFamilyTree 7 (Productivity, 14 Ratings, \$29.99)
 - Gears (Games, 5 Ratings, \$4.99)
 - Human Japanese Intermediate (Education, 7 Ratings, \$9.99)
 - Clear Day - (Form... (Weather, 266 Ratings, \$3.99)
 - Tweetbot for Twitter (Social Networking, 15 Ratings, \$19.99)
 - ReadKit (News, 9 Ratings, \$4.99)
 - rubiTrack 3 (Health & Fitness, 14 Ratings, \$19.99)
 - DocWallet (Productivity, 6 Ratings, FREE)
 - City Of Secrets 2 E... (Games, \$2.99)
 - FLASHOUT 3D (Games, 6 Ratings, \$4.99)
 - The Mirror Mysteri... (Games, \$6.99)
 - Fire & Forget The F... (Games, \$9.99)
 - Desert Stormfront (Games, \$9.99)
 - Supreme Ruler Col... (Games, \$19.99)
 - Secret of the Magic... (Games, \$2.99)
- Quick Links:** A list of links including "Welcome Beth", "Account", "Redeem", "Support", "All Categories", "OS X Mountain Lion", "Apple Apps", "New to the Mac App Store?", "Editors' Choice", "App Development", "Game Center", "Great Free Apps", "Better Together", and "Macs In Class".
- Top Paid:** A list of top-selling apps, currently showing "1. OS X Mountain Lion (Productivity)" and "2. Pages (Productivity)".

At the bottom of the screen, there are several category banners: "GAMES", "New to the Mac App Store?", "New to the Mac App Store?", "Great Free Apps", "@WORK", and "Quick-Fix Games".

Flexbox

The screenshot displays the Mac App Store interface with a grid of app cards. The featured banner at the top highlights the game 'Blast-A-Way' with the text: 'Editors' Choice' and 'An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.' Below the banner is a 'New and Noteworthy' section containing a grid of app cards. Each card includes an app icon, title, category, ratings, and price. The 'Quick Links' section on the right provides navigation options like 'Welcome Beth', 'Account', 'Redeem', and 'Support'. The 'All Categories' dropdown is set to 'All Categories'. The 'Top Paid' section at the bottom right lists 'OS X Mountain Lion' and 'Pages' as the top two paid apps.

App Name	Category	Ratings	Price
Blast-A-Way	Games	11 Ratings	\$4.99
MacFamilyTree 7	Productivity	14 Ratings	\$29.99
Gears	Games	5 Ratings	\$4.99
Human Japanese In...	Education	7 Ratings	\$9.99
Clear Day - (Form...	Weather	266 Ratings	\$3.99
Tweetbot for Twitter	Social Networking	15 Ratings	\$19.99
ReadKit	News	9 Ratings	\$4.99
rubiTrack 3	Health & Fitness	14 Ratings	\$19.99
DocWallet	Productivity	6 Ratings	FREE
City Of Secrets 2 E...	Games		\$2.99
FLASHOUT 3D	Games	6 Ratings	\$4.99
The Mirror Mysteri...	Games		\$6.99
Fire & Forget The F...	Games		\$9.99
Desert Stormfront	Games		\$9.99
Supreme Ruler Col...	Games		\$19.99
Secret of the Magic...	Games		\$2.99

Quick Links

- Welcome Beth
- Account
- Redeem
- Support

All Categories

- OS X Mountain Lion
- Apple Apps
- New to the Mac App Store?
- Editors' Choice
- App Development
- Game Center
- Great Free Apps
- Better Together
- Mac's In Class

Top Paid

- OS X Mountain Lion (Productivity)
- Pages (Productivity)

Flexbox

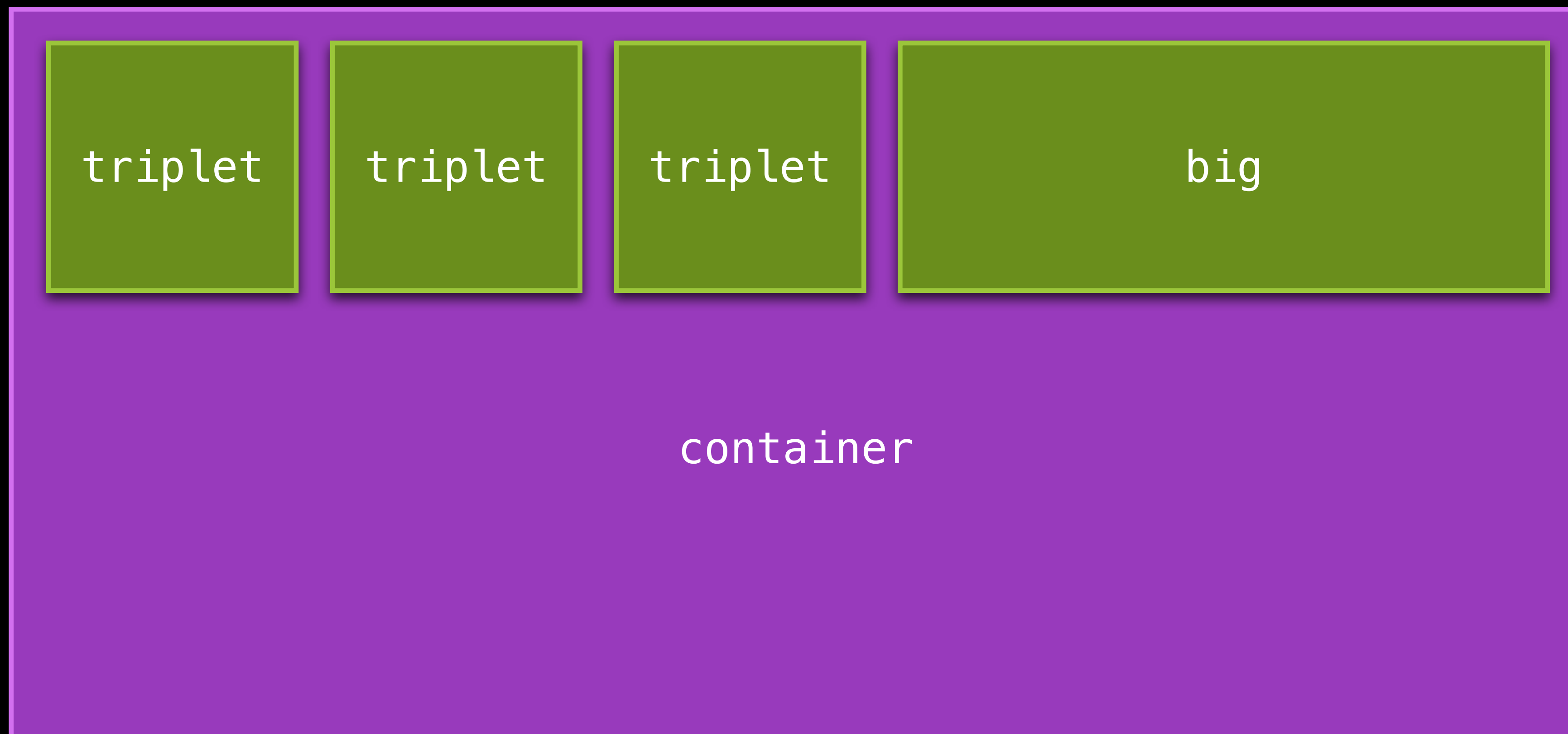
The screenshot displays the Mac App Store interface with a navigation bar at the top containing icons for Featured, Top Charts, Categories, Purchases, and Updates. A search bar is located in the top right corner. The main content area is divided into several sections:

- Editors' Choice:** A large banner for the game "BLAST AWAY" featuring a character on a red platform. Below the banner, it says: "An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages."
- New and Noteworthy:** A grid of 16 app tiles, each with an icon, title, category, ratings, and price. The apps include:
 - Blast-A-Way (Games, 11 Ratings, \$4.99)
 - MacFamilyTree 7 (Productivity, 14 Ratings, \$29.99)
 - Gears (Games, 5 Ratings, \$4.99)
 - Human Japanese Intermediate (Education, 7 Ratings, \$9.99)
 - Clear Day - (Form... (Weather, 266 Ratings, \$3.99)
 - Tweetbot for Twitter (Social Networking, 15 Ratings, \$19.99)
 - ReadKit (News, 9 Ratings, \$4.99)
 - rubiTrack 3 (Health & Fitness, 14 Ratings, \$19.99)
 - DocWallet (Productivity, 6 Ratings, FREE)
 - City Of Secrets 2 E... (Games, \$2.99)
 - FLASHOUT 3D (Games, 6 Ratings, \$4.99)
 - The Mirror Mysteri... (Games, \$6.99)
 - Fire & Forget The F... (Games, \$9.99)
 - Desert Stormfront (Games, \$9.99)
 - Supreme Ruler Col... (Games, \$19.99)
 - Secret of the Magic... (Games, \$2.99)
- Quick Links:** A list of links including "Welcome Beth", "Account", "Redeem", "Support", "All Categories", "OS X Mountain Lion", "Apple Apps", "New to the Mac App Store?", "Editors' Choice", "App Development", "Game Center", "Great Free Apps", "Better Together", and "Macs In Class".
- Top Paid:** A list of top-selling apps, including "OS X Mountain Lion" (Productivity) and "Pages" (Productivity).

At the bottom of the screen, there are several category banners: "GAMES", "New to the Mac App Store?", "New to the Mac App Store?", "Great Free Apps", "@WORK", and "Quick-Fix Games".

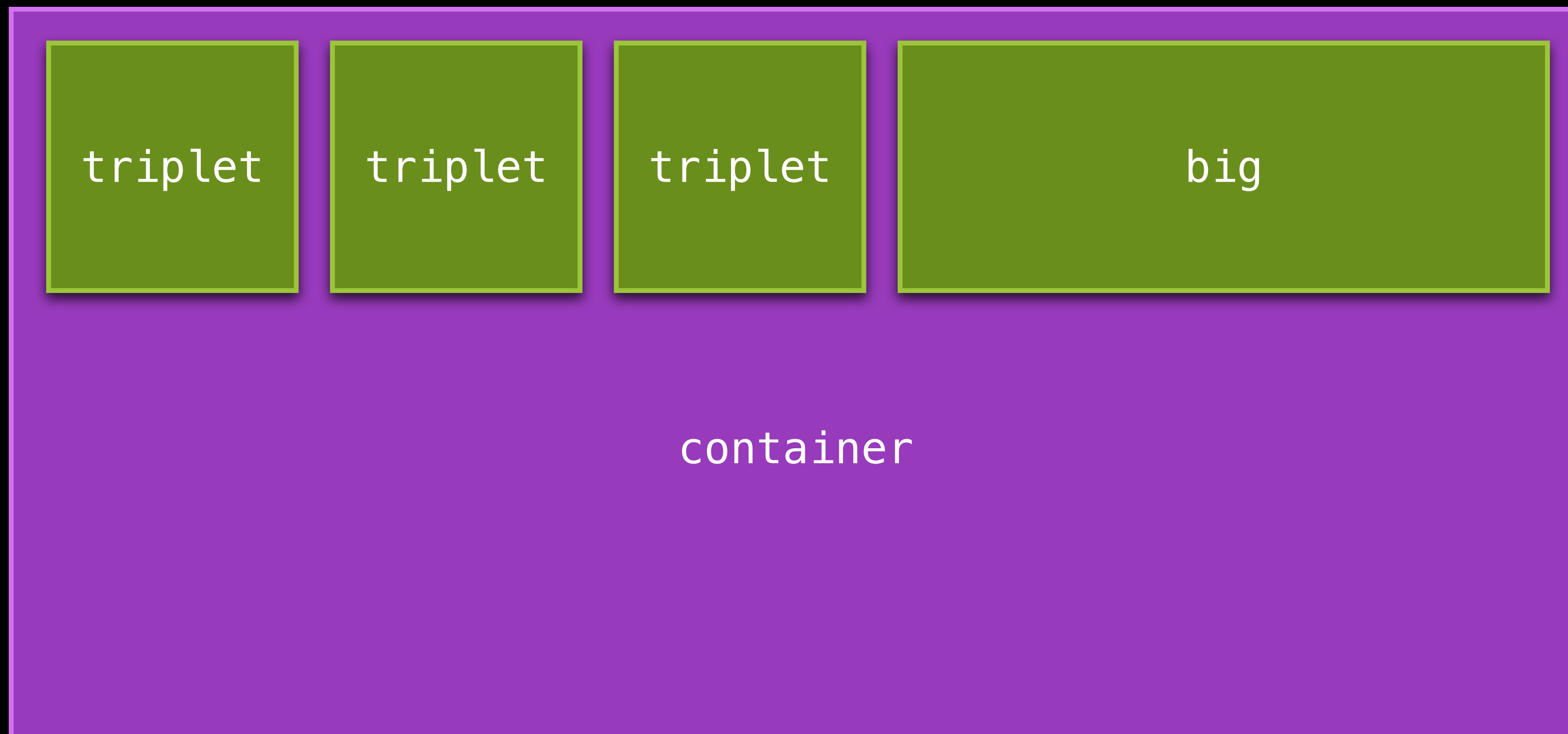
Flexbox

```
#container {  
  display: -webkit-flex;  
  -webkit-flex-direction: row;  
}
```



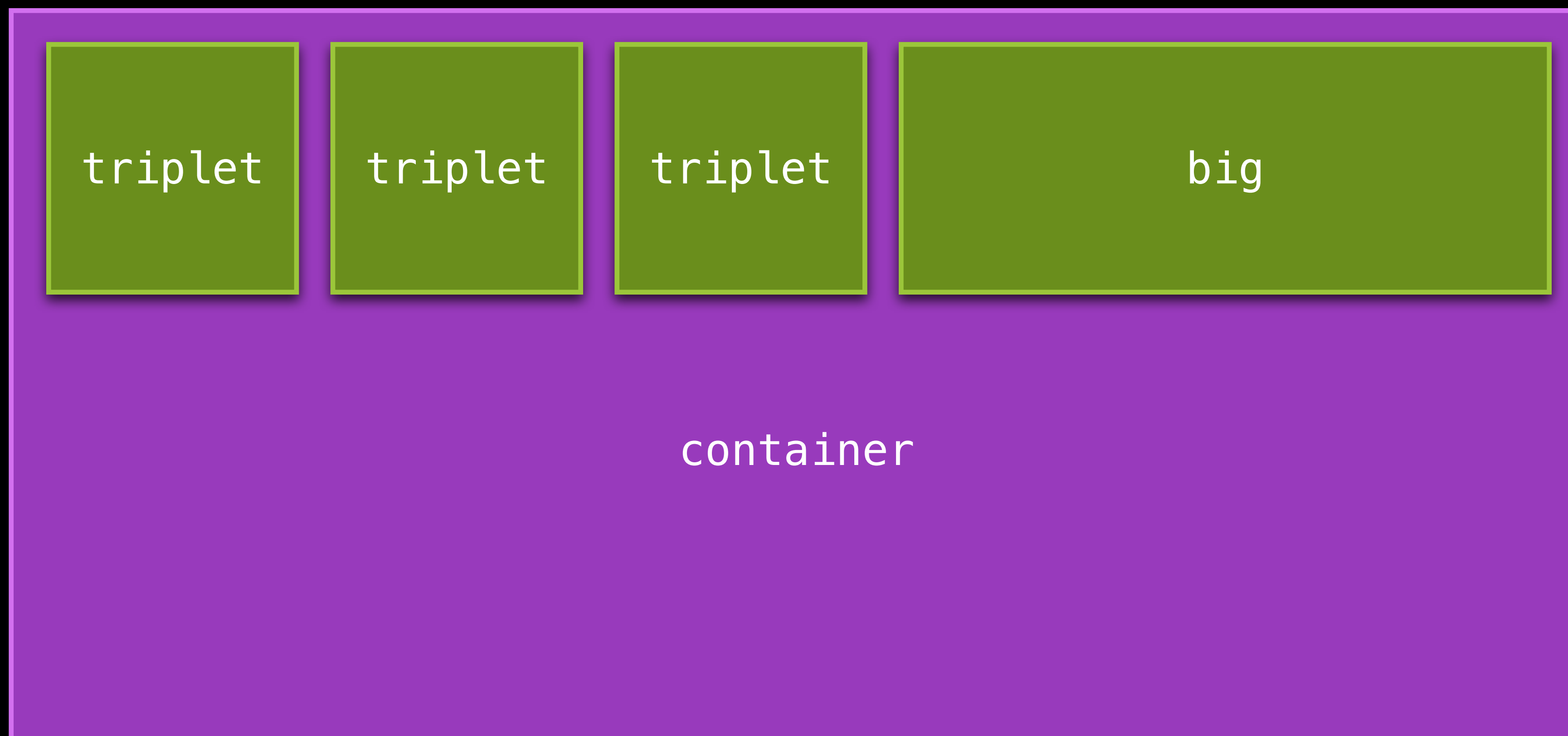
Flexbox

```
#container {  
  display: -webkit-flex;  
  -webkit-flex-direction: row;  
}
```



