

CSS

FLEXBOX & CSS GRID

FLEXBOX

# Flexibility

Basis / Grow / Shrink



**IN A ROCKET**

Learn front-end development at *rocket speed*

← **FLEX-GROW** →



← **FLEX-BASIS** →

→ **FLEX-SHRINK** ←

**FLEX-BASIS**



**FLEX-GROW**



**FLEX-SHRINK**



**FLEX-BASIS**



**FLEX-GROW**

**FLEX-SHRINK**

“**Flex basis:** the initial main size of the flex item, before free space is distributed according to the flex factors.”



SOURCE: [CSS Flexible Box Layout Module Level 1](#) by W3C.

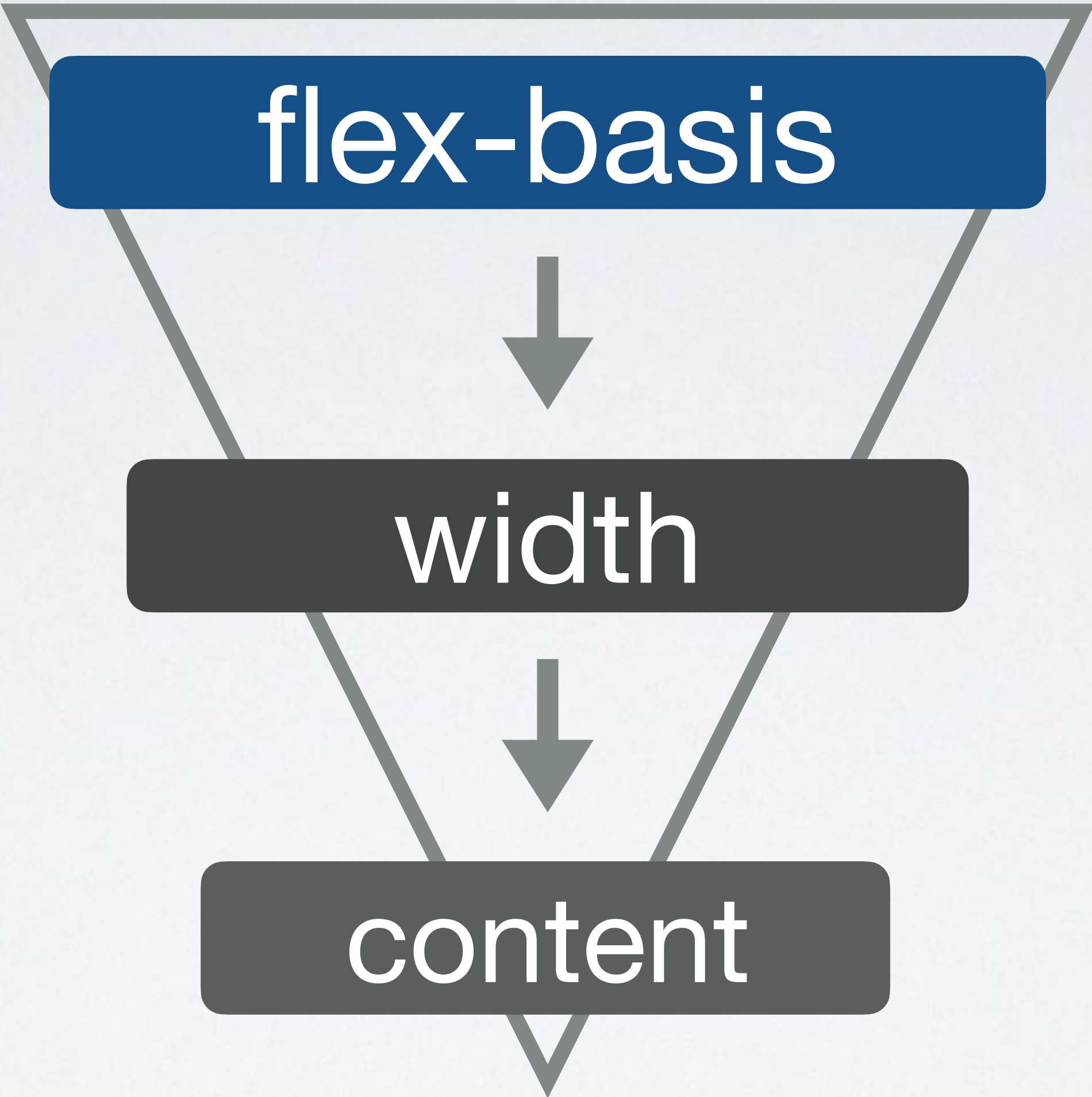
# flex-basis

auto (default)

content

*width*

# FLEX-BASIS: PRIORITY IN FLEXBOX



# FLEX-BASIS

## HTML

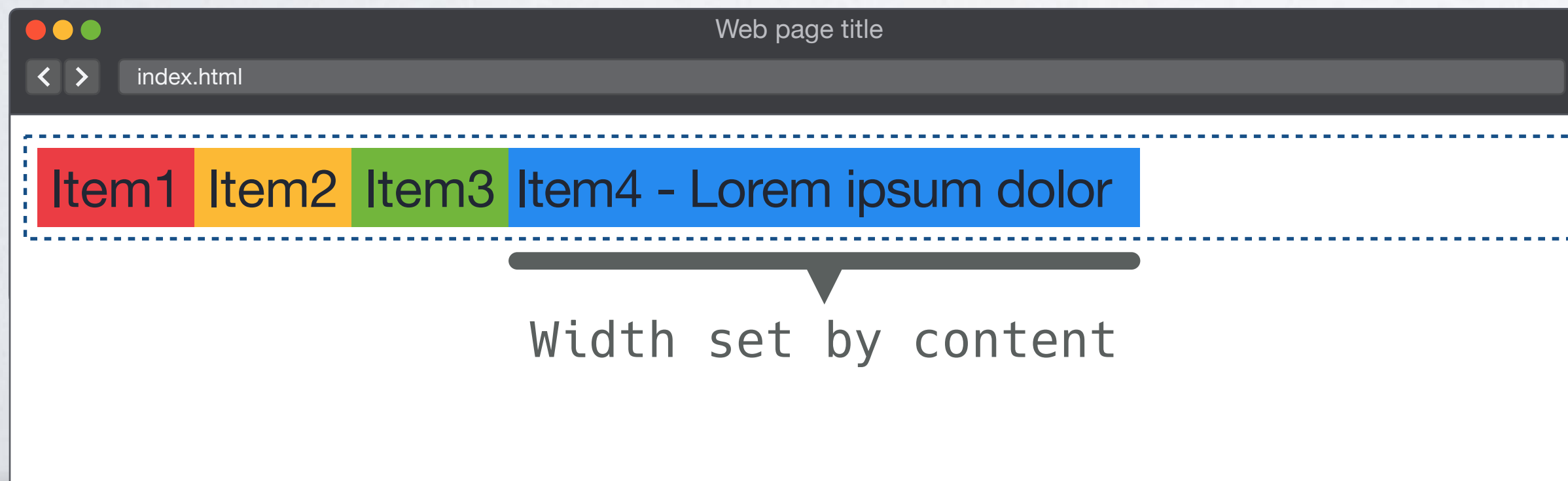
```
<body>
<div class="container">
  <div>Item1</div>
  <div>Item2</div>
  <div>Item3</div>
  <div class="i4">Item4</div>
</div>
</body>
```