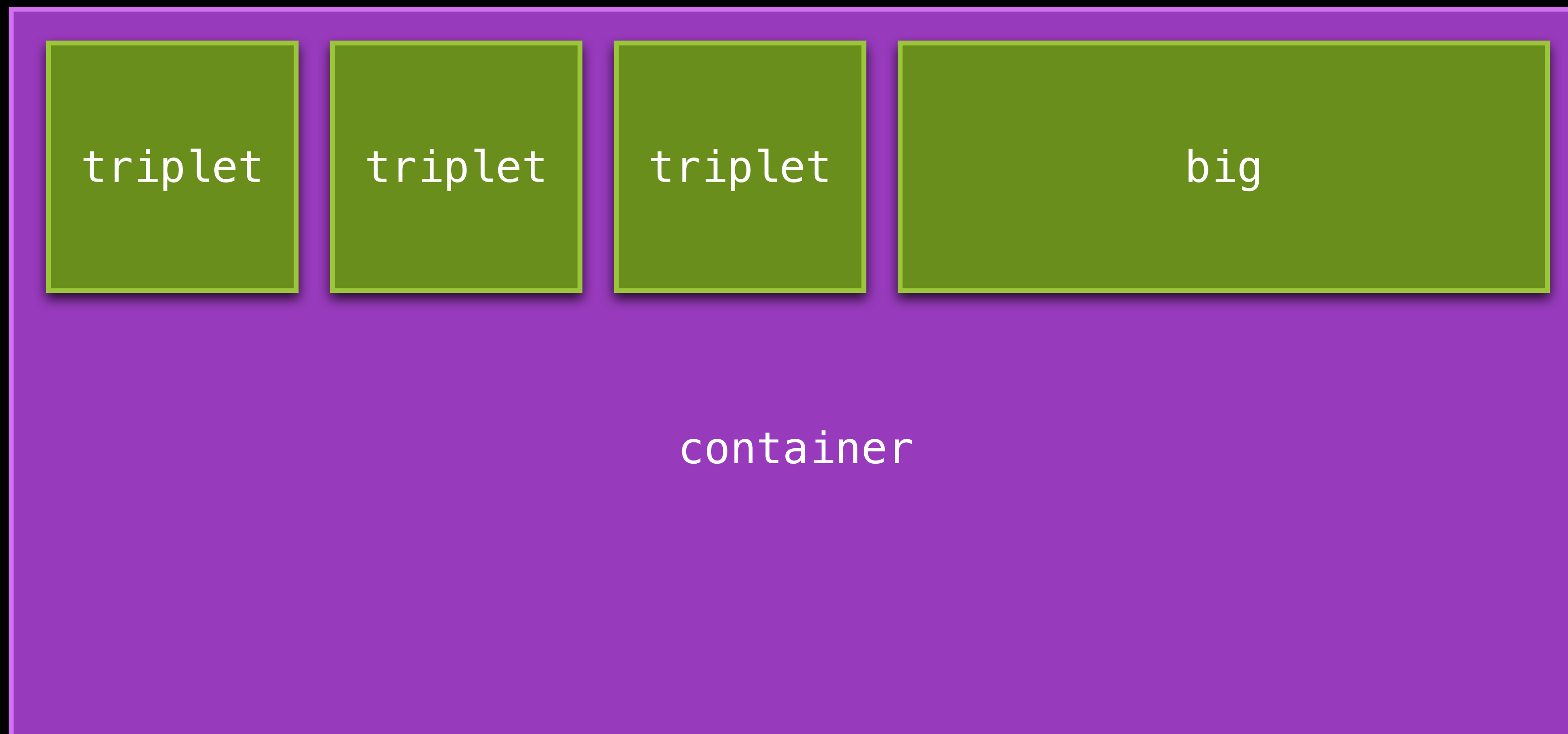
Flexbox

```
#container {  
  display: -webkit-flex;  
  -webkit-flex-direction: row;  
}
```



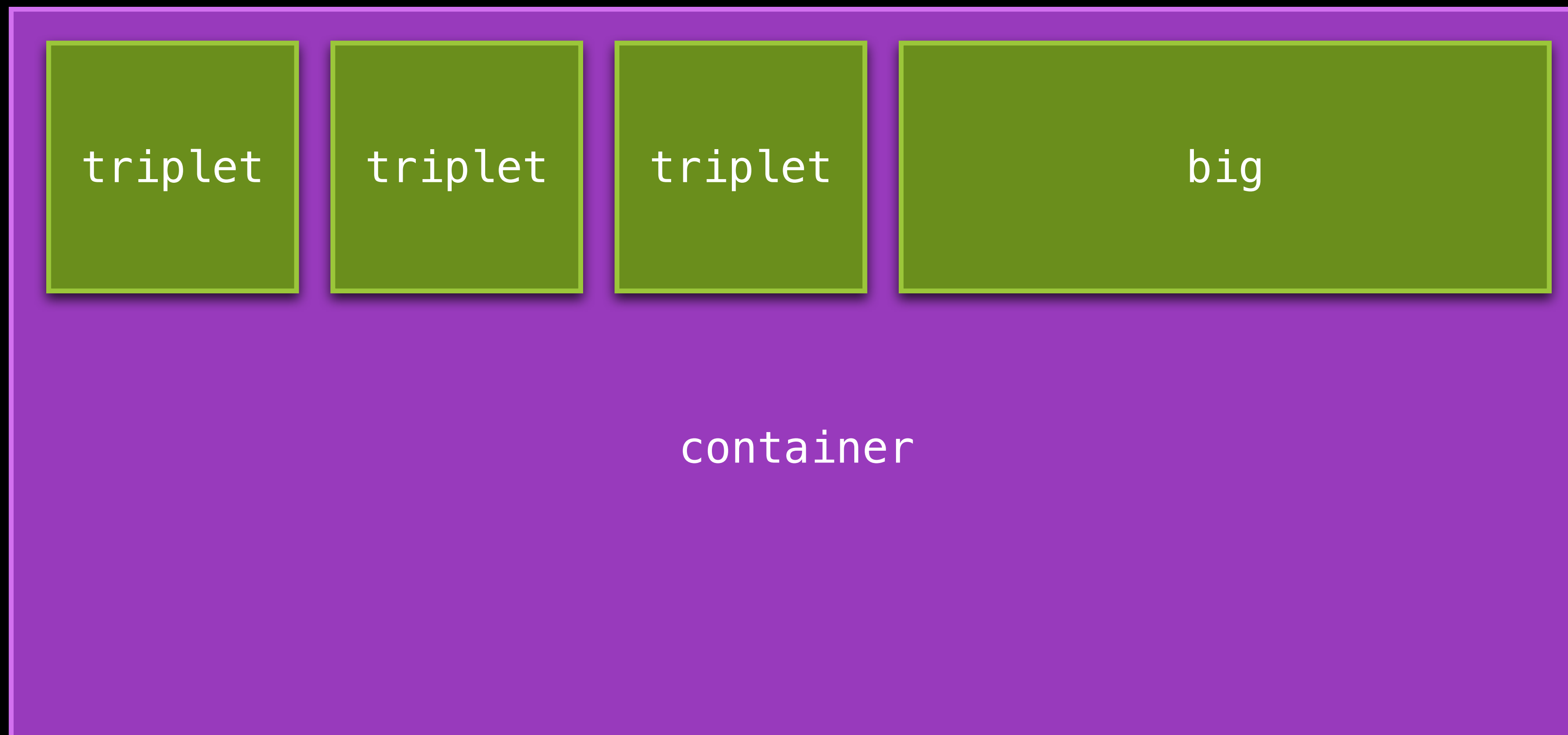
Flexbox

```
#container {  
  display: -webkit-flex;  
  -webkit-flex-direction: row;  
}
```



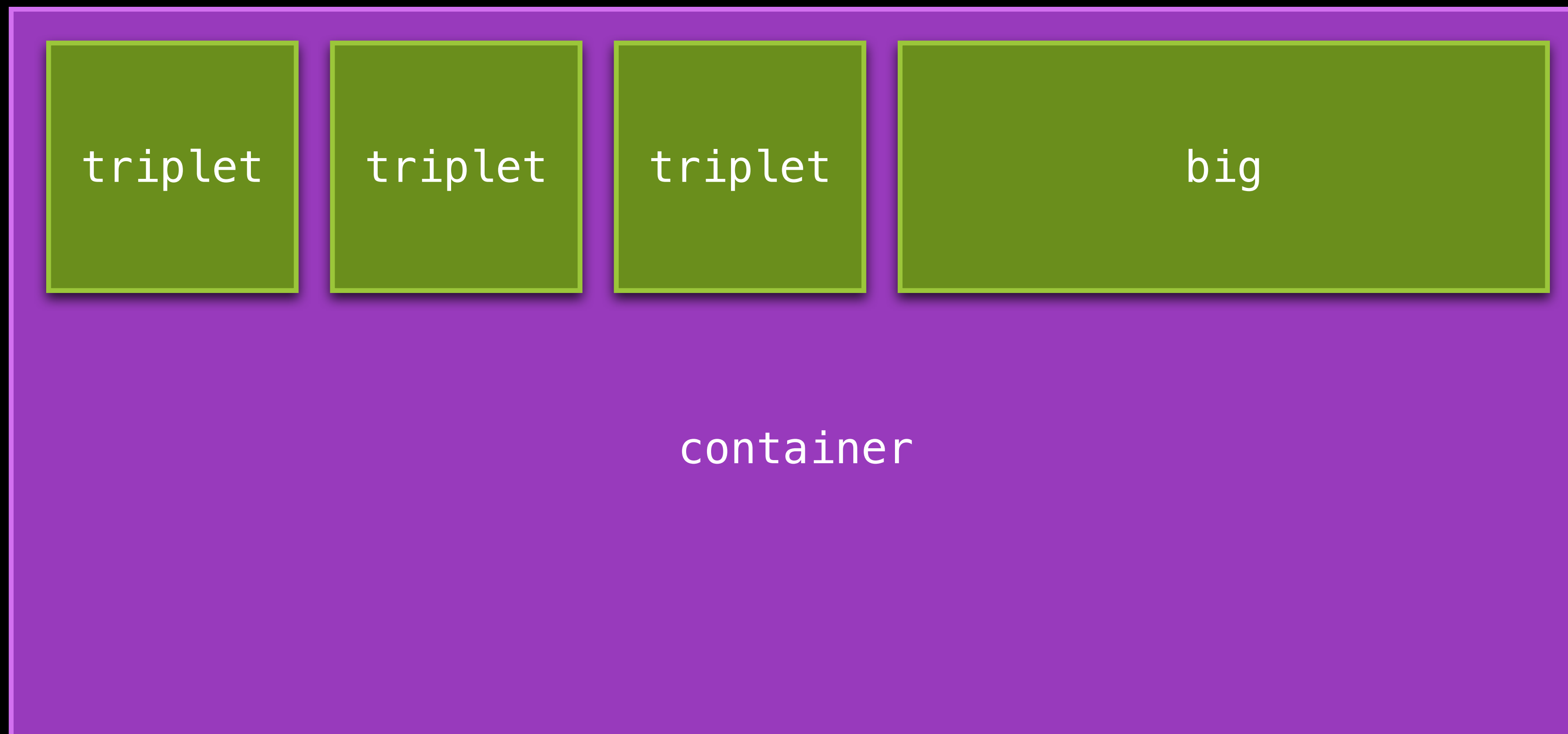
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



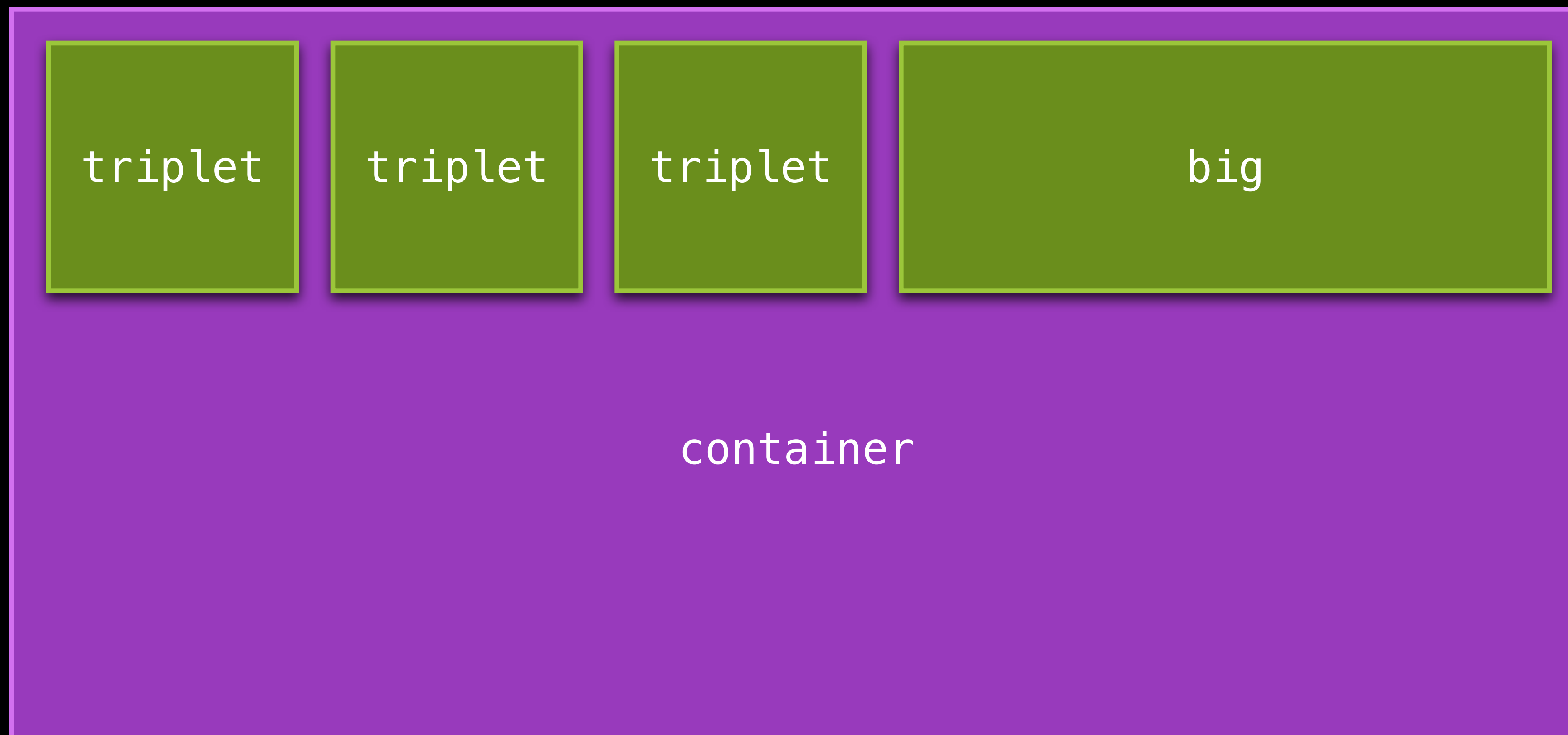
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



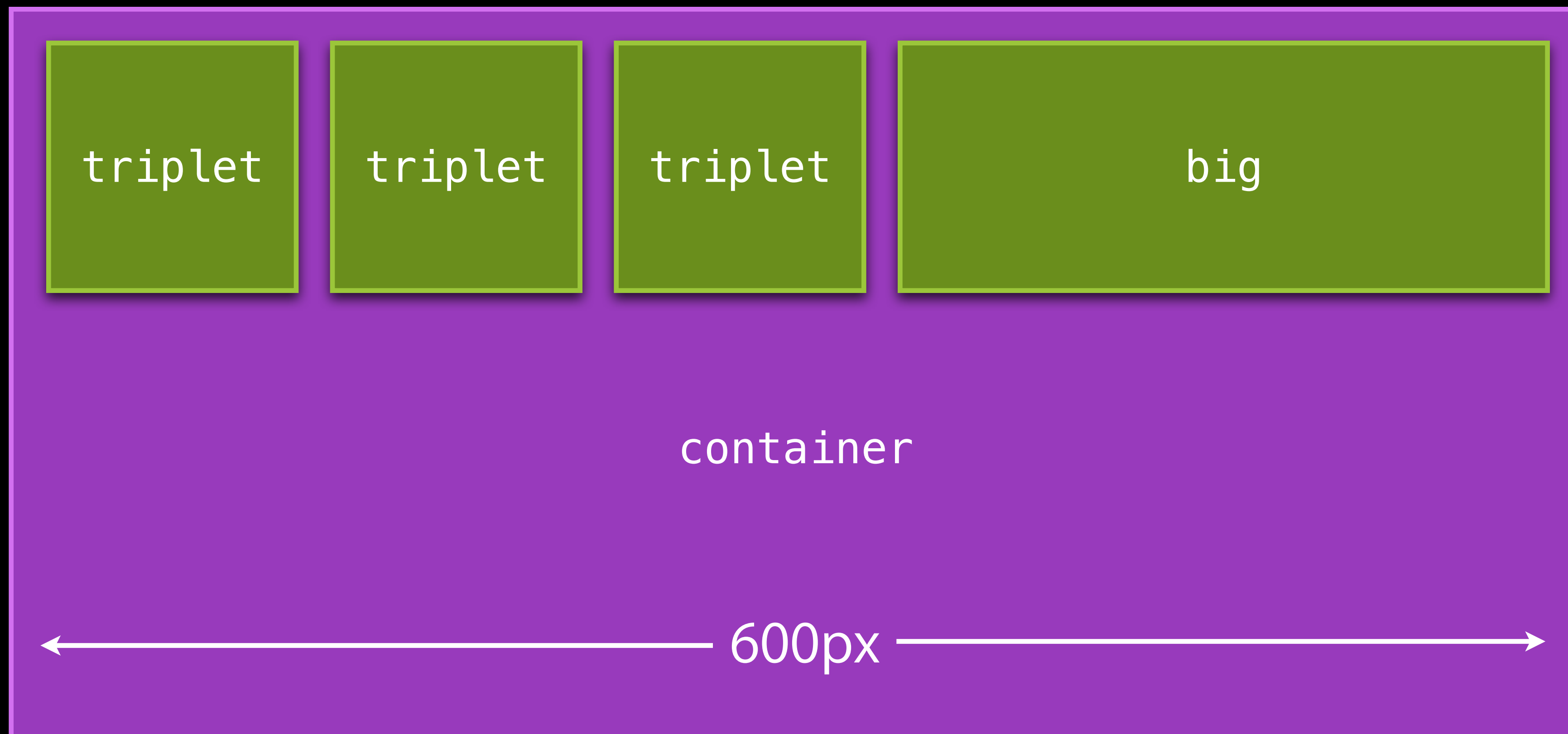
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



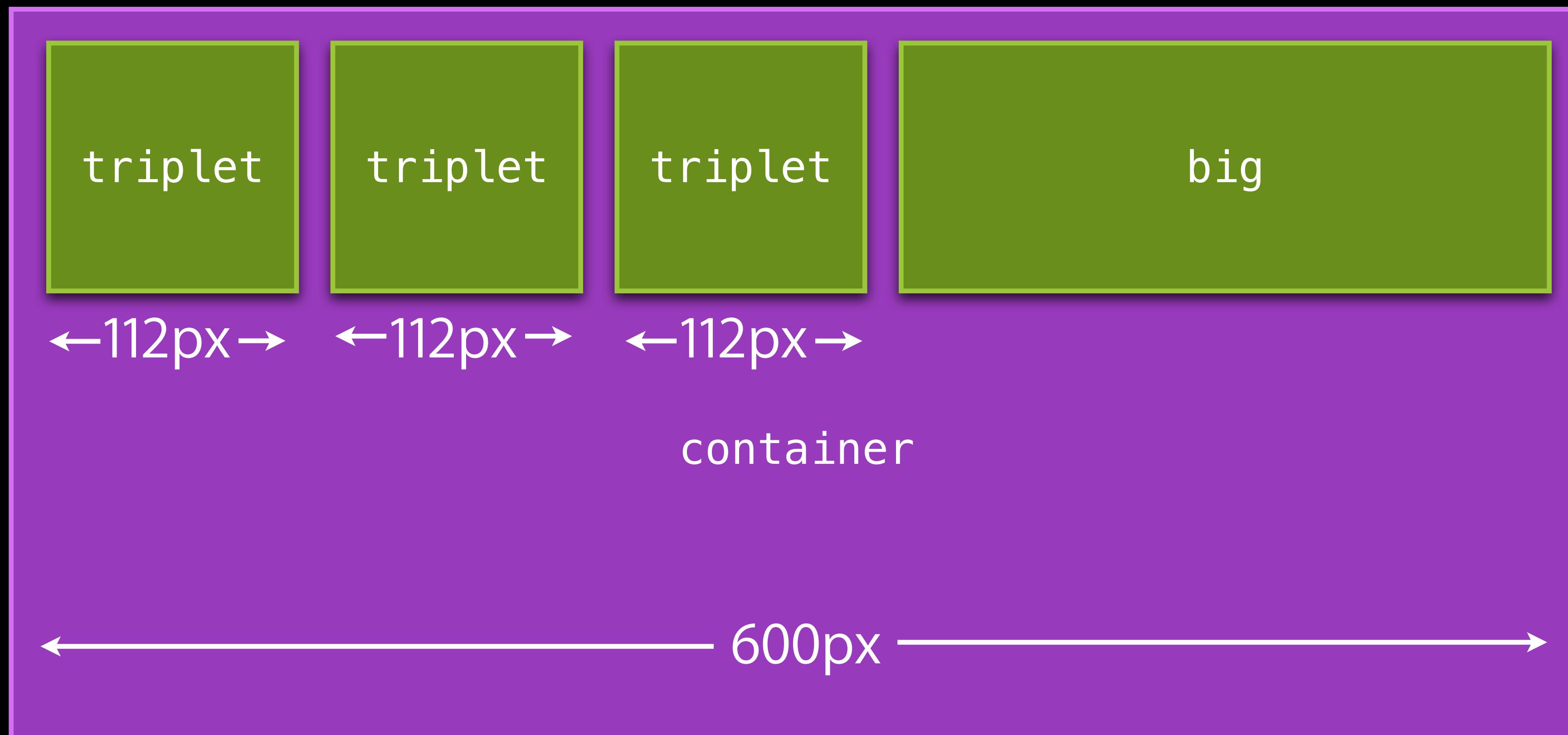
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



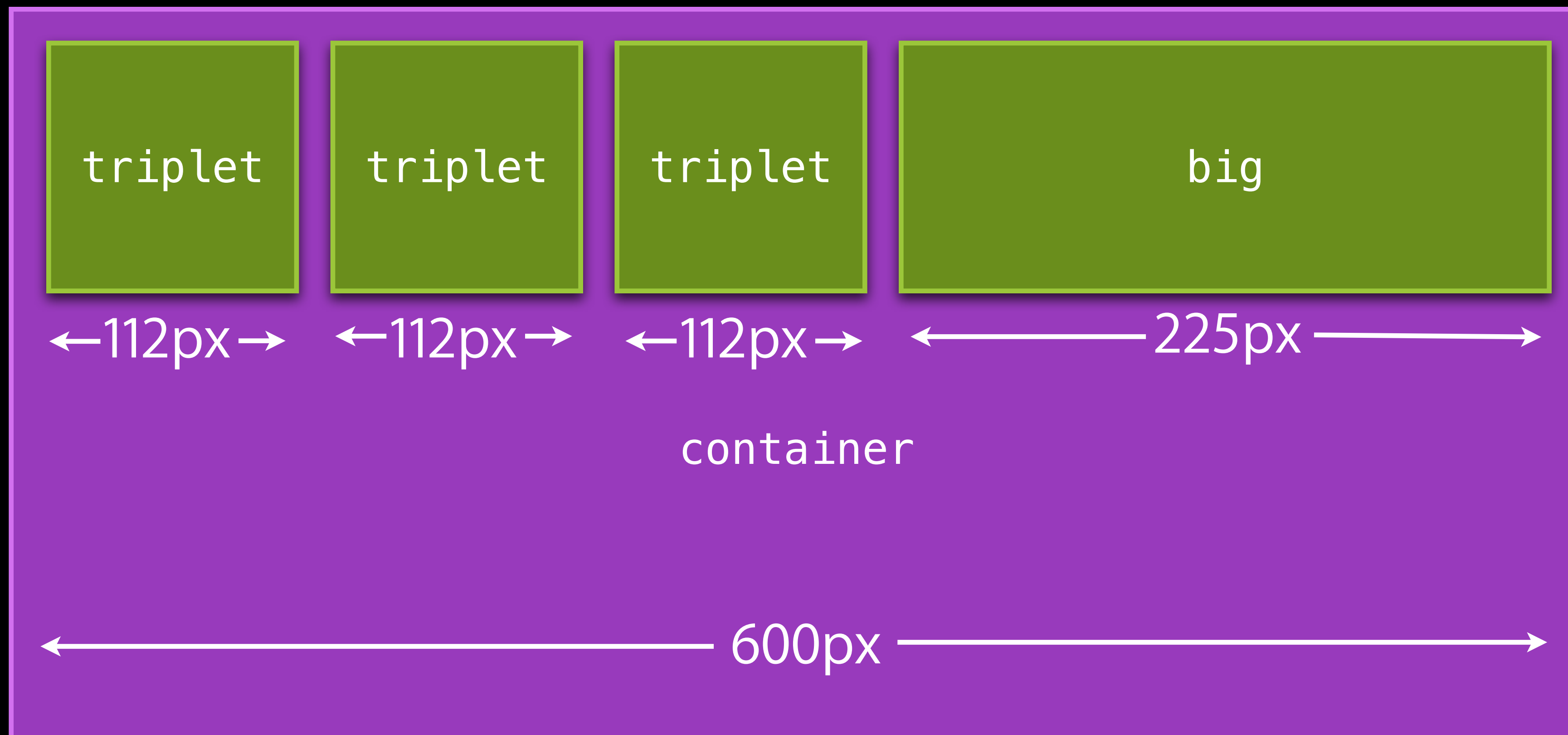
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
           -webkit-flex-grow: 0;  
           -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



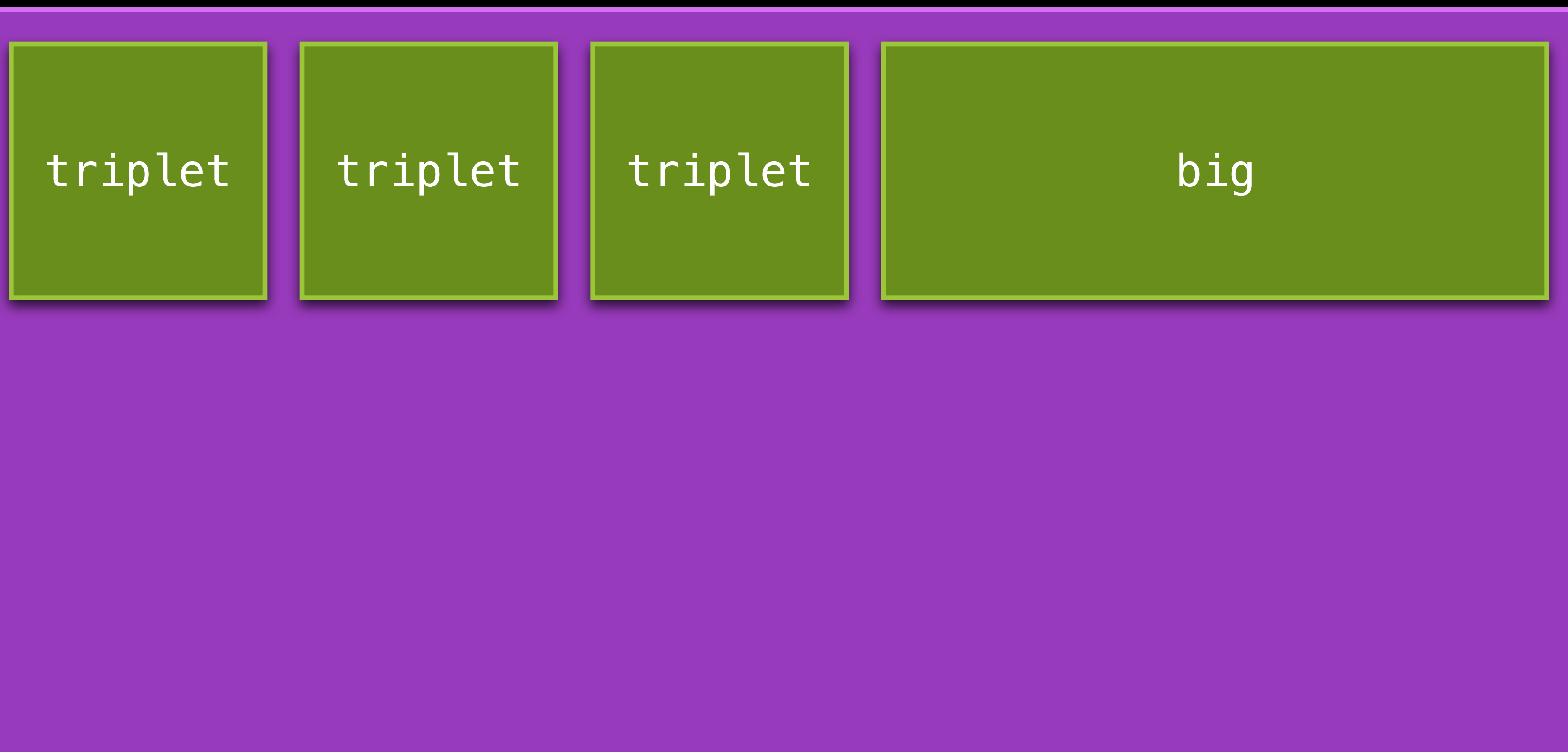
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
           -webkit-flex-grow: 0;  
           -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



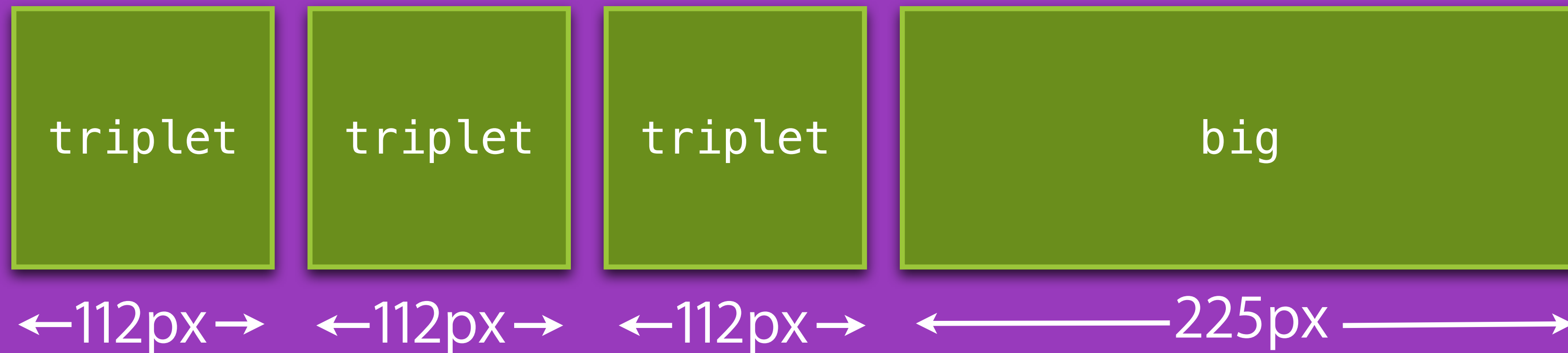
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
           -webkit-flex-grow: 0;  
           -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



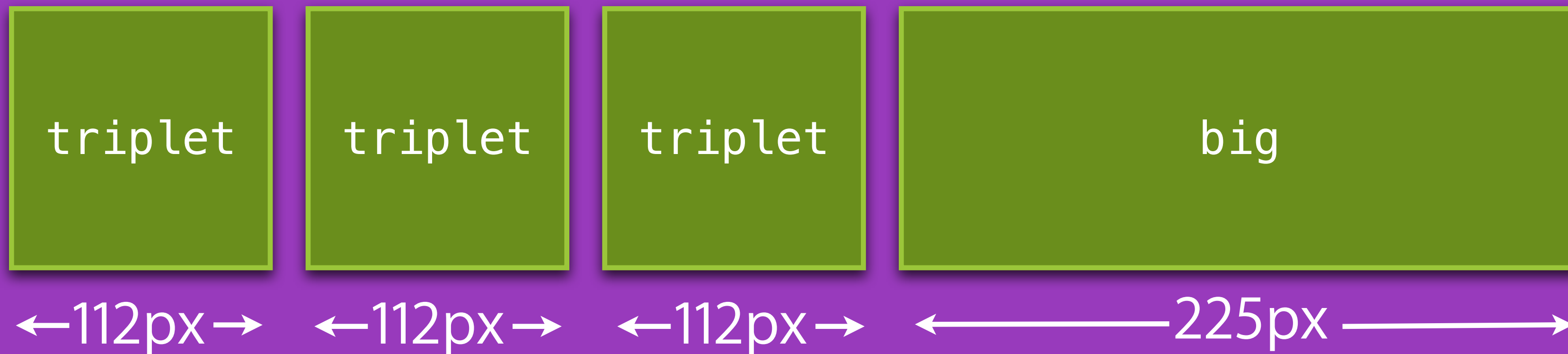
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



Flexbox

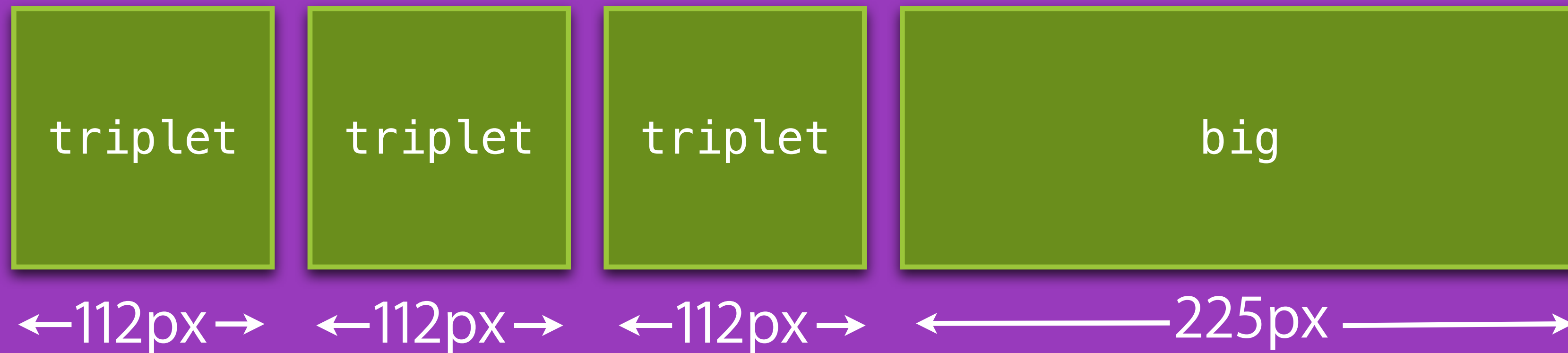
```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



← 825px →

Flexbox

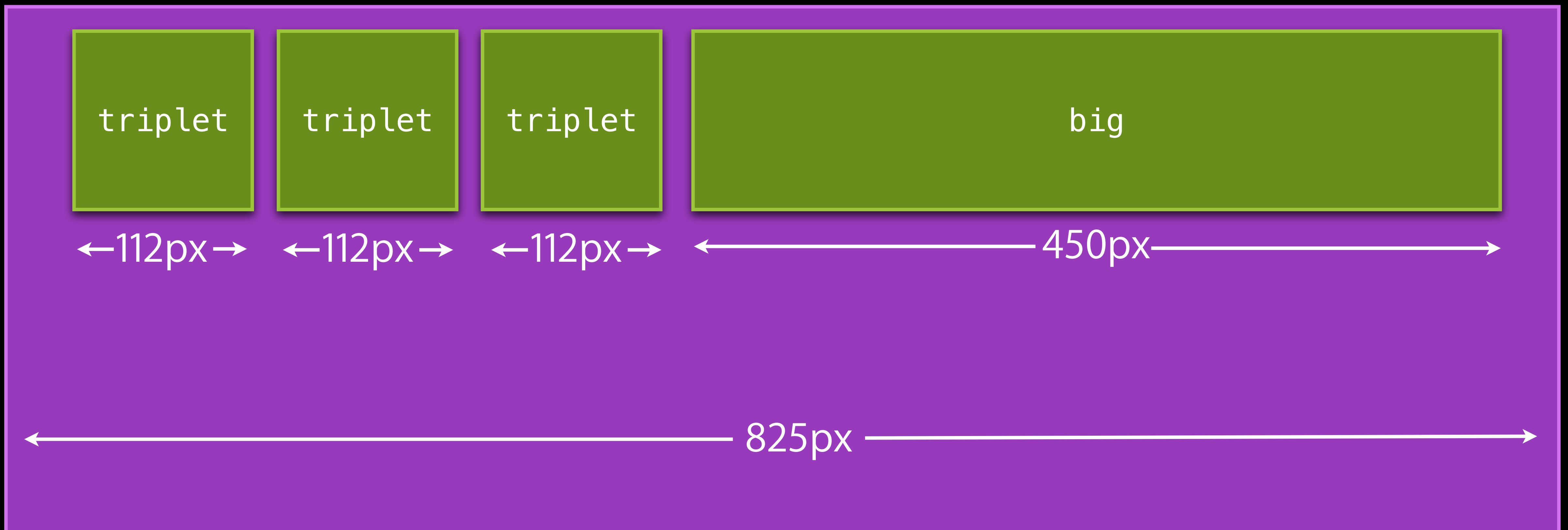
```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