## CSS

```
.container {display: flex;}

.i4 {
  flex-basis: auto; /* Or not defined */
}
```

## Browser





# FLEX-BASIS

## HTML

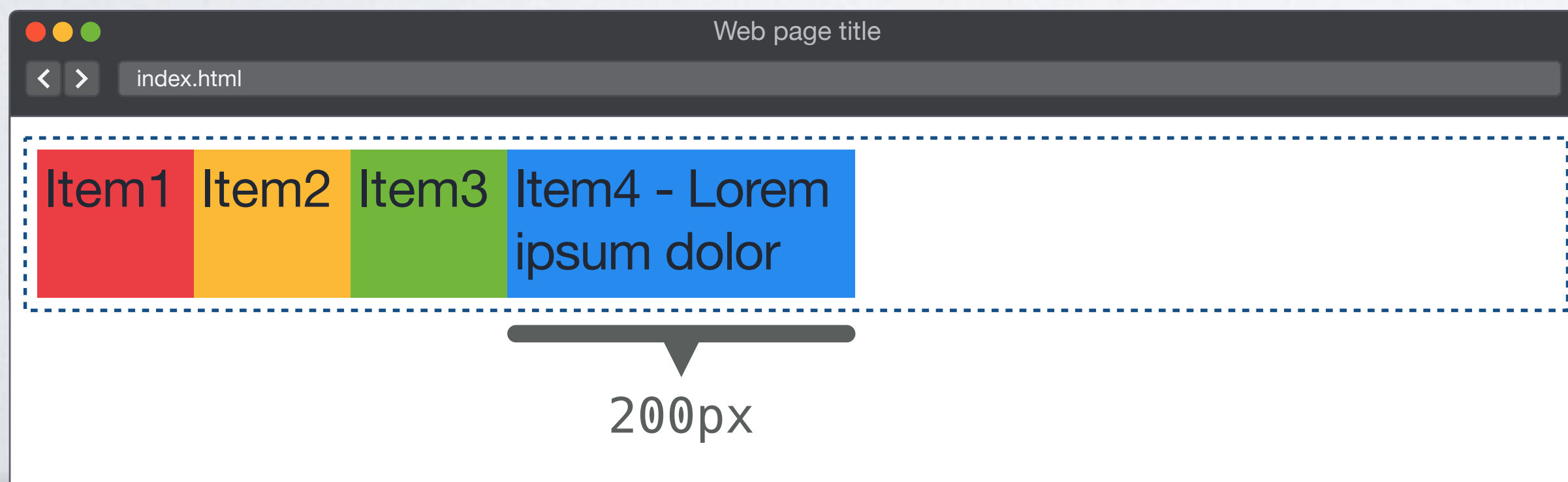
```
<body>
<div class="container">
  <div>Item1</div>
  <div>Item2</div>
  <div>Item3</div>
  <div class="i4">Item4</div>
</div>
</body>
```

## CSS

```
.container {display: flex;}

.i4 {
  flex-basis: auto; /* Or no defined */
  width: 200px; ← Prevails
}
```

## Browser



# FLEX-BASIS

## HTML

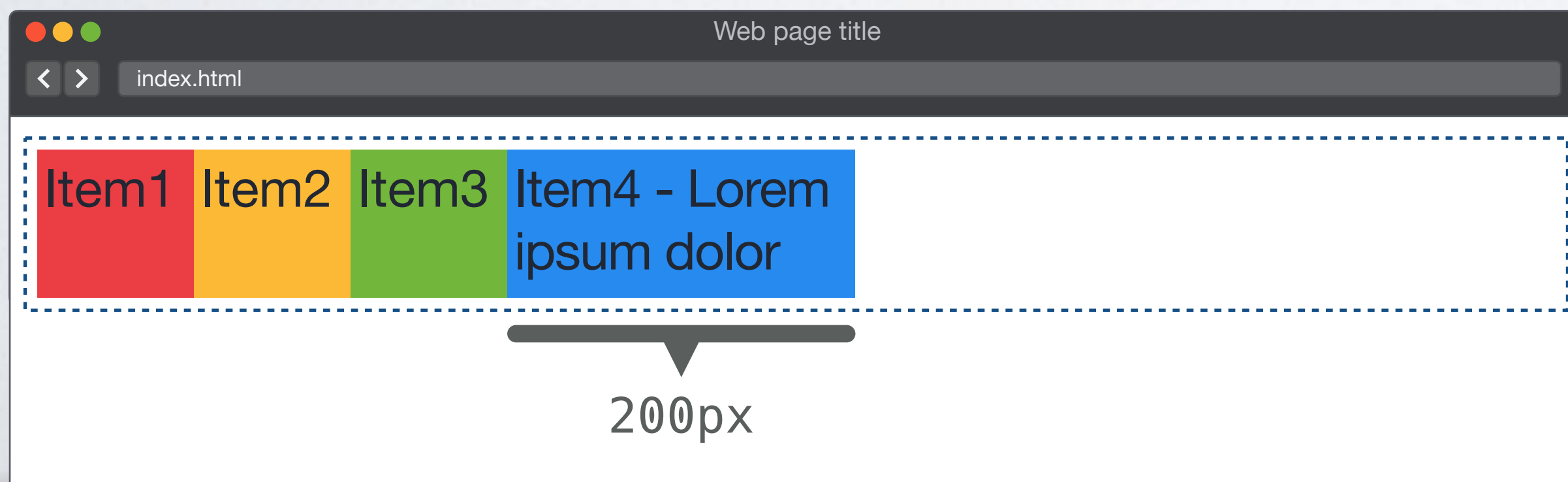
```
<body>
<div class="container">
  <div>Item1</div>
  <div>Item2</div>
  <div>Item3</div>
  <div class="i4">Item4</div>
</div>
</body>
```