← 825px →

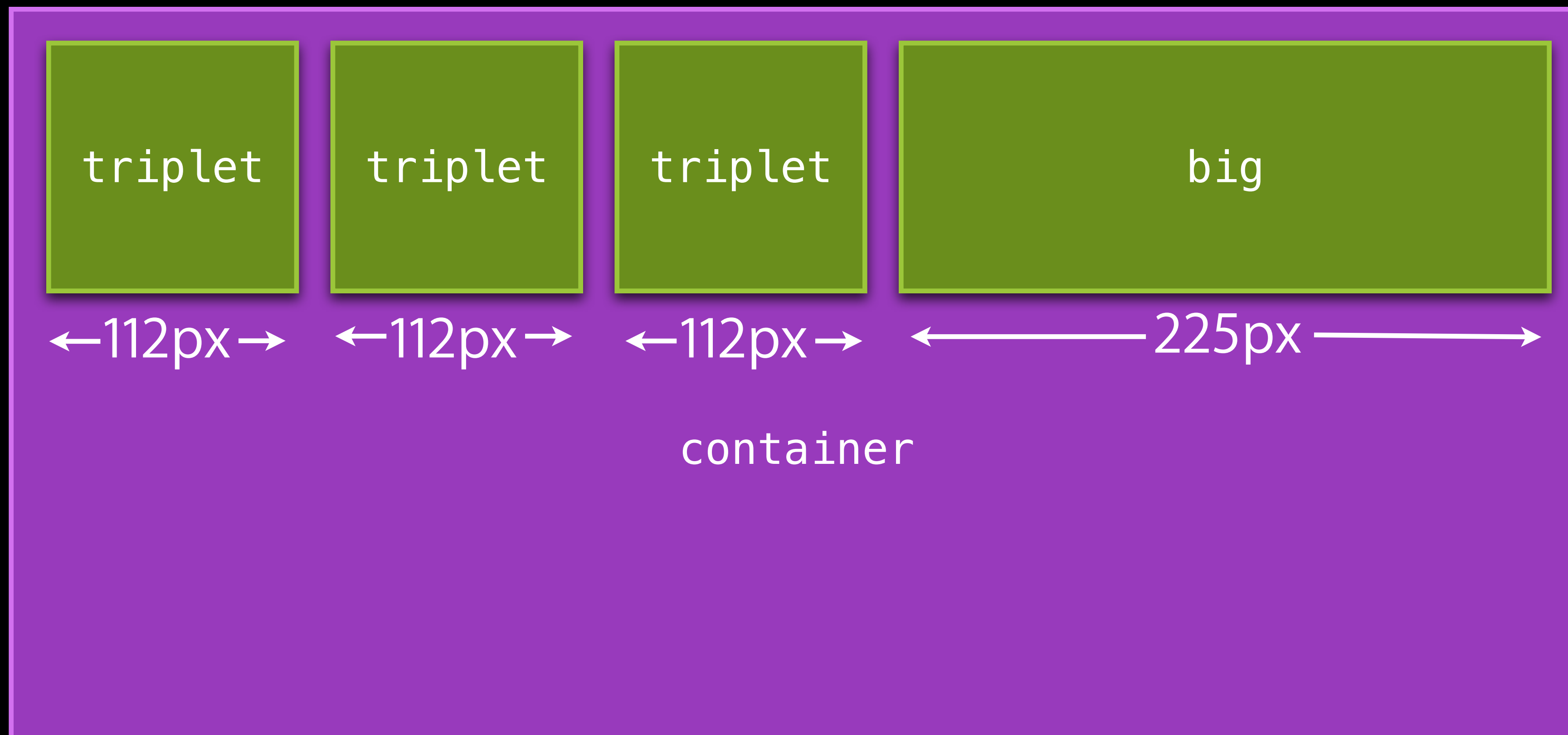
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
           -webkit-flex-grow: 0;  
           -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



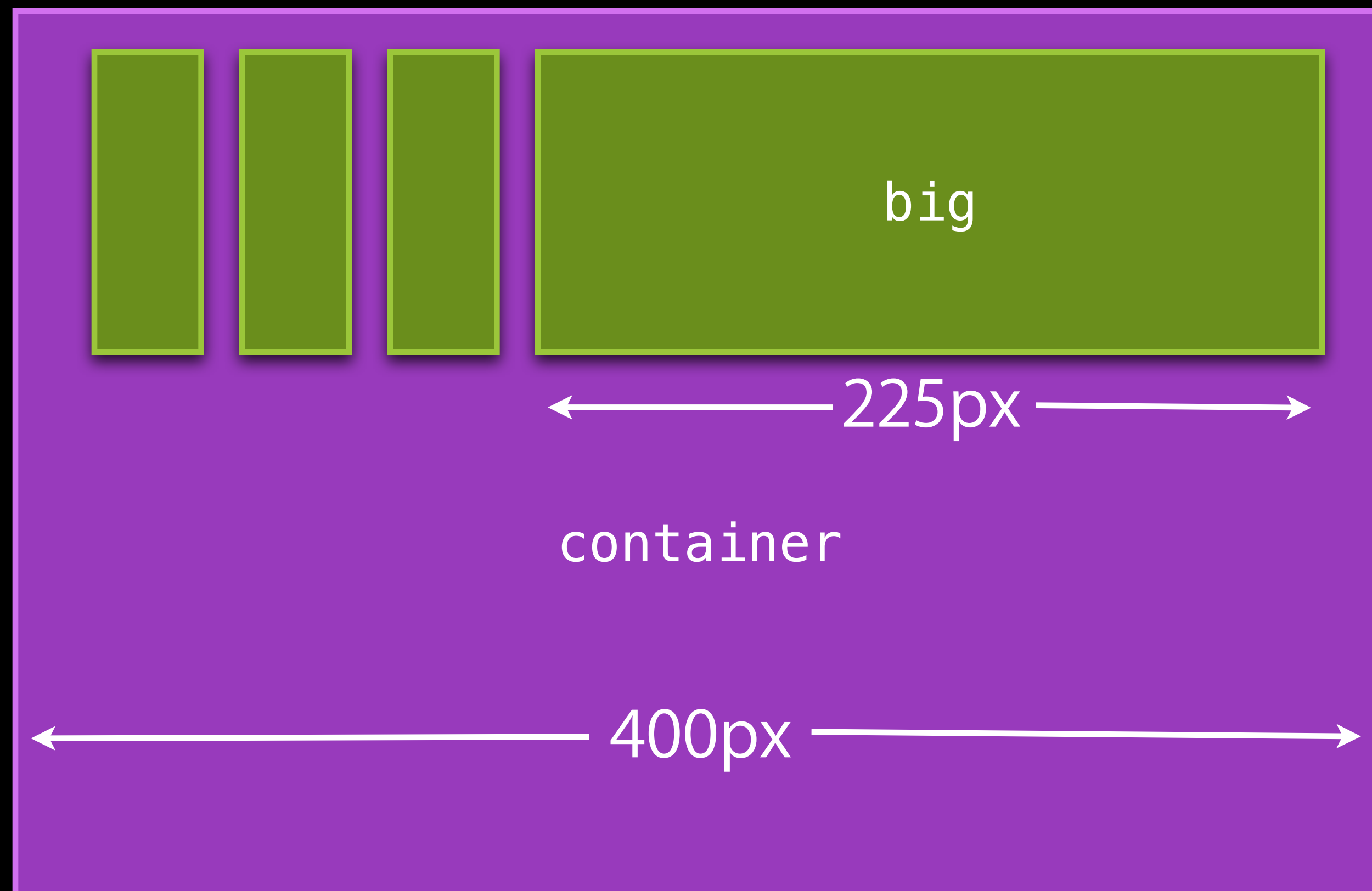
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



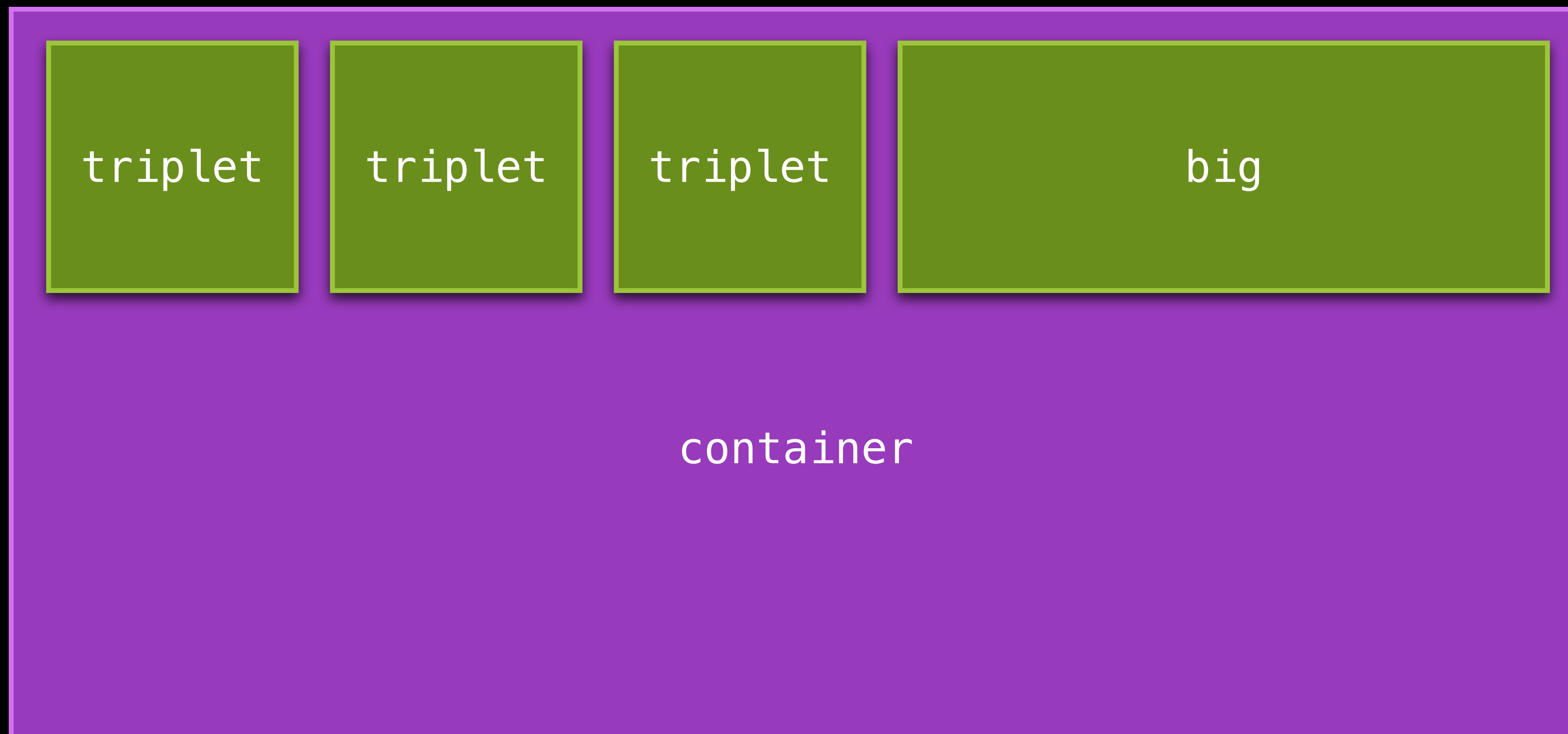
Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
           -webkit-flex-grow: 0;  
           -webkit-flex-shrink: 1;}  
.big { -webkit-flex-basis: 225px;  
       -webkit-flex-grow: 1;  
       -webkit-flex-shrink: 0; }
```



Flexbox

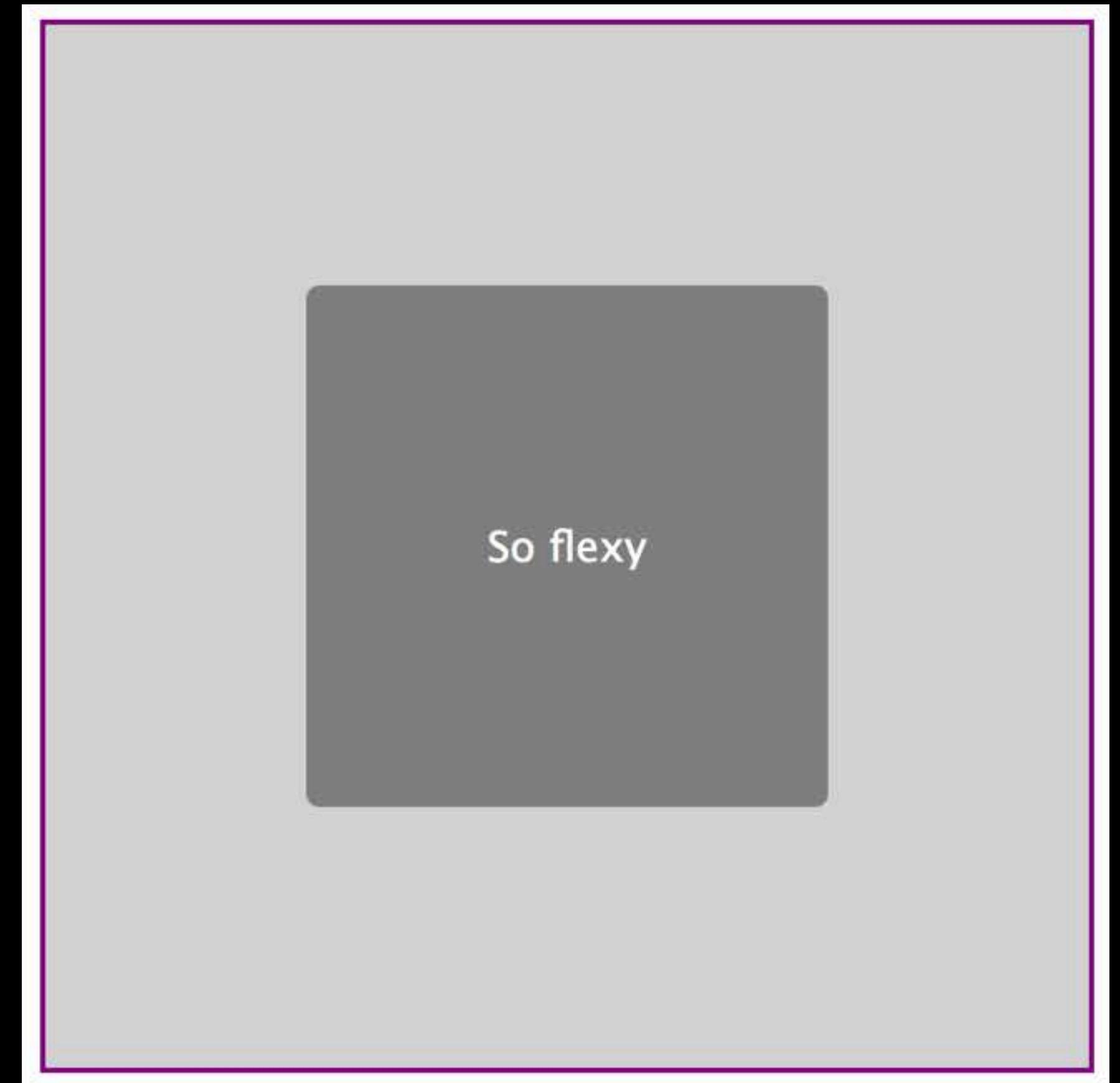
```
.triplet {  
  -webkit-flex: 0 1 112px;  
}  
.big {  
  -webkit-flex: 1 0 225px;  
}
```



Flexbox

Centering!

```
#container {  
  display: -webkit-flex;  
}  
  
.flex-child {  
  -webkit-flex: 1 1 200;  
  margin: auto;  
}
```



New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes



New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes



Media Features

Media Features



Media Features

- iOS AirPlay API



Media Features

- iOS AirPlay API
- Styling captions for `<video>`

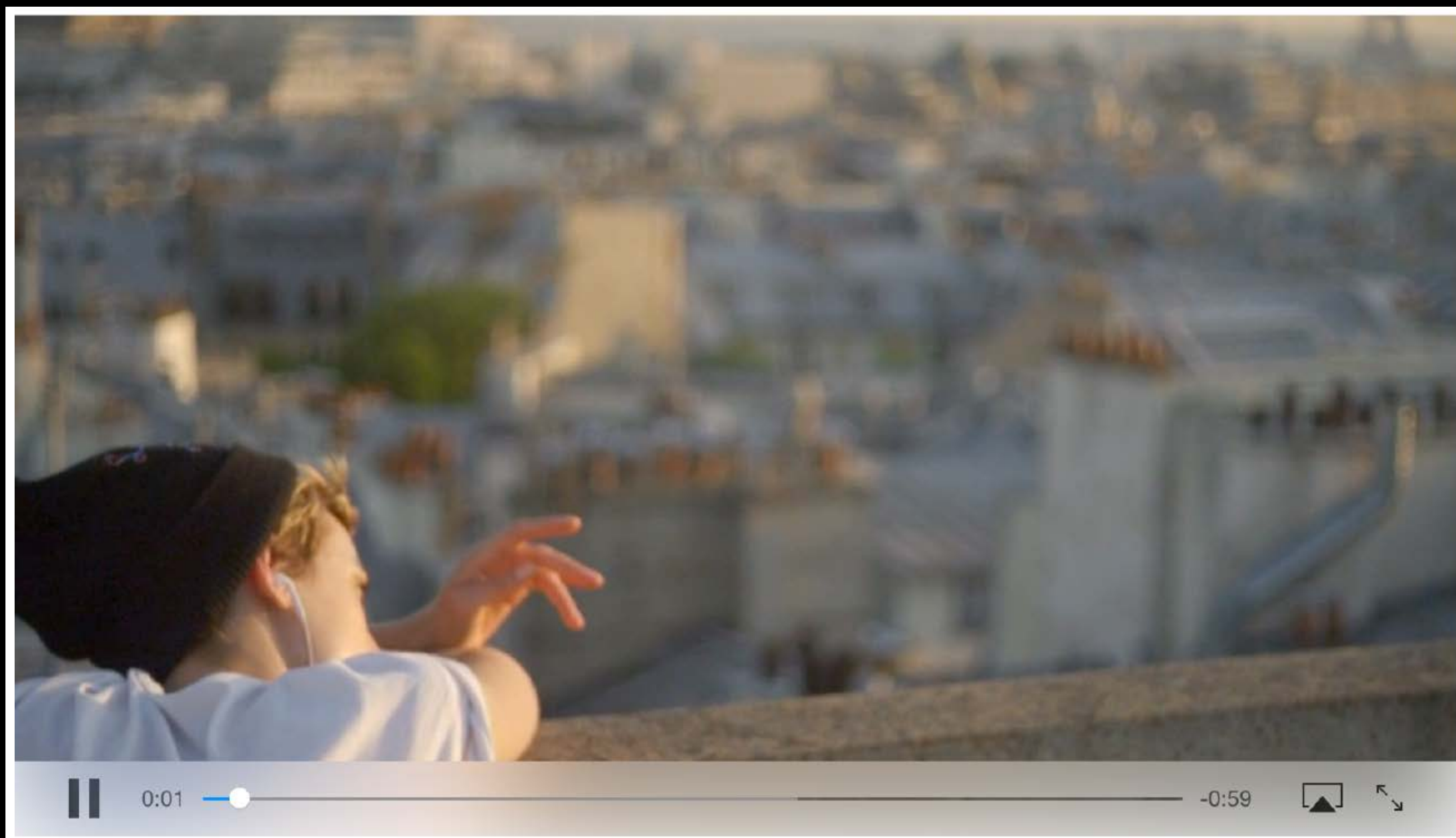


Media Features

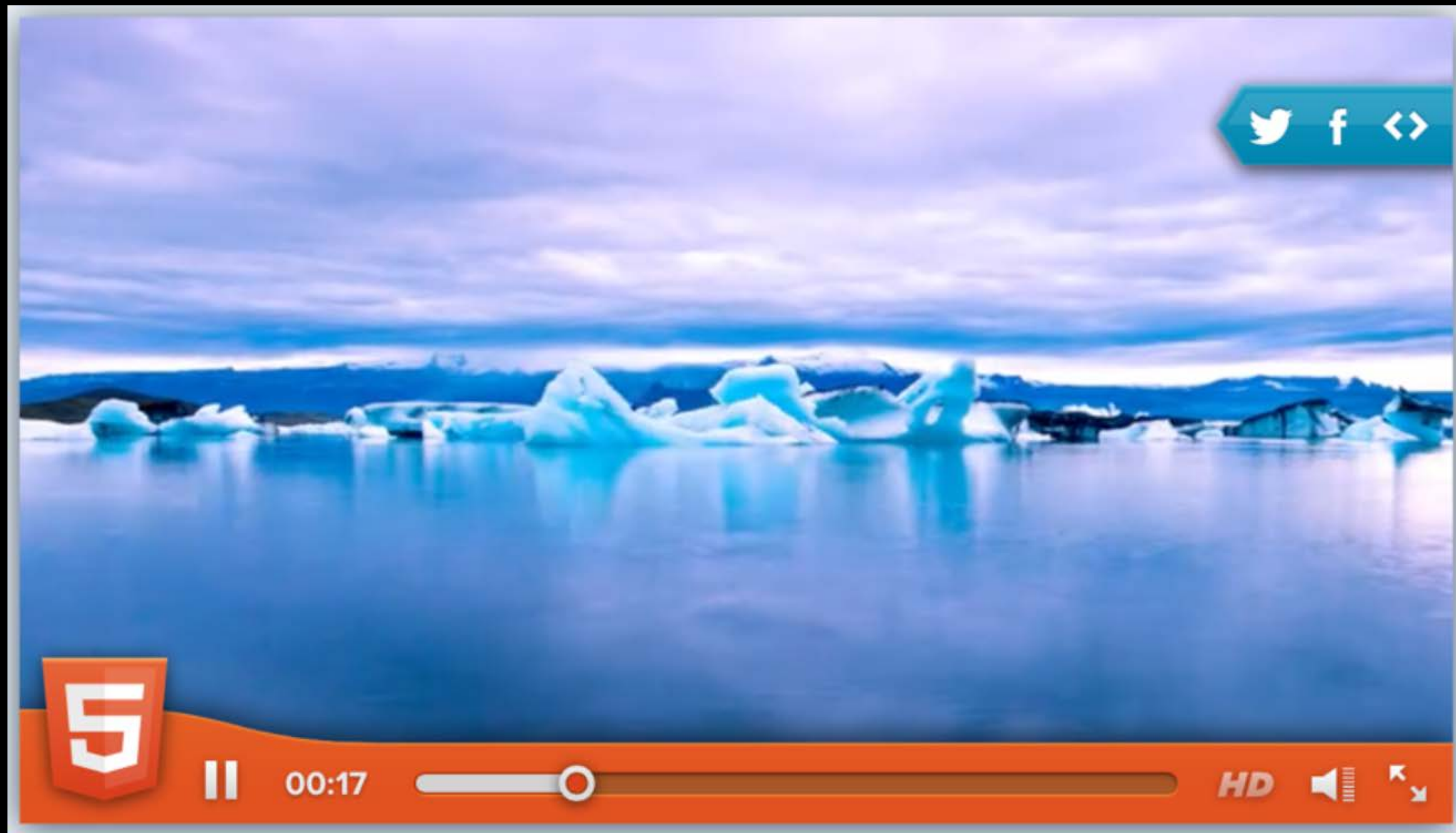
- iOS AirPlay API
- Styling captions for `<video>`



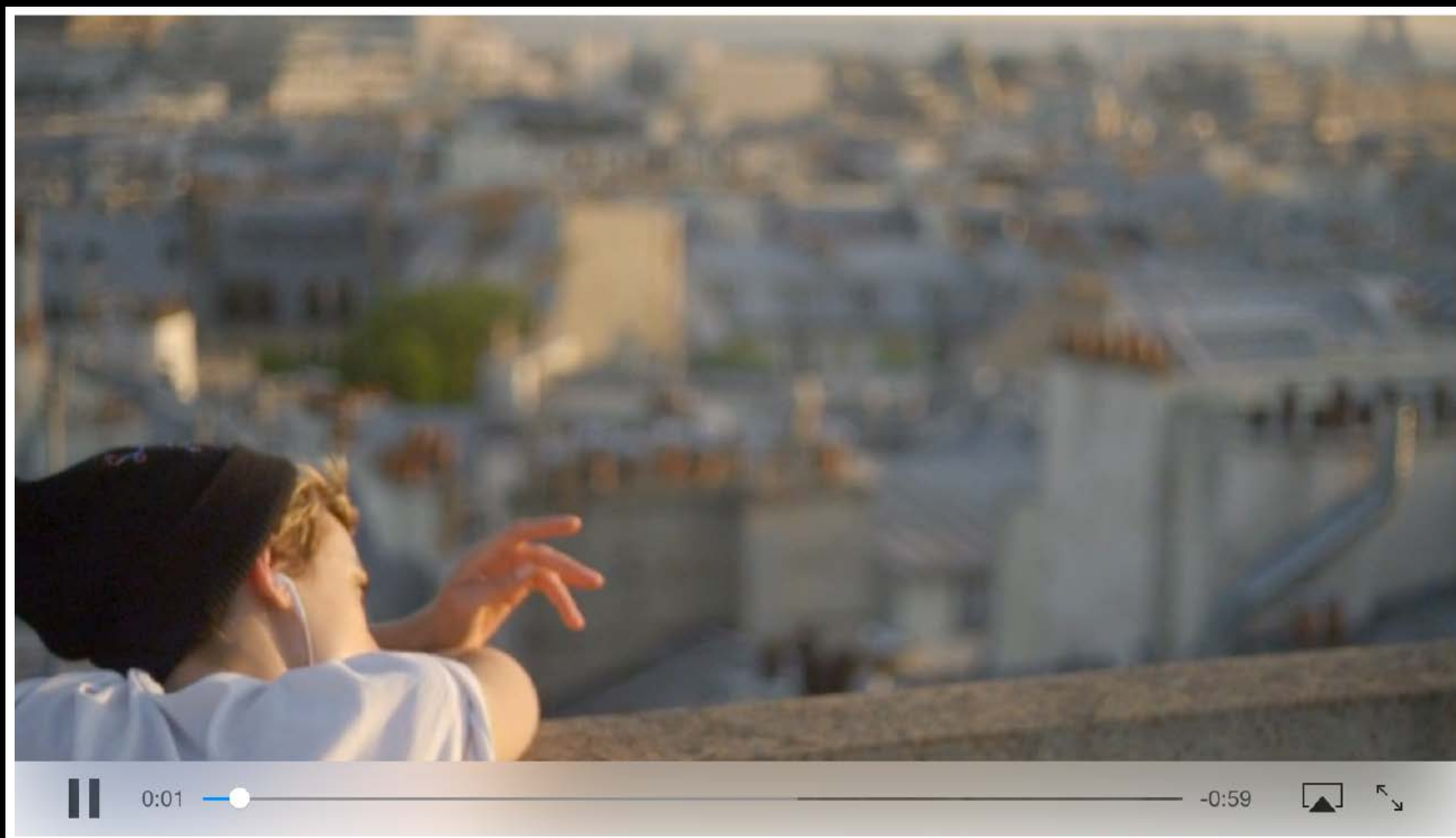
iOS AirPlay API



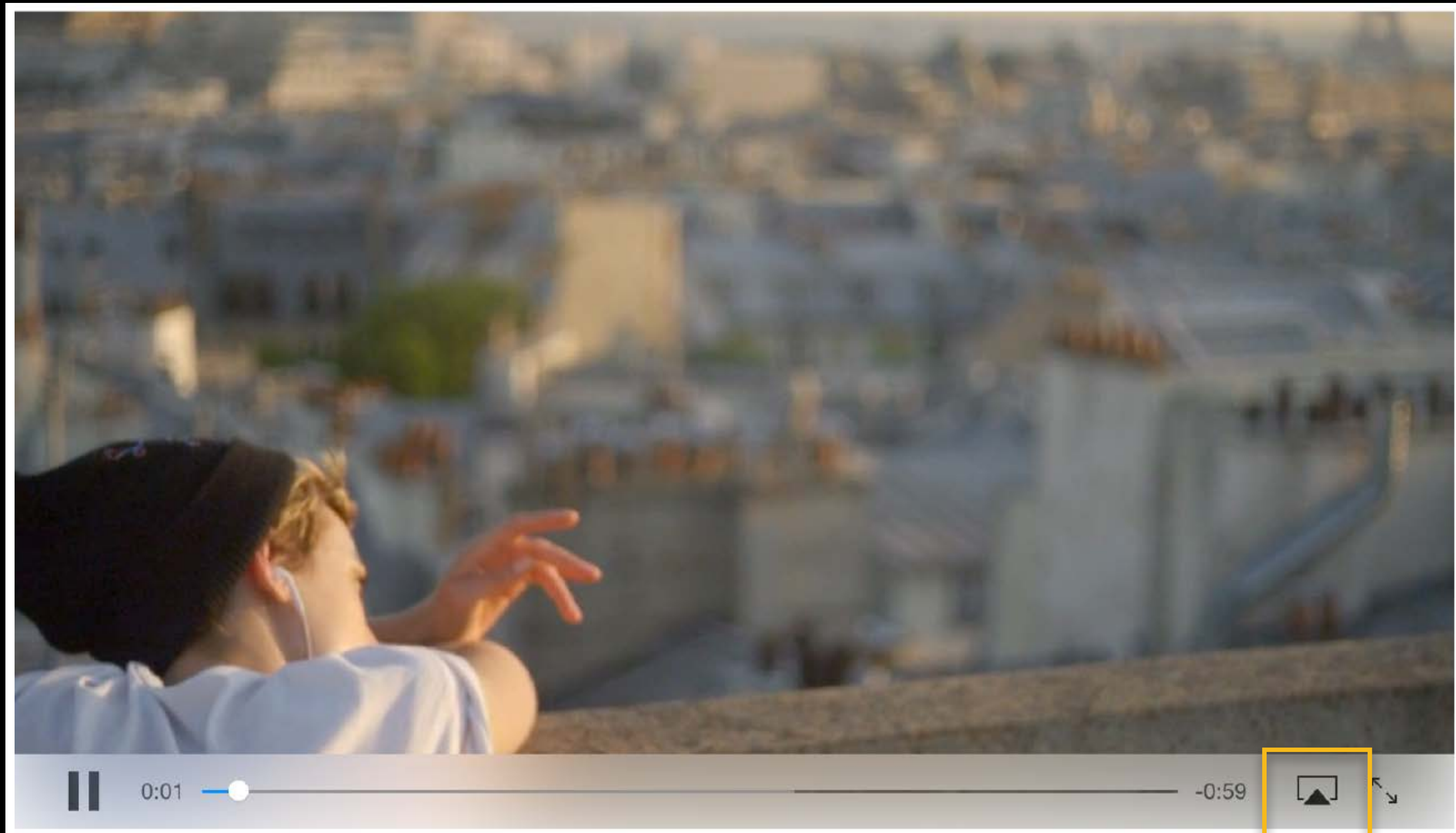
iOS AirPlay API



iOS AirPlay API



iOS AirPlay API



iOS AirPlay API

```
<video id="video" src="my-video.mp4"></video>  
<div id="controls">  
  <button id="playButton">Play</button>  
  <button id="pauseButton" hidden>Pause</button>  
</div>
```

iOS AirPlay API

```
<video id="video" src="my-video.mp4"></video>  
<div id="controls">  
  <button id="playButton">Play</button>  
  <button id="pauseButton" hidden>Pause</button>  
</div>
```

iOS AirPlay API

```
<video id="video" src="my-video.mp4"></video>  
<div id="controls">  
  <button id="playButton">Play</button>  
  <button id="pauseButton" hidden>Pause</button>  
</div>
```

iOS AirPlay API

```
<video id="video" src="my-video.mp4"></video>
<div id="controls">
  <button id="playButton">Play</button>
  <button id="pauseButton" hidden>Pause</button>
  <button id="airPlayButton" hidden disabled>AirPlay</button>
</div>
```

iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
            switch (event.availability) {  
                case "available":  
                    airPlayButton.hidden = false;  
                    airPlayButton.disabled = false;  
                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        });  
}
```

iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
            switch (event.availability) {  
                case "available":  
                    airPlayButton.hidden = false;  
                    airPlayButton.disabled = false;  
                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        });  
}
```

iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
            switch (event.availability) {  
                case "available":  
                    airPlayButton.hidden = false;  
                    airPlayButton.disabled = false;  
                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        });  
}
```

iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {
    video.addEventListener('webkitplaybacktargetavailabilitychanged',
        function(event) {
            switch (event.availability) {
                case "available":
                    airPlayButton.hidden = false;
                    airPlayButton.disabled = false;
                    break;
                case "not-available":
                    airPlayButton.hidden = true;
                    airPlayButton.disabled = true;
                    break;
            }
        });
}
```


iOS AirPlay API



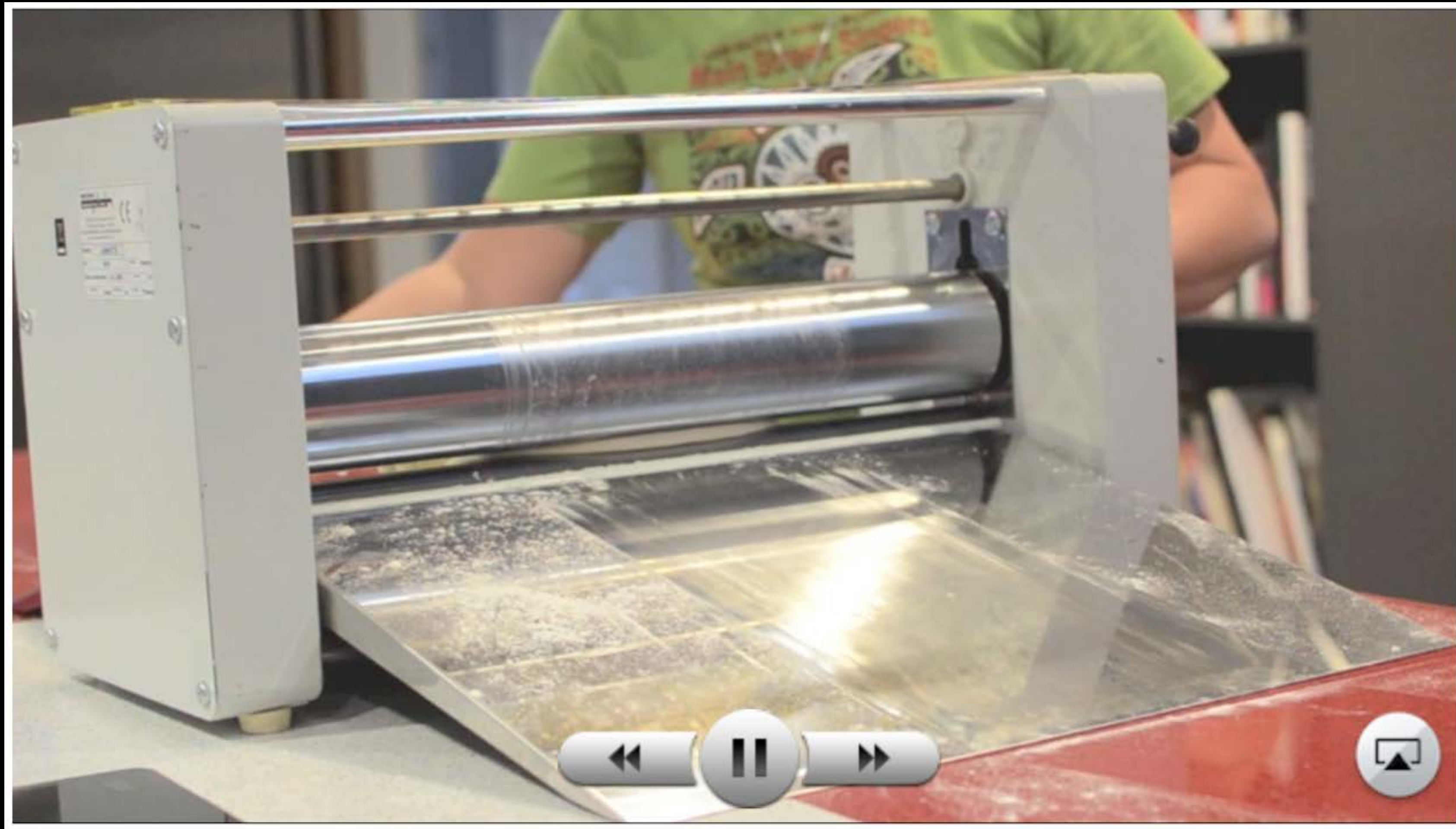
```
if (window.WebKitPlaybackTargetAvailabilityEvent) {
    video.addEventListener('webkitplaybacktargetavailabilitychanged',
        function(event) {
            switch (event.availability) {
                case "available":
                    airPlayButton.hidden = false;
                    airPlayButton.disabled = false;
                    break;
                case "not-available":
                    airPlayButton.hidden = true;
                    airPlayButton.disabled = true;
                    break;
            }
        });
}
```

iOS AirPlay API

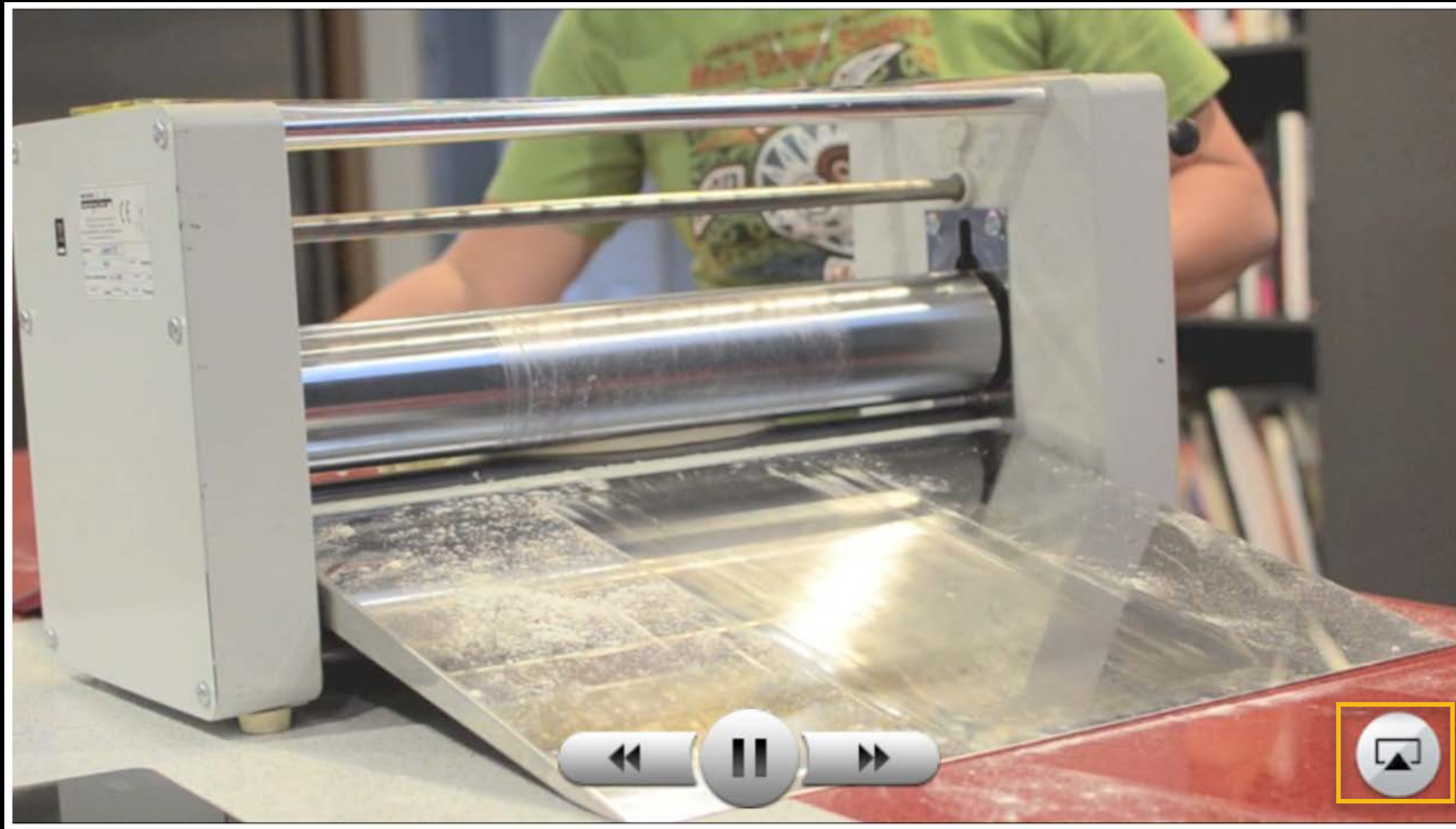