## CSS

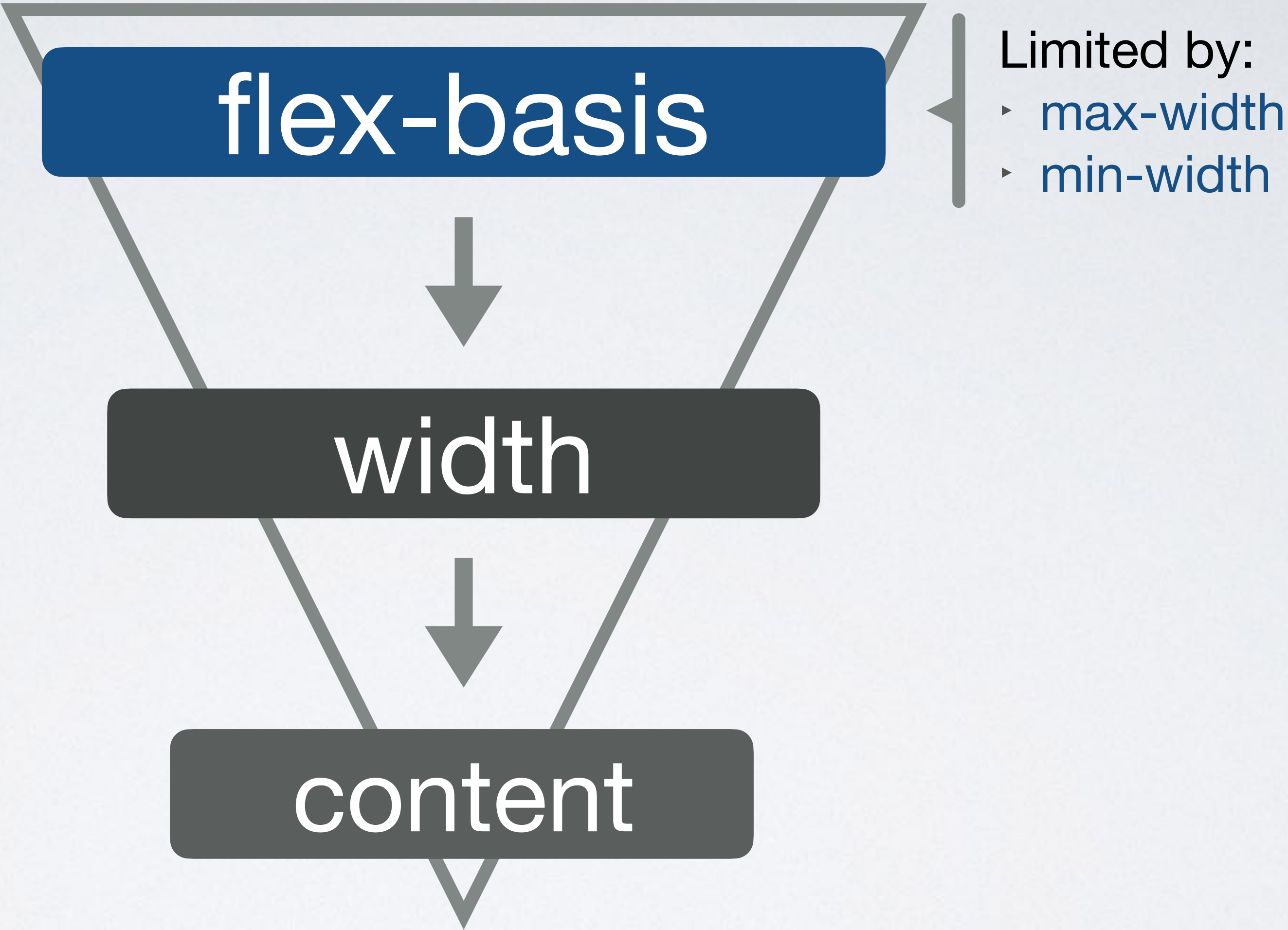
```
.container {display: flex;}

.i4 {
  flex-basis: 200px; ← Prevails
  width: 50px;
}
```

## Browser



# FLEX-BASIS: PRIORITY IN FLEXBOX



# FLEX-BASIS

## HTML

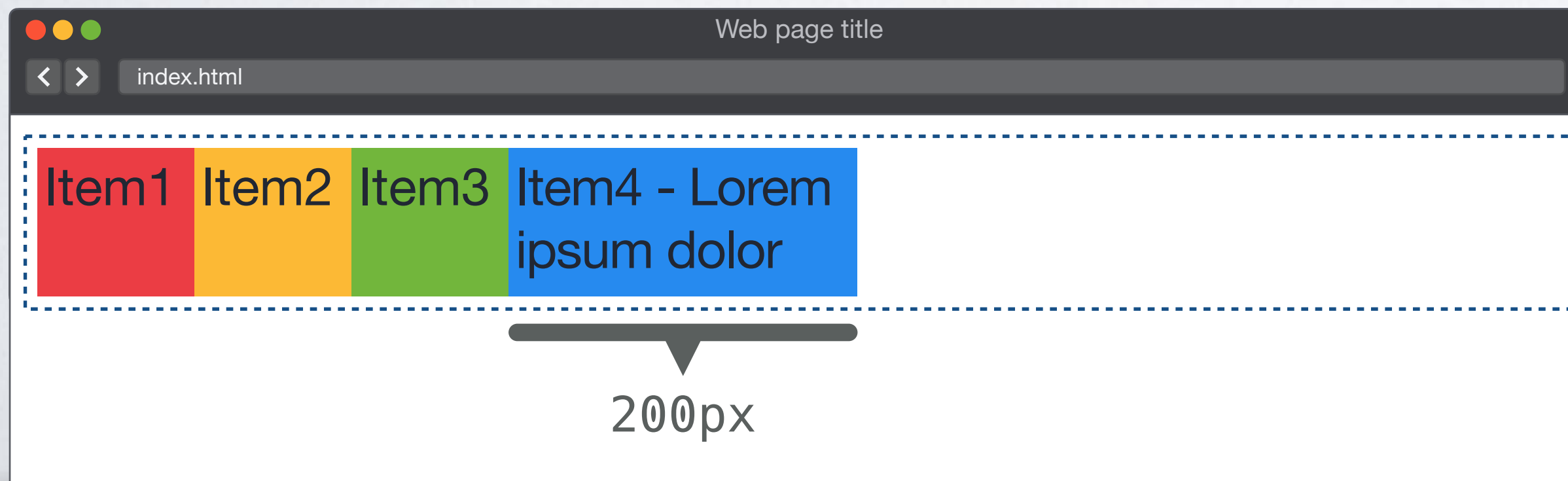
```
<body>
<div class="container">
  <div>Item1</div>
  <div>Item2</div>
  <div>Item3</div>
  <div class="i4">Item4</div>
</div>
</body>
```