```
if (window.WebKitPlaybackTargetAvailabilityEvent) {
    video.addEventListener('webkitplaybacktargetavailabilitychanged',
        function(event) {
            switch (event.availability) {
                case "available":
                    airPlayButton.hidden = false;
                    airPlayButton.disabled = false;
                    break;
                case "not-available":
                    airPlayButton.hidden = true;
                    airPlayButton.disabled = true;
                    break;
            }
        });
}
```

iOS AirPlay API



iOS AirPlay API



iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;

var airPlayButton = document.getElementById("airPlayButton");
var video = document.getElementById("video");

airPlayButton.addEventListener('click', function(event) {
    video.webkitShowPlaybackTargetPicker();
});
```

iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;
```

```
var airPlayButton = document.getElementById("airPlayButton");
var video = document.getElementById("video");
```

```
airPlayButton.addEventListener('click', function(event) {
    video.webkitShowPlaybackTargetPicker();
});
```

iOS AirPlay API

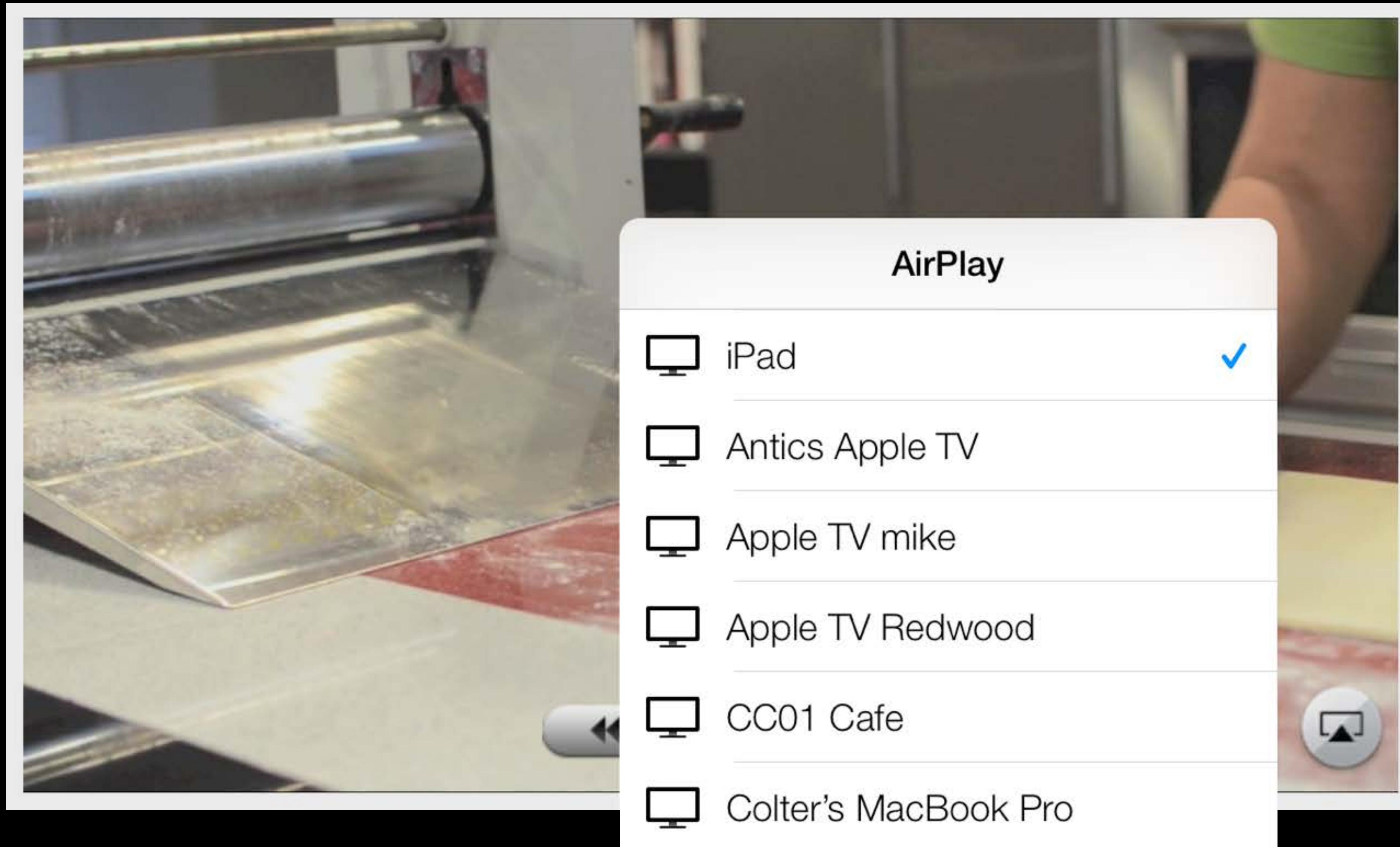


```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;
```

```
var airPlayButton = document.getElementById("airPlayButton");
var video = document.getElementById("video");
```

```
airPlayButton.addEventListener('click', function(event) {
    video.webkitShowPlaybackTargetPicker();
});
```

iOS AirPlay API



- AirPlay**
- iPad
 - Antics Apple TV
 - Apple TV mike
 - Apple TV Redwood
 - CC01 Cafe
 - Colter's MacBook Pro

iOS AirPlay API



iOS AirPlay API



iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;

var video = document.getElementById("video");

video.addEventListener('webkitcurrentplaybacktargetiswirelesschanged',
    function(event) {
        updateAirPlayButtonWirelessStyle();
        updatePageDimmerForWirelessPlayback();
    });
```

iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;
```

```
var video = document.getElementById("video");
```

```
video.addEventListener('webkitcurrentplaybacktargetiswirelesschanged',
    function(event) {
        updateAirPlayButtonWirelessStyle();
        updatePageDimmerForWirelessPlayback();
    });
```

iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;

var video = document.getElementById("video");

video.addEventListener('webkitcurrentplaybacktargetiswirelesschanged',
    function(event) {
        updateAirPlayButtonWirelessStyle();
        updatePageDimmerForWirelessPlayback();
    });
```

Media Features

- iOS AirPlay API
- Styling captions for `<video>`



Media Features

- iOS AirPlay API
- Styling captions for `<video>`



Styling Captions for <video>



Place the croissants on a tray lined with parchment paper

Styling Captions for <video>

Newly supported features



Styling Captions for <video>

Newly supported features

- Captions inside the movie file



Styling Captions for <video>

Newly supported features

- Captions inside the movie file
- Styling cues



Styling Captions for `<video>`

Properties you can use to style `::cue`

`color`

`opacity`

`visibility`

`text-decoration`

`text-outline`

`text-shadow`

`background`

`outline`

`font`

`white-space`

Demo

Enrica Casucci

Safari and WebKit Engineer

Media Features

- iOS AirPlay API
- Styling captions for `<video>`



Enhancements

Enhancements



Enhancements

- Fonts



Enhancements

- Fonts
- CSS



Enhancements

- Fonts
- CSS
- Graphics



Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



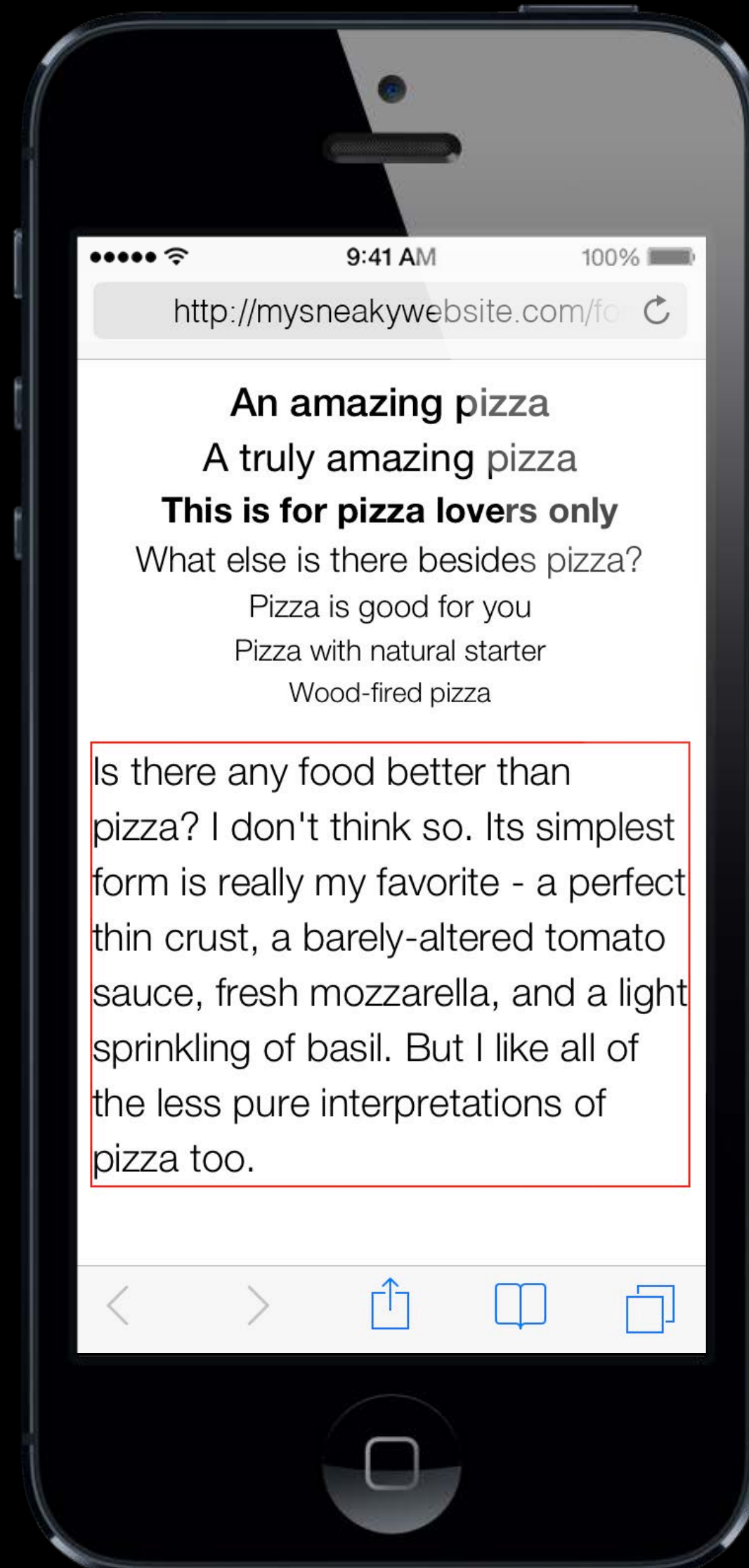
Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



Font Enhancements

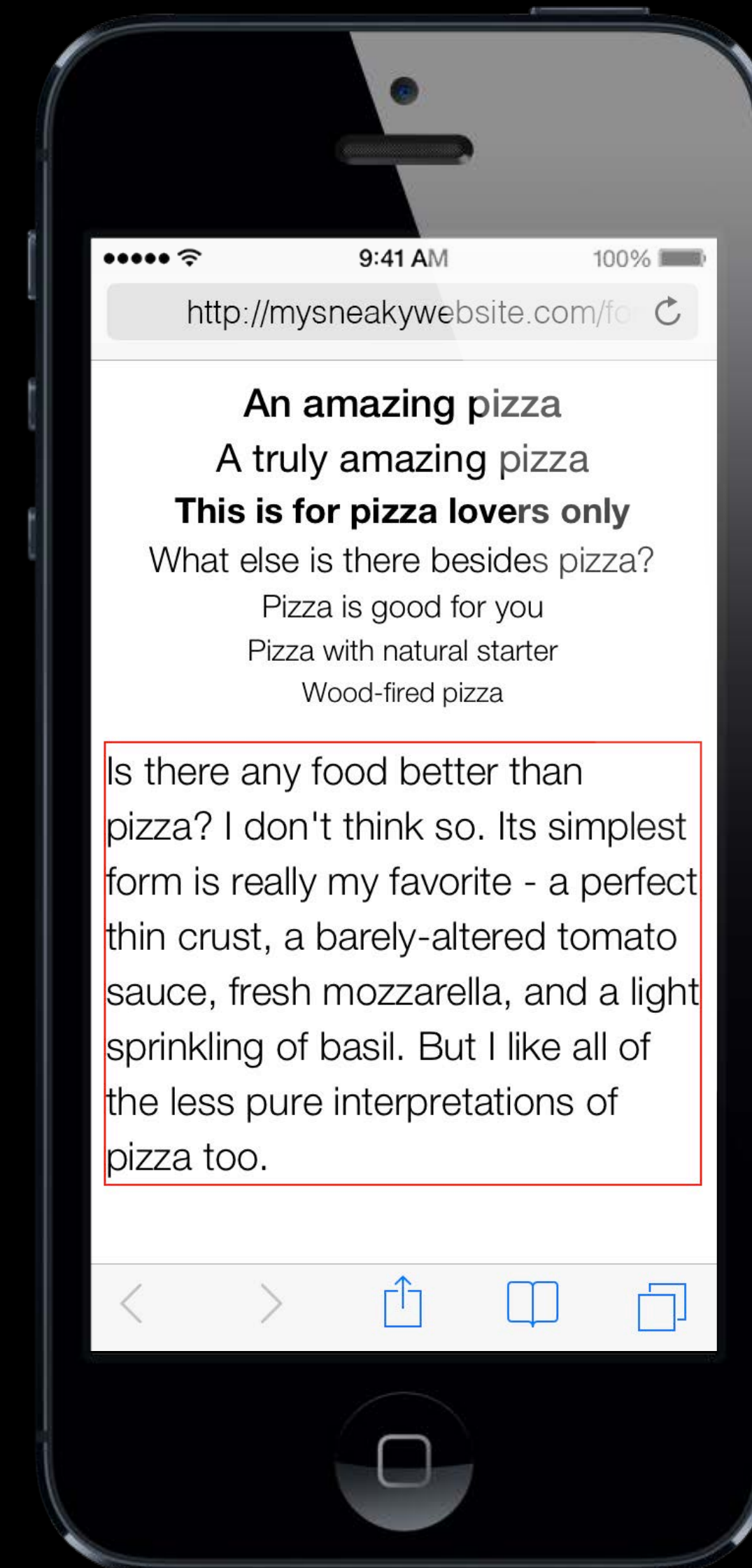
Dynamic type



Font Enhancements

Dynamic type

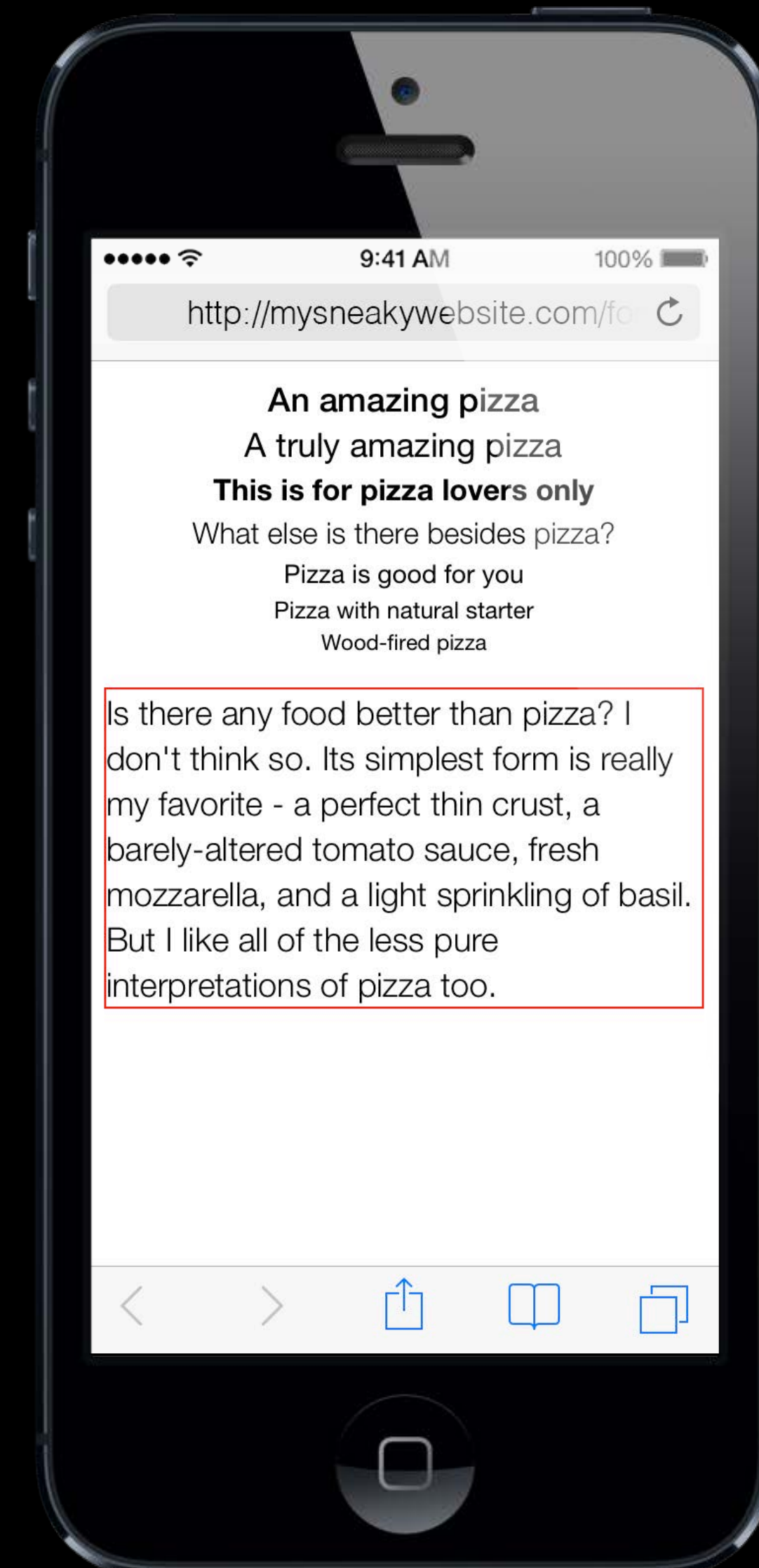
- apple-system-headline1
- apple-system-headline2
- apple-system-body
- apple-system-subheadline1
- apple-system-subheadline2
- apple-system-footnote
- apple-system-caption1
- apple-system-caption2
- apple-system-short-headline1
- apple-system-short-headline2
- apple-system-short-body
- apple-system-short-subheadline1
- apple-system-short-subheadline2
- apple-system-short-footnote
- apple-system-short-caption1
- apple-system-tall-body



Font Enhancements

Dynamic type

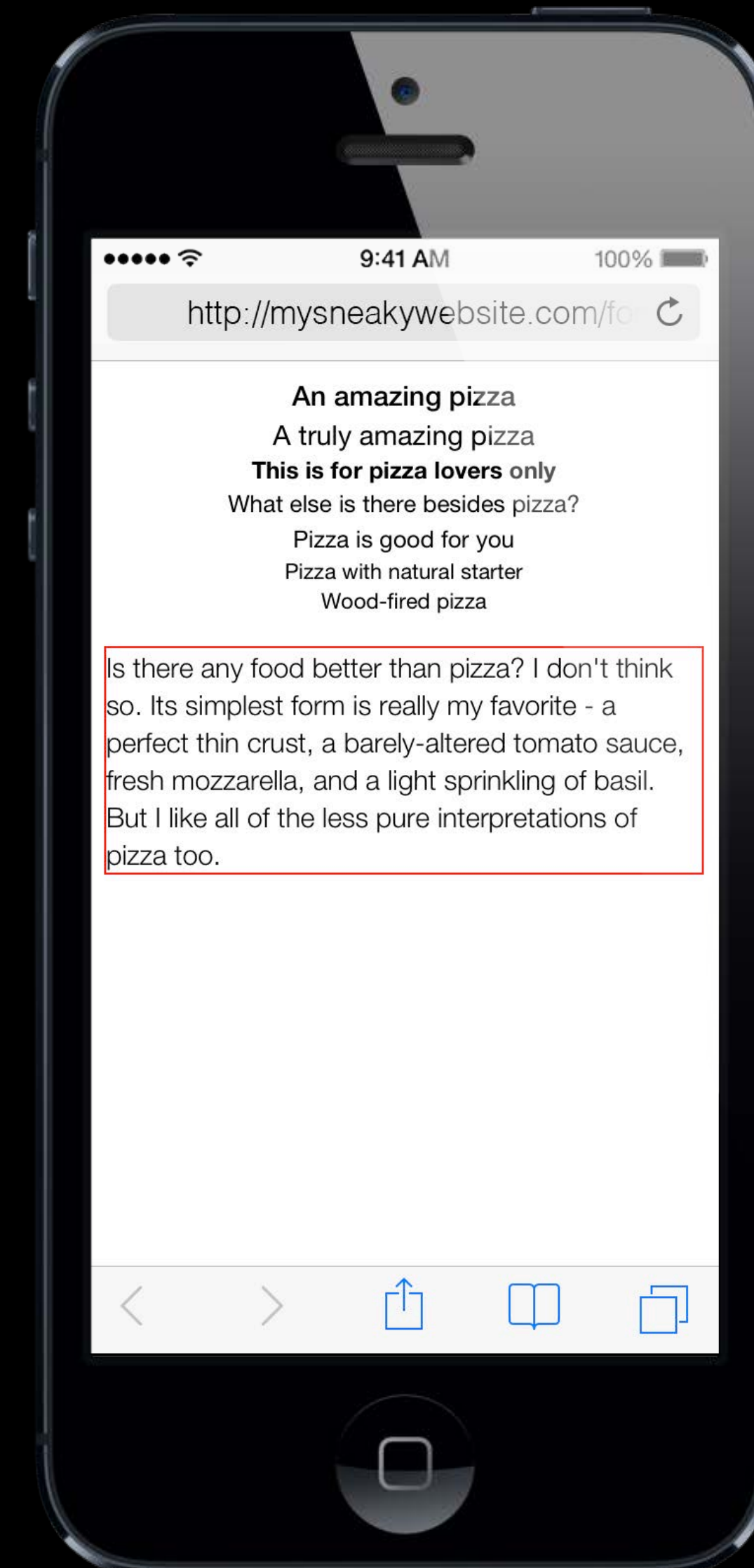
- apple-system-headline1
- apple-system-headline2
- apple-system-body
- apple-system-subheadline1
- apple-system-subheadline2
- apple-system-footnote
- apple-system-caption1
- apple-system-caption2
- apple-system-short-headline1
- apple-system-short-headline2
- apple-system-short-body
- apple-system-short-subheadline1
- apple-system-short-subheadline2
- apple-system-short-footnote
- apple-system-short-caption1
- apple-system-tall-body



Font Enhancements

Dynamic type

- apple-system-headline1
- apple-system-headline2
- apple-system-body
- apple-system-subheadline1
- apple-system-subheadline2
- apple-system-footnote
- apple-system-caption1
- apple-system-caption2
- apple-system-short-headline1
- apple-system-short-headline2
- apple-system-short-body
- apple-system-short-subheadline1
- apple-system-short-subheadline2
- apple-system-short-footnote
- apple-system-short-caption1
- apple-system-tall-body




Font Enhancements

Kerning and ligatures

My Pizza is Amazing

<http://www.mycookingwebsite.com/pizza> Reader

Pizza is Amazing



Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too.

From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food.

doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)

Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until someone drops their peas, I will continue to believe that pizza the most universally-loved food.

Font Enhancements

Kerning and ligatures

A V A W A

Font Enhancements

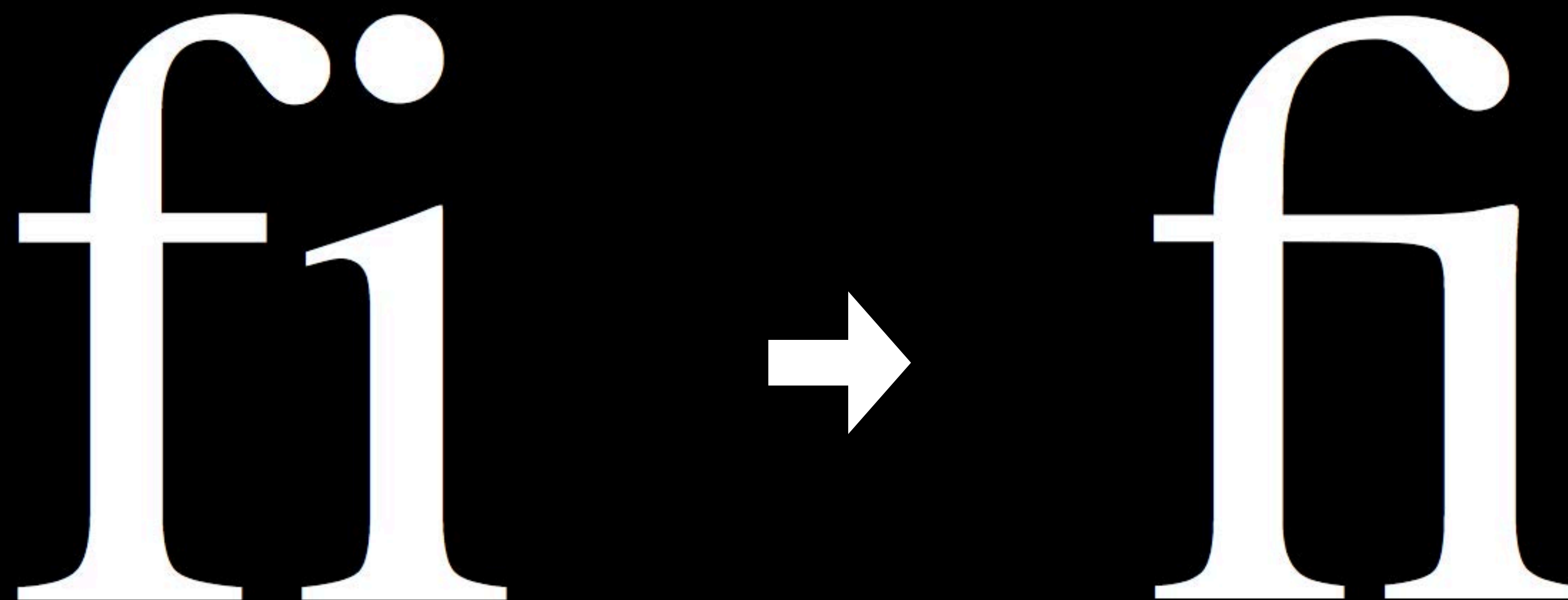
Kerning and ligatures

A V A W A

AVAWA

Font Enhancements

Kerning and ligatures



Font Enhancements

Kerning and ligatures

fixing example for boss

fixing example for boss

Font Enhancements

Kerning and ligatures

fixing example for boss

fixing example for boss

Font Enhancements

Kerning and ligatures

fixing example for boss

fixing example for boss

Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



CSS Enhancements

CSS calc()



```
.banner {  
    height: 50px;  
    width: calc(100% - 80px);  
    min-width: 100px;  
    text-align: center;  
    border: 2px solid black;  
    margin: auto auto;  
}
```


CSS Enhancements

-webkit-clip-path

My Pizza is Amazing

http://www.mycookingwebsite.com/pizza

Pizza is Amazing



Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too.

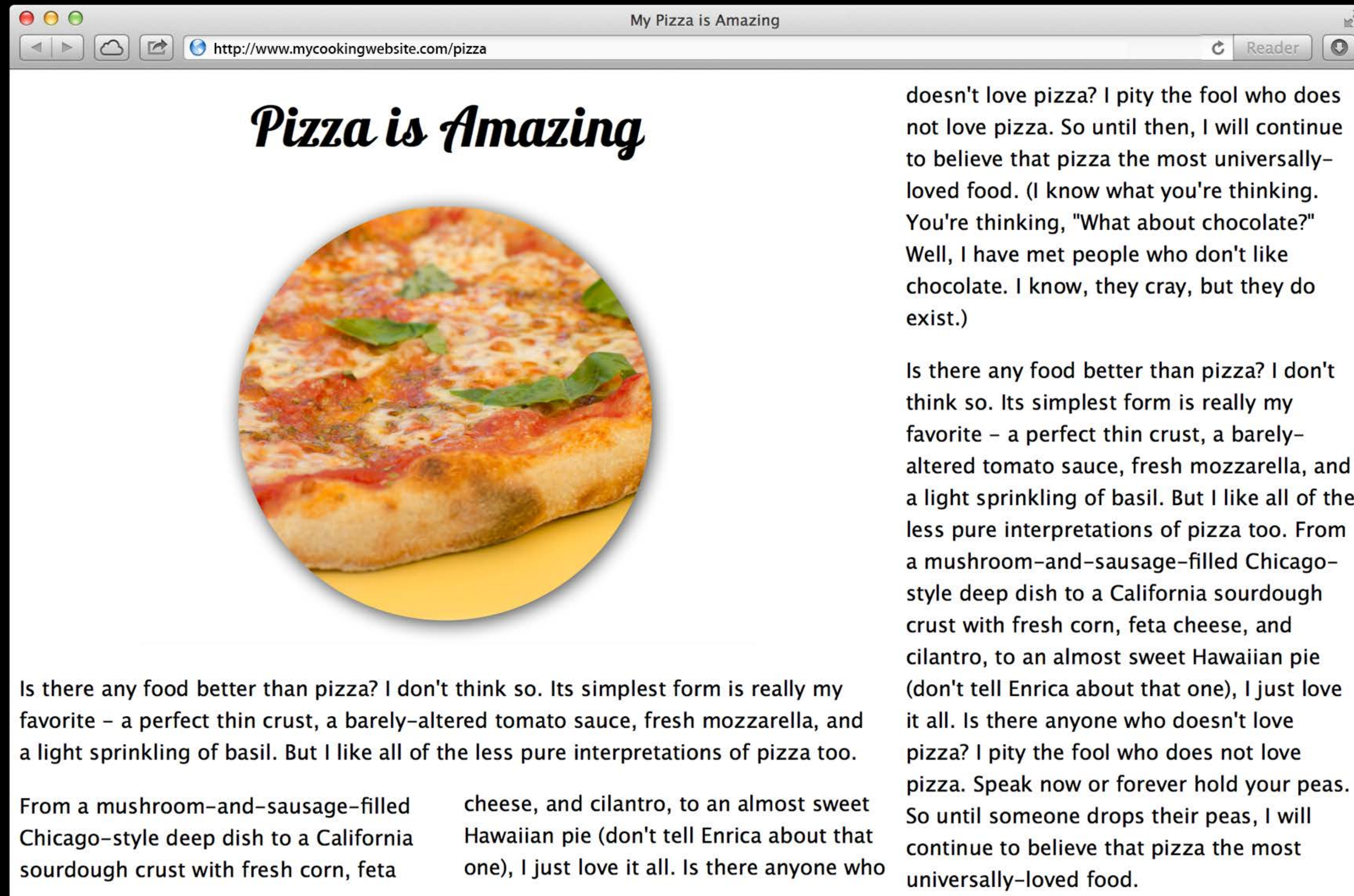
From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until someone drops their peas, I will continue to believe that pizza the most universally-loved food.

doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)

Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until someone drops their peas, I will continue to believe that pizza the most universally-loved food.

CSS Enhancements

-webkit-clip-path



Pizza is Amazing



Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too.

From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta

cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who

doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)

Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. Speak now or forever hold your peas. So until someone drops their peas, I will continue to believe that pizza the most universally-loved food.