## CSS

```
.container {display: flex;}

.i4 {
  flex-basis: 5000px;
  max-width: 200px; ← Sets limit
}
```

## Browser



# FLEX-BASIS

## HTML

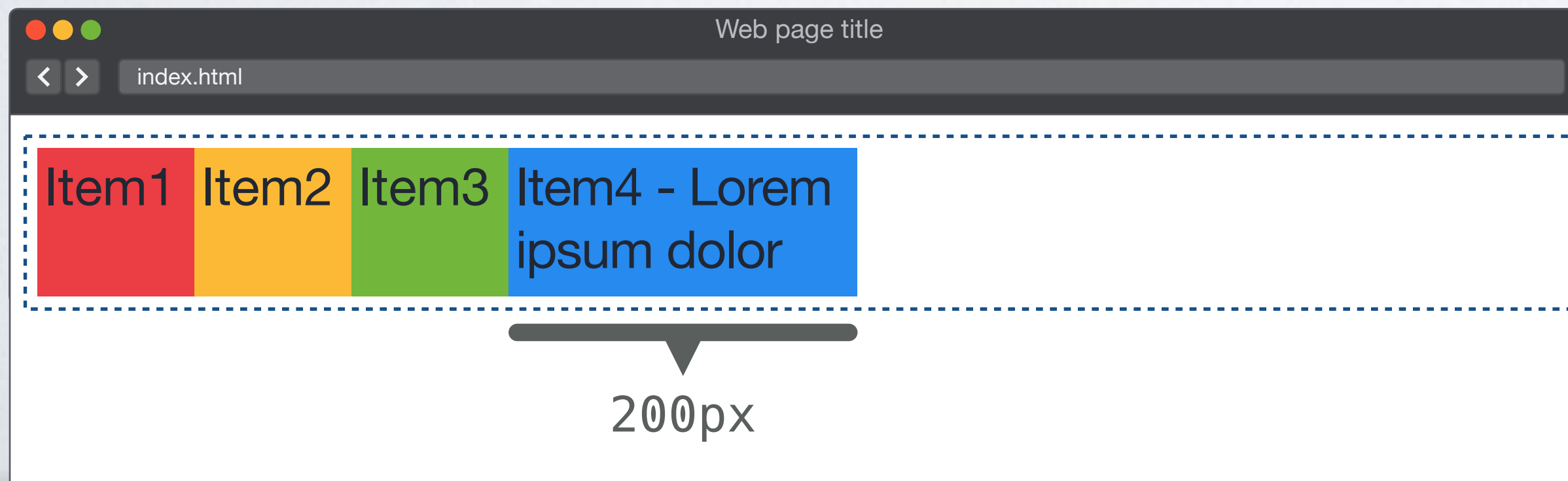
```
<body>
<div class="container">
  <div>Item1</div>
  <div>Item2</div>
  <div>Item3</div>
  <div class="i4">Item4</div>
</div>
</body>
```

## CSS

```
.container {display: flex;}

.i4 {
  flex-basis: 50px;
  min-width: 200px; ← Sets limit
}
```

## Browser



**FLEX-BASIS**

**FLEX-GROW**



**FLEX-SHRINK**

“**Flex basis:** the initial main size of the flex item,  
before free space is distributed according to the flex factors.”



SOURCE: [CSS Flexible Box Layout Module Level 1](#) by W3C.

**flex-grow**

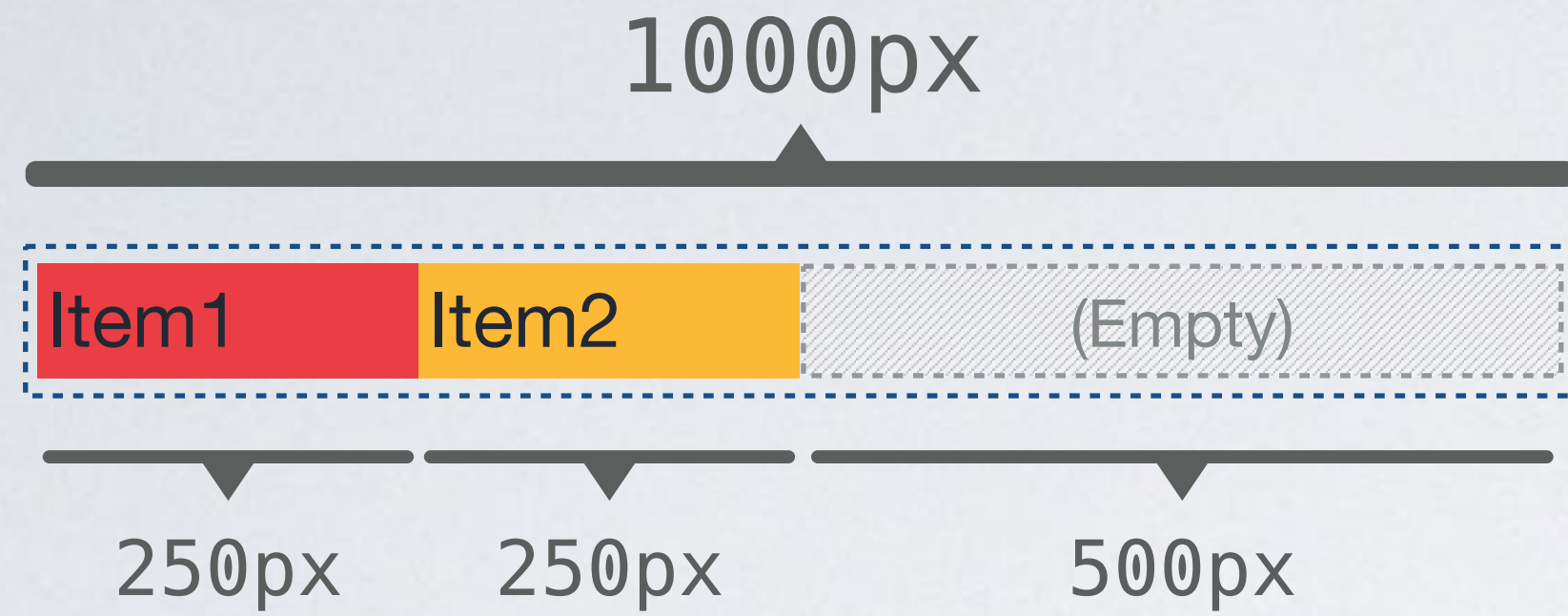
*number* (default: 0)

Not negative



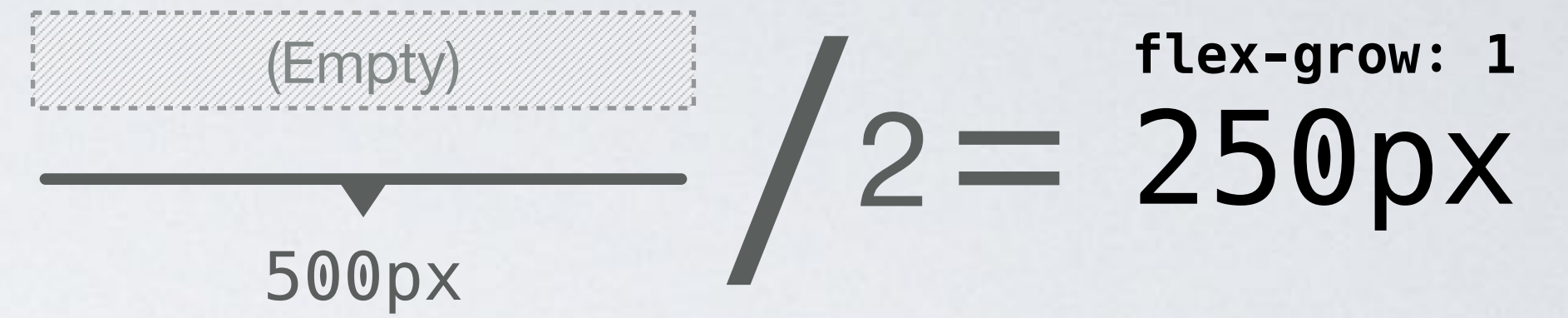
1

```
.i1 {flex-basis: 250px; flex-grow: 0 /* Default*/}
.i2 {flex-basis: 250px; flex-grow: 0 /* Default*/}
```



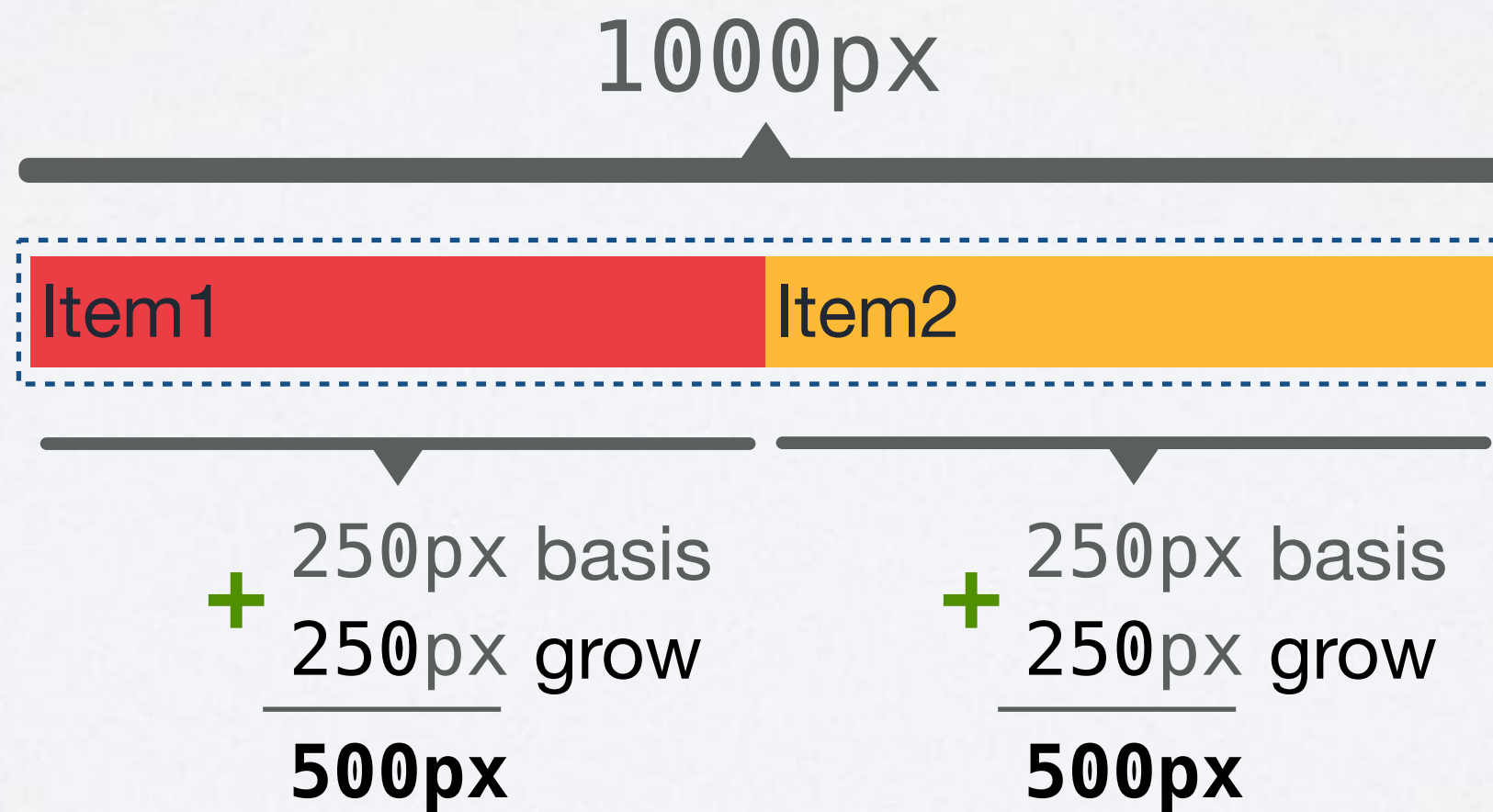
2

```
.i1 {flex-basis: 250px; flex-grow: 1}
.i2 {flex-basis: 250px; flex-grow: 1} ▶ 2
```



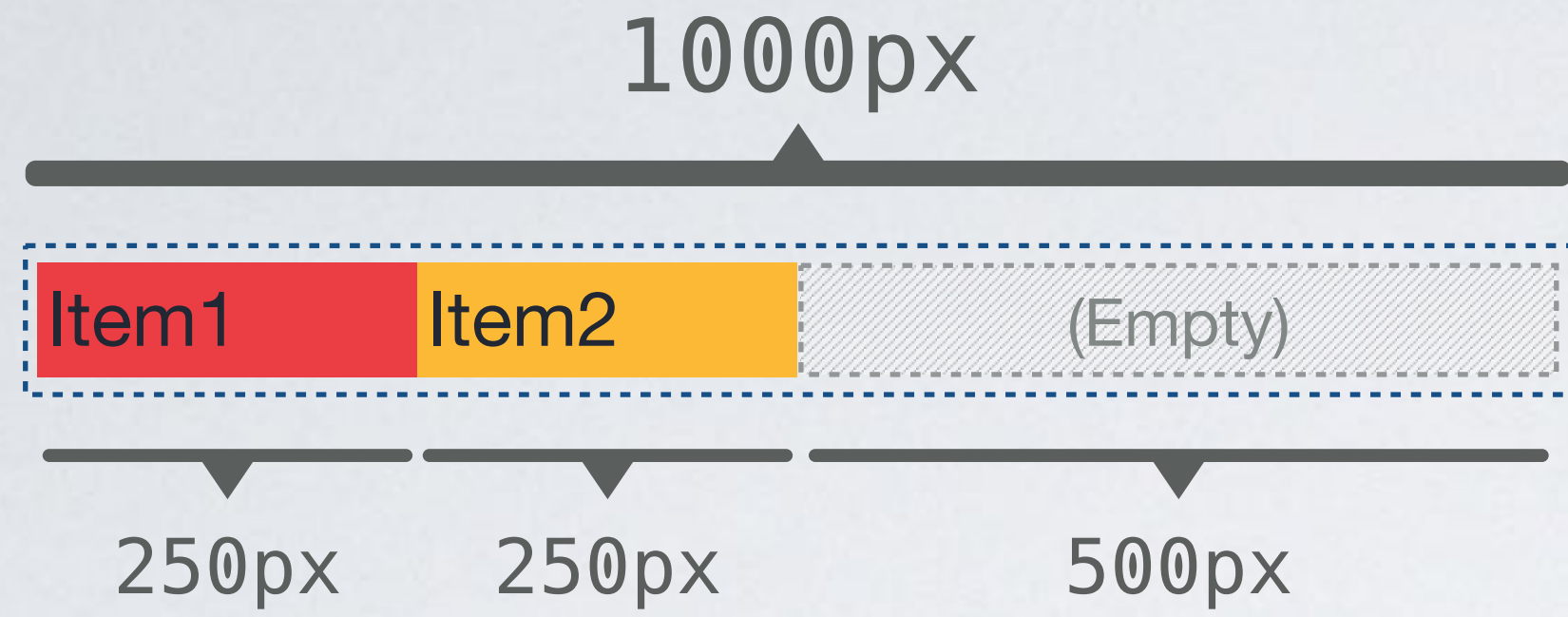
3

```
.i1 {flex-basis: 250px; flex-grow: 1}
.i2 {flex-basis: 250px; flex-grow: 1}
```