CSS Enhancements

-webkit-clip-path

```
.clip-image {  
    -webkit-clip-path: circle(256, 180, 170);  
}
```



CSS Enhancements

`-webkit-clip-path`

- Shape values for `-webkit-clip-path`
 - `circle(x, y, radius)`
 - `rectangle(x, y, width, height)`
 - `ellipse(x, y, x-radius, y-radius)`
 - `polygon(fill-rule, x, y)`

Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



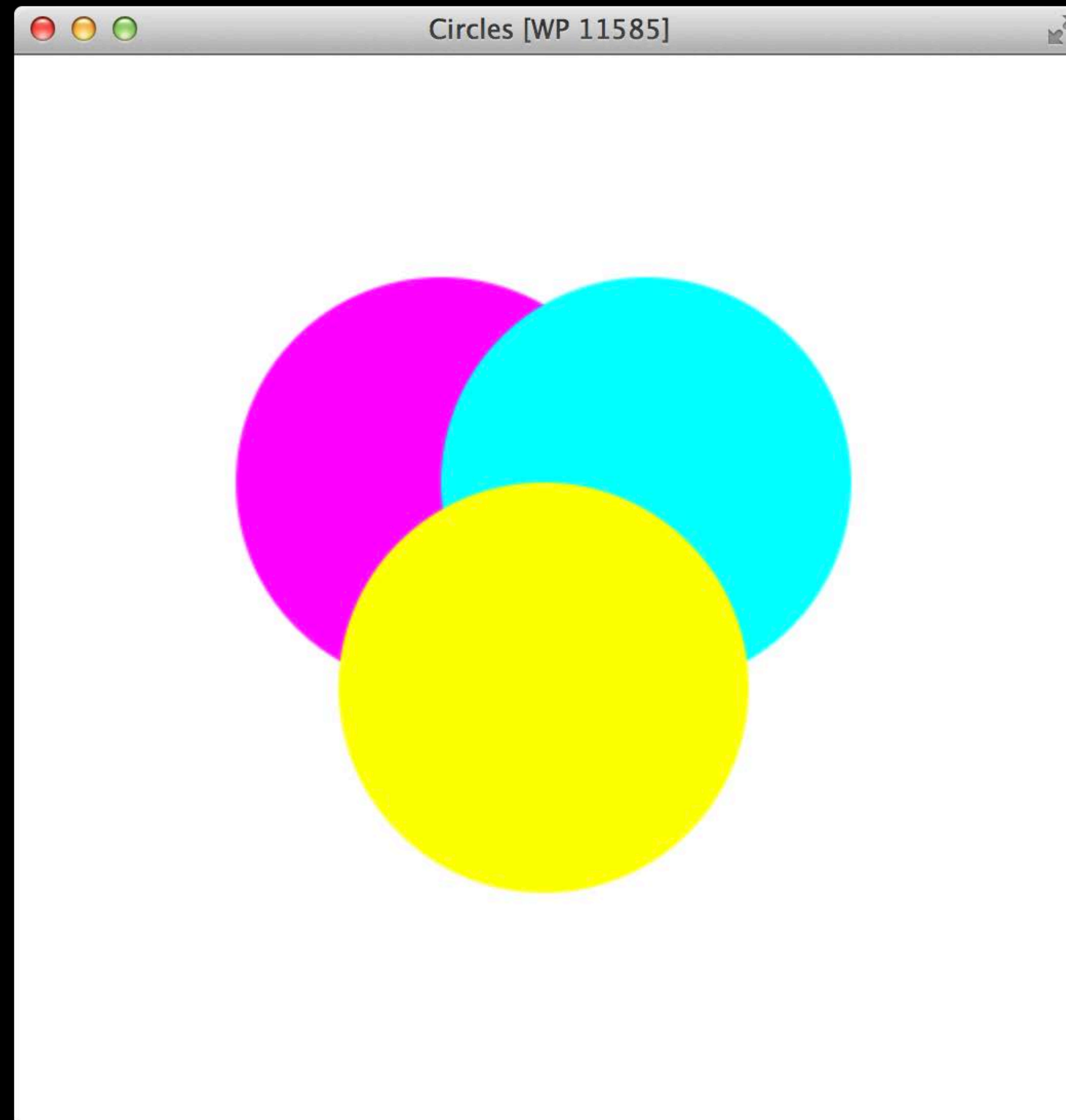
Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



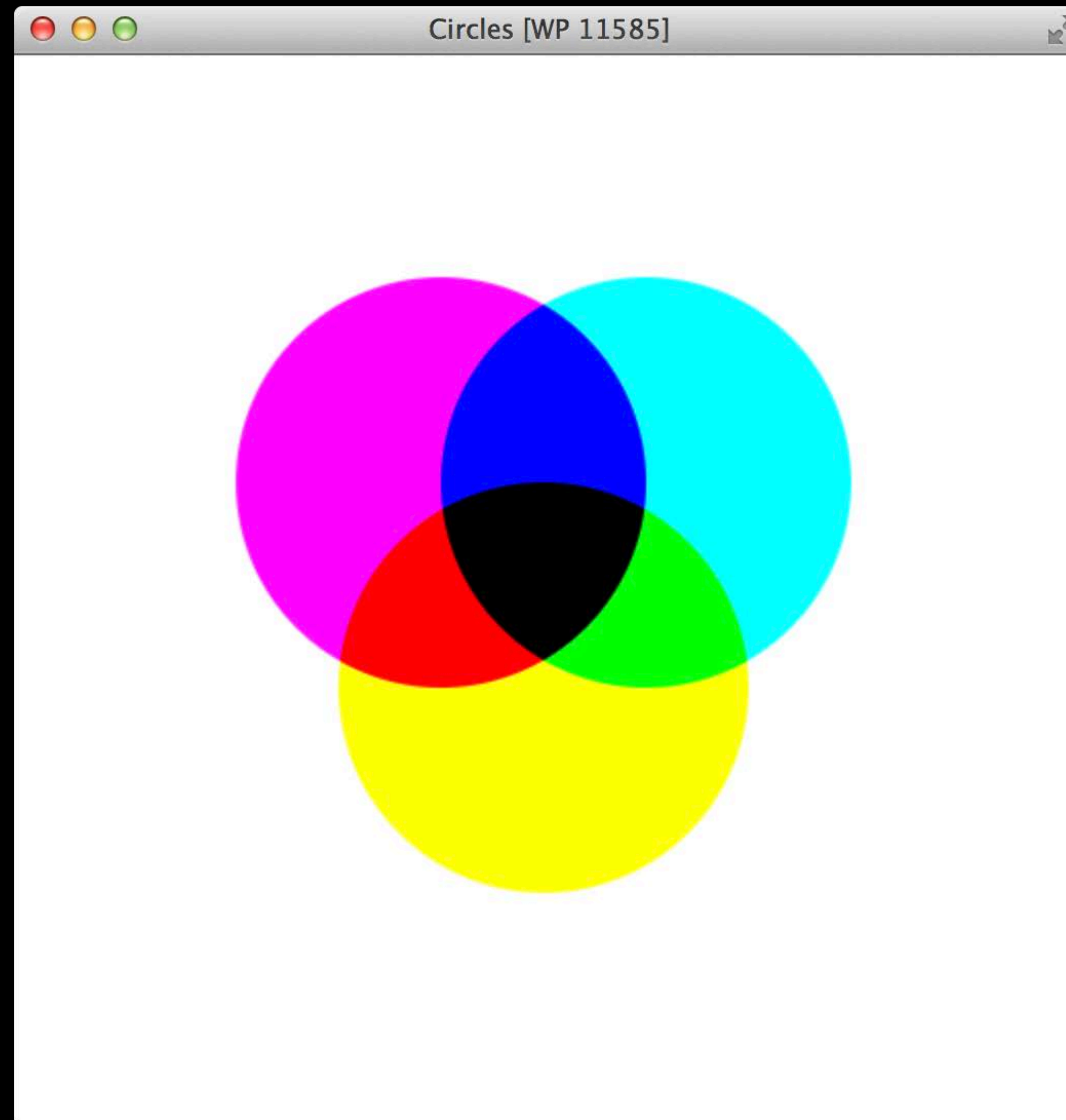
Graphics Enhancements

Canvas blending modes



Graphics Enhancements

Canvas blending modes

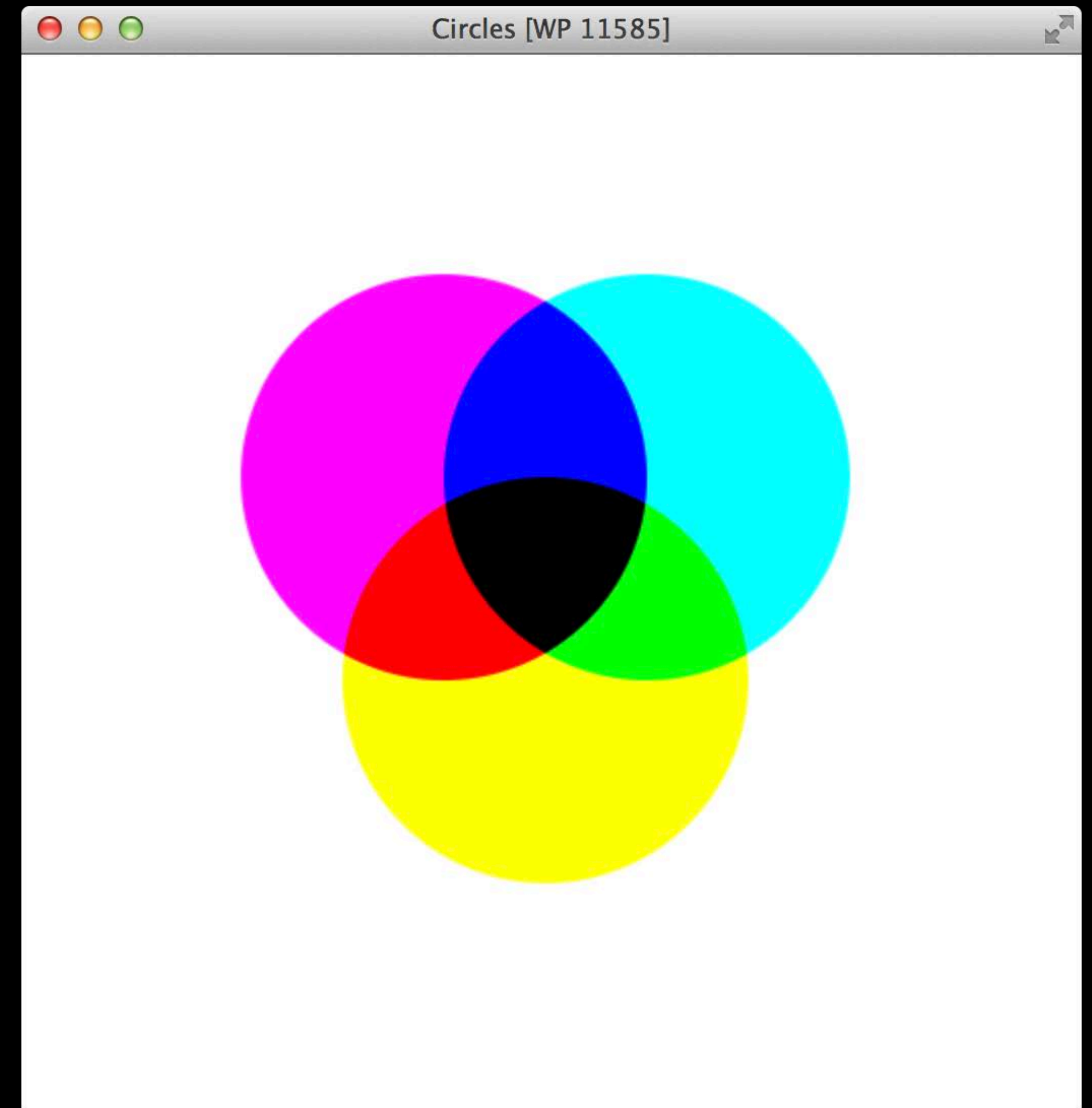


Graphics Enhancements

Canvas blending modes



```
function drawBlendedCircles(ctx) {  
    ctx.globalCompositeOperation =  
        'multiply';  
  
    // Draw magenta circle  
    ...  
  
    // Draw cyan circle  
    ...  
  
    // Draw yellow circle  
    ...  
}
```



Graphics Enhancements

Canvas Path() object

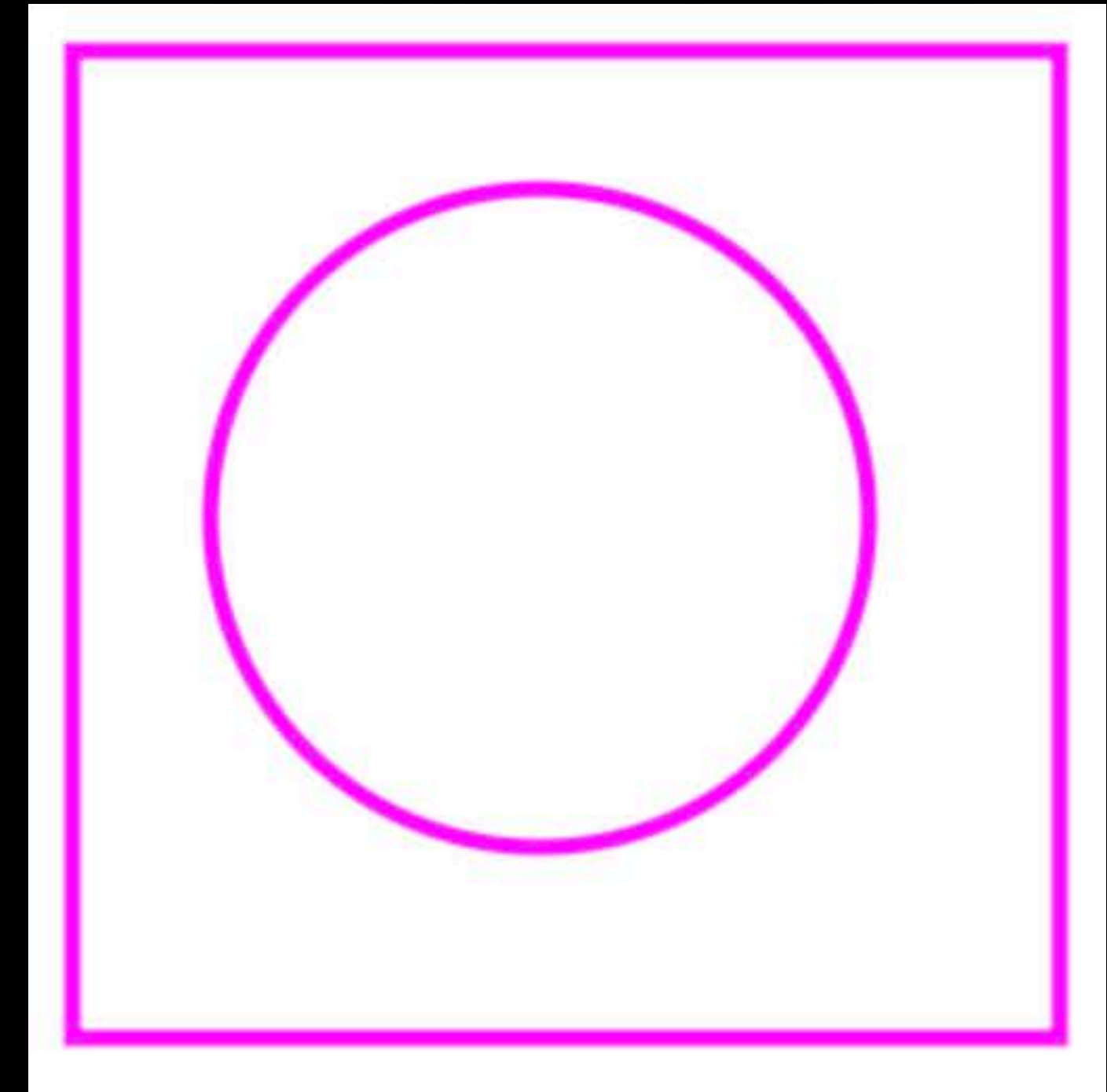


Graphics Enhancements

Canvas Path() object



```
function drawPaths() {  
  ...  
  // Create and store a square.  
  var square = new Path();  
  square.rect(8, 8, 300, 300);  
  
  // Create and store a circle.  
  var circle = new Path();  
  circle.arc(150, 150, 100, 0,  
            Math.PI*2, true);  
  
  ctx.stroke(square);  
  ctx.stroke(circle);  
}
```



Graphics Enhancements

Canvas on Retina

Graphics Enhancements

Canvas on Retina

- `<canvas>` on Retina needs a 2X backing store

Graphics Enhancements

Canvas on Retina

- `<canvas>` on Retina needs a 2X backing store
- Safari 6 auto-doubles to ensure this

Graphics Enhancements

Canvas on Retina

- `<canvas>` on Retina needs a 2X backing store
- Safari 6 auto-doubles to ensure this
- iOS did not auto-double

Graphics Enhancements

Canvas on Retina

- `<canvas>` on Retina needs a 2X backing store
- Safari 6 auto-doubles to ensure this
- iOS did not auto-double
- People got confused

Graphics Enhancements

Canvas on Retina

- `<canvas>` on Retina needs a 2X backing store
- Safari 6 auto-doubles to ensure this
- iOS did not auto-double
- People got confused
- And sad

Graphics Enhancements

Canvas on Retina

- `<canvas>` on Retina needs a 2X backing store
- Safari 6 auto-doubles to ensure this
- iOS did not auto-double
- People got confused
- And sad
- Safari 7 no longer auto-doubles

Graphics Enhancements

Canvas on Retina

- `<canvas>` on Retina needs a 2X backing store
- Safari 6 auto-doubles to ensure this
- iOS did not auto-double
- People got confused
- And sad
- Safari 7 no longer auto-doubles
- If you used `webkitBackingStorePixelRatio`, your code still does the right thing

Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



Enhancements

Changes that might affect you

Enhancements

Changes that might affect you

- `<canvas>` no longer auto-doubles

Enhancements

Changes that might affect you

- `<canvas>` no longer auto-doubles
- Kerning and ligatures on by default

Enhancements

Changes that might affect you

- `<canvas>` no longer auto-doubles
- Kerning and ligatures on by default
- background shorthand will override earlier settings

Enhancements

Changes that might affect you

- `<canvas>` no longer auto-doubles
- Kerning and ligatures on by default
- background shorthand will override earlier settings

```
.fit {  
    background-size: 100px 100px;  
}
```

```
...
```

```
.reset {  
    background: none;  
}
```

Enhancements

Changes that might affect you

- `<canvas>` no longer auto-doubles
- Kerning and ligatures on by default
- background shorthand will override earlier settings

```
.hot {  
    background-size: 100px 100px;  
    background: red url('image.png');  
}
```

Enhancements

Changes that might affect you

- `<canvas>` no longer auto-doubles
- Kerning and ligatures on by default
- background shorthand will override earlier settings
- `-webkit-transition` is now `transition`

Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



Summary

Summary

- Rich, magazine-like layouts are coming to the web

Summary

- Rich, magazine-like layouts are coming to the web
- Better integration with platform and devices

Summary

- Rich, magazine-like layouts are coming to the web
- Better integration with platform and devices
- Tons of new stuff in WebKit all the time!

More Information

John Geleynse

Director, Technology Evangelist
geleynse@apple.com

Documentation

AV Foundation Programming Guide

<https://developer.apple.com/library/mac/#documentation/AudioVideo/Conceptual/AVFoundationPG/>

Technical Note TN2300: Transitioning QTKit code to AV Foundation

<https://developer.apple.com/library/mac/technotes/tn2300/>

Apple Developer Forums

<http://devforums.apple.com>

Related Sessions

Getting to Know Web Inspector	Russian Hill Tuesday 10:15AM	
Getting the Most Out of Web Inspector	Russian Hill Tuesday 11:30AM	
Power and Performance: Optimizing Your Website for Great Battery Life and Responsive Scrolling	Russian Hill Wednesday 9:00AM	
Preparing and Presenting Media for Accessibility	Nob Hill Wednesday 10:15AM	
Implementing OS X Push Notifications for Websites	Marina Friday 9:00AM	
Integrating JavaScript into Native Apps	Marina Friday 10:15AM	

Labs

Safari and WebKit Open Lab

Media Lab A
Tuesday 10:15AM

Safari and Web Tools Lab

Media Lab A
Tuesday 12:45PM

 WWDC2013