1

```
.i1 {flex-basis: 250px; flex-grow: 0 /* Default*/}
.i2 {flex-basis: 250px; flex-grow: 0 /* Default*/}
```



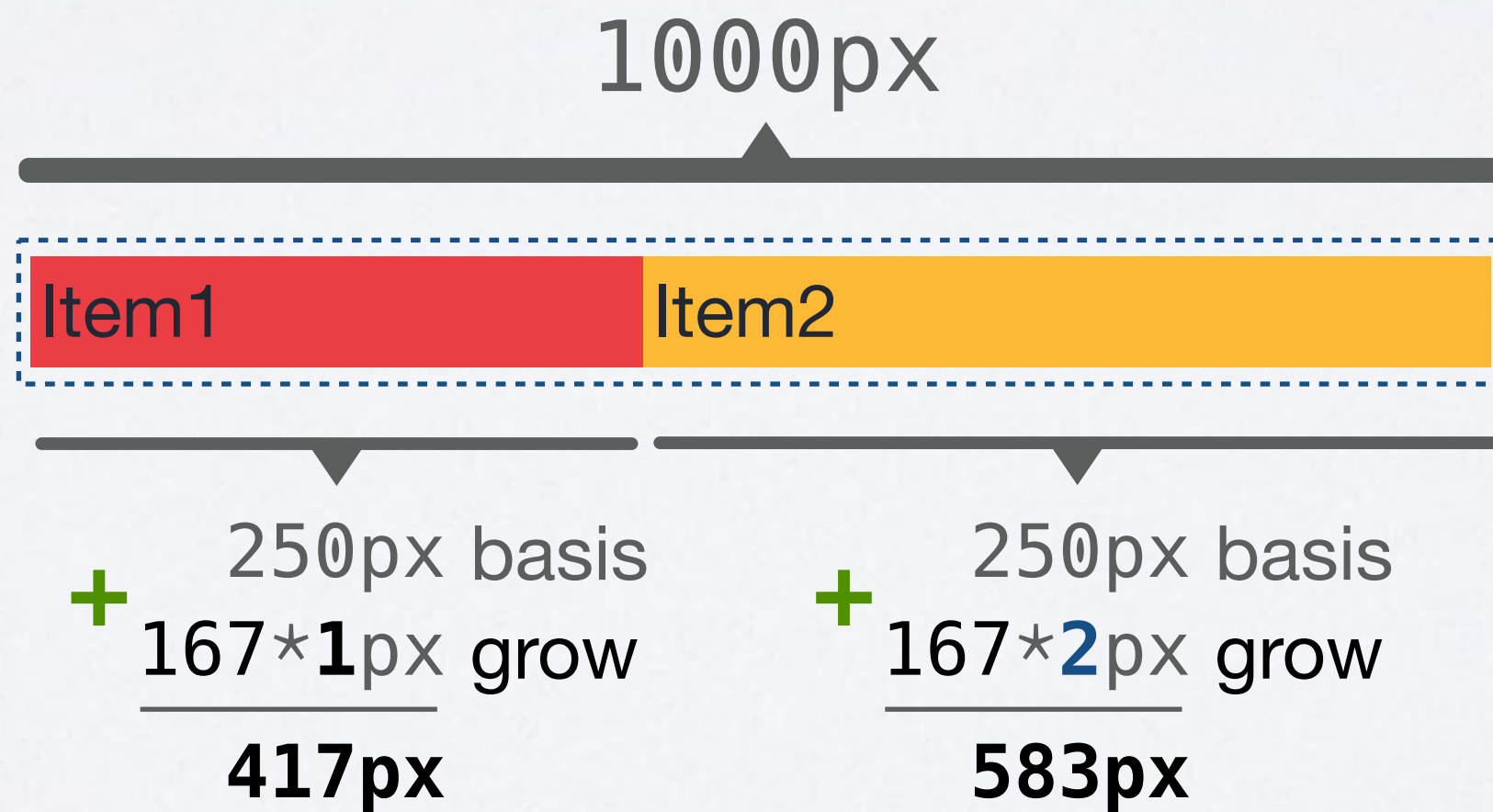
2

```
.i1 {flex-basis: 250px; flex-grow: 1}
.i2 {flex-basis: 250px; flex-grow: 2} ▶ 3
```



3

```
.i1 {flex-basis: 250px; flex-grow: 1}
.i2 {flex-basis: 250px; flex-grow: 2}
```



## HTML

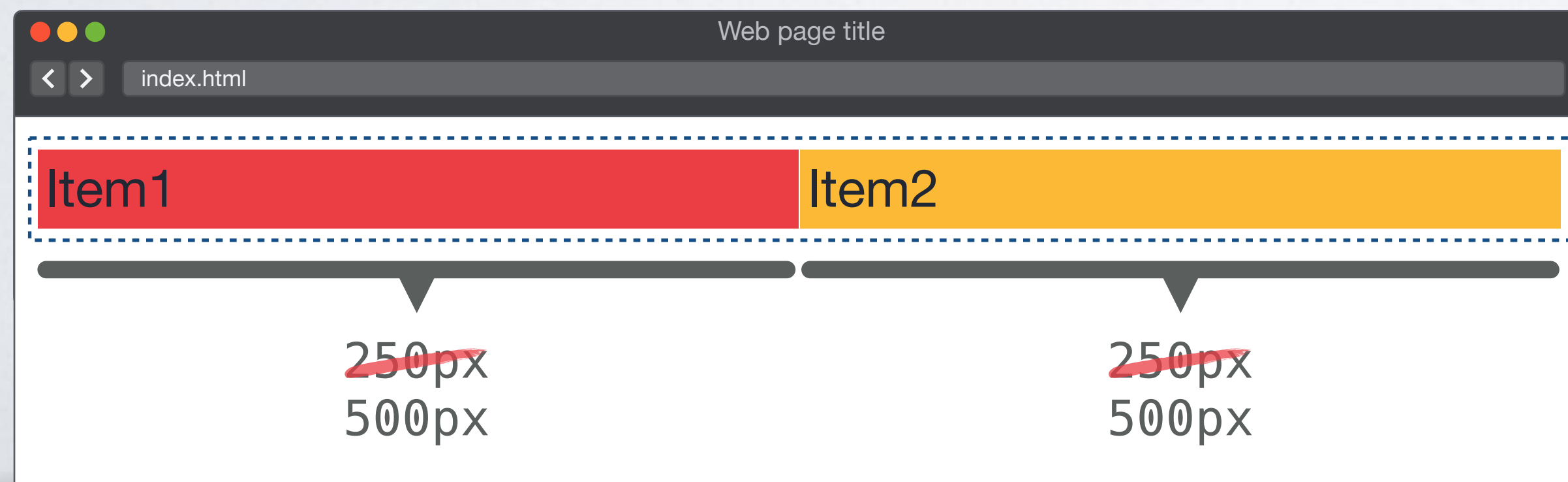
```
<body>
<div class="container">
  <div class="i1">Item1</div>
  <div class="i2">Item2</div>
</div>
</body>
```

## CSS

```
.container {
  display: flex;
  width: 1000px;
}

.i1, .i2 {
  flex-basis: 250px;
  flex-grow: 1;
}
```

## Browser



1000px

With flex-grow the items fill the available space.  
flex-grow: 1

**FLEX-BASIS**

**FLEX-GROW**

**FLEX-SHRINK**



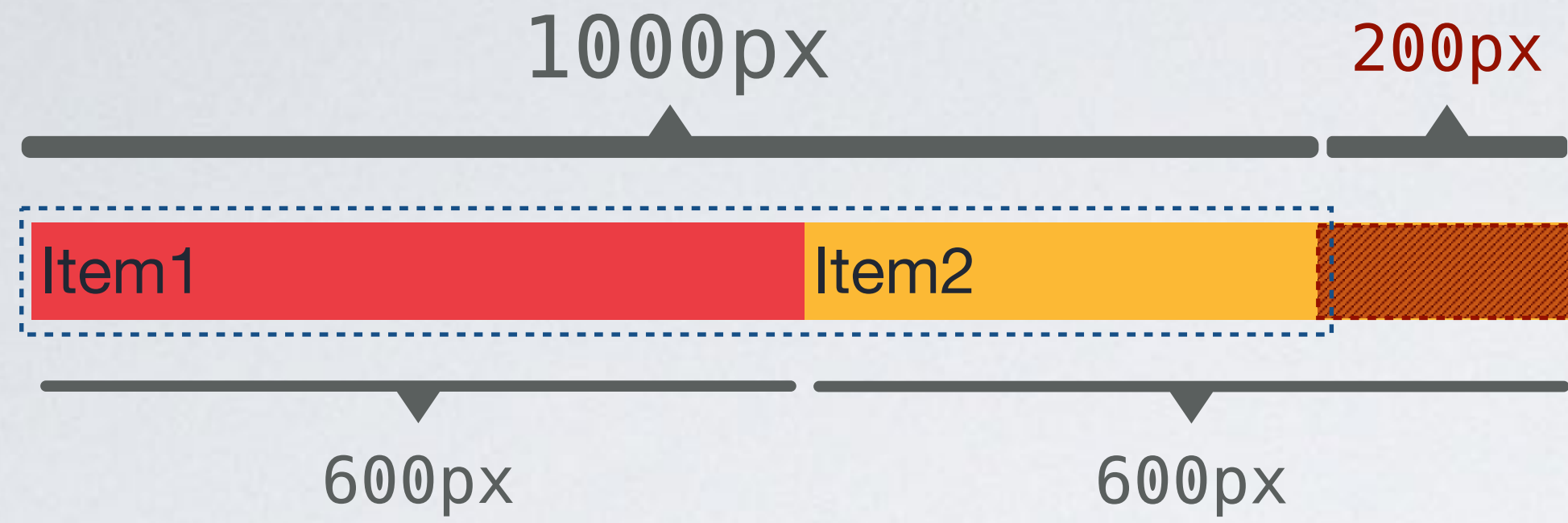
**flex-shrink**

*number* (default: 1)

Not negative

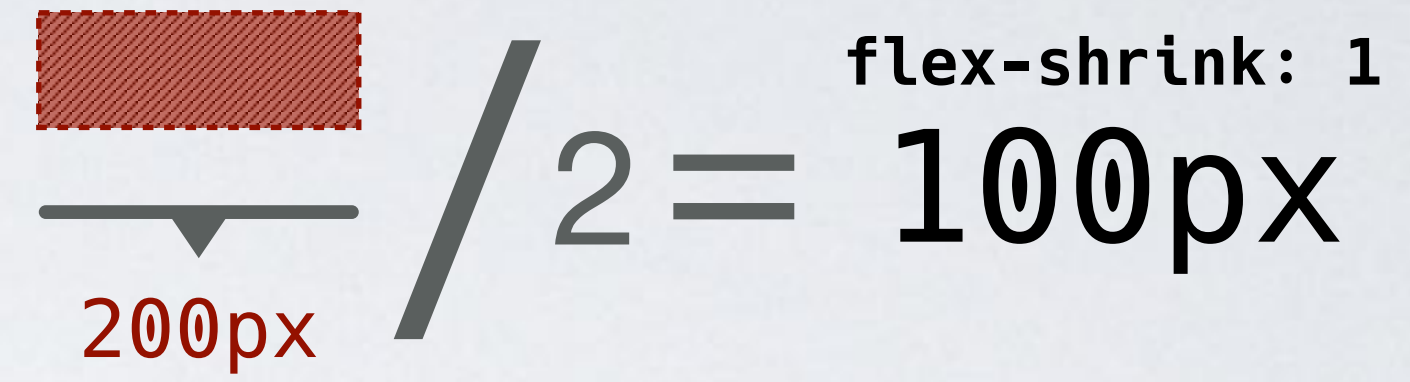
1

```
.i1 {flex-basis: 600px; flex-shrink: 0;}
.i2 {flex-basis: 600px; flex-shrink: 0;}
```



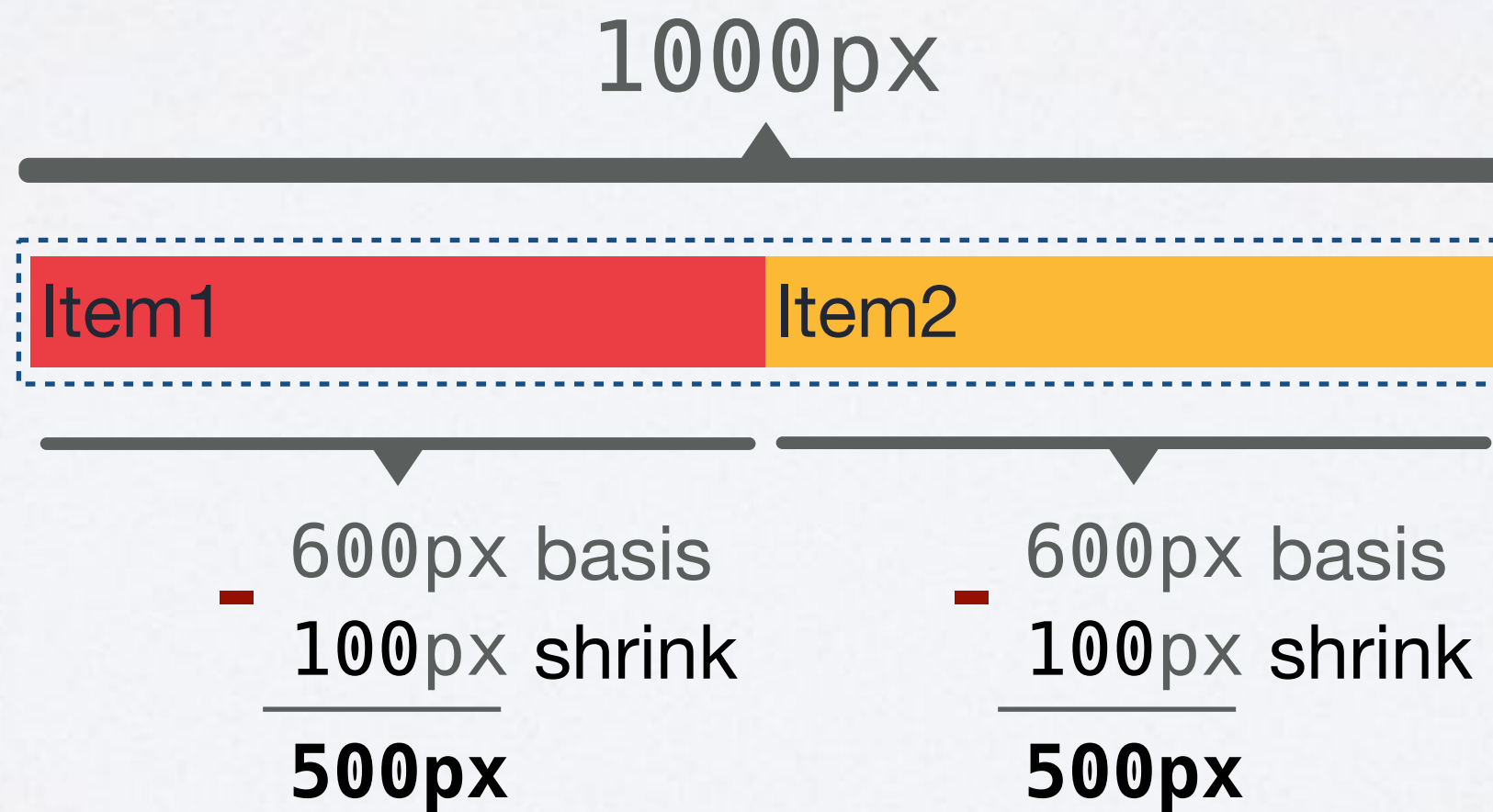
2

```
.i1 {flex-basis: 600px; flex-shrink: 1 /*Default*/}
.i2 {flex-basis: 600px; flex-shrink: 1 /*Default*/}
```



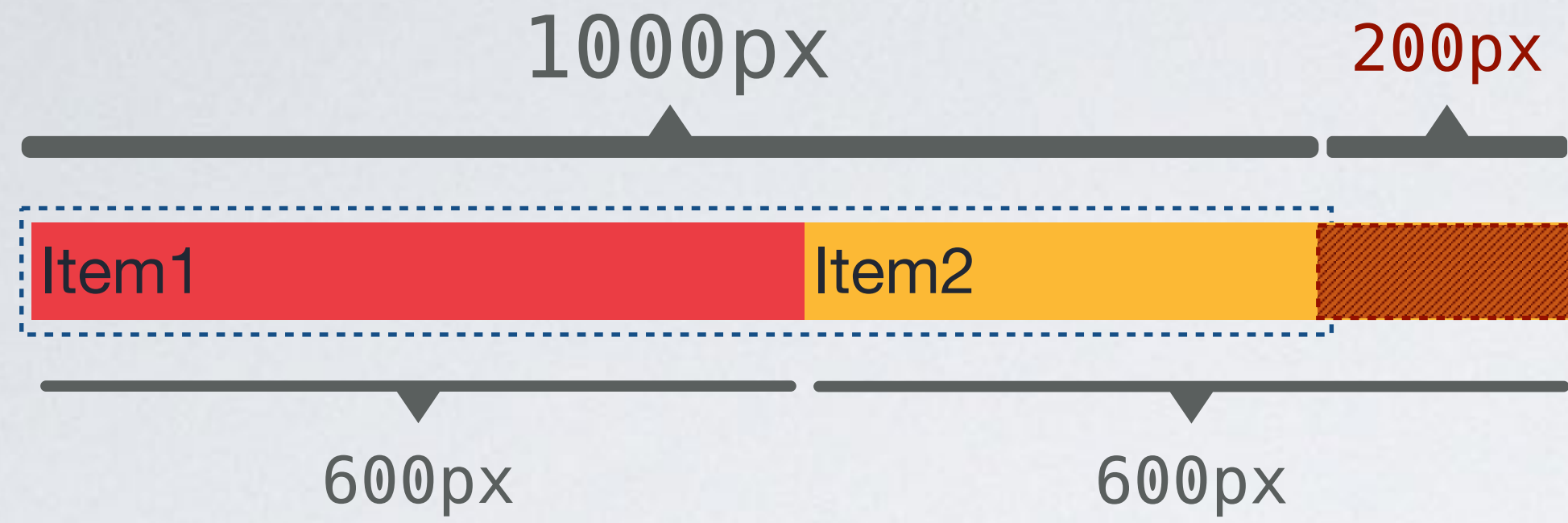
3

```
.i1 {flex-basis: 600px; flex-shrink: 1;}
.i2 {flex-basis: 600px; flex-shrink: 1;}
```



1

```
.i1 {flex-basis: 600px; flex-shrink: 0;}
.i2 {flex-basis: 600px; flex-shrink: 0;}
```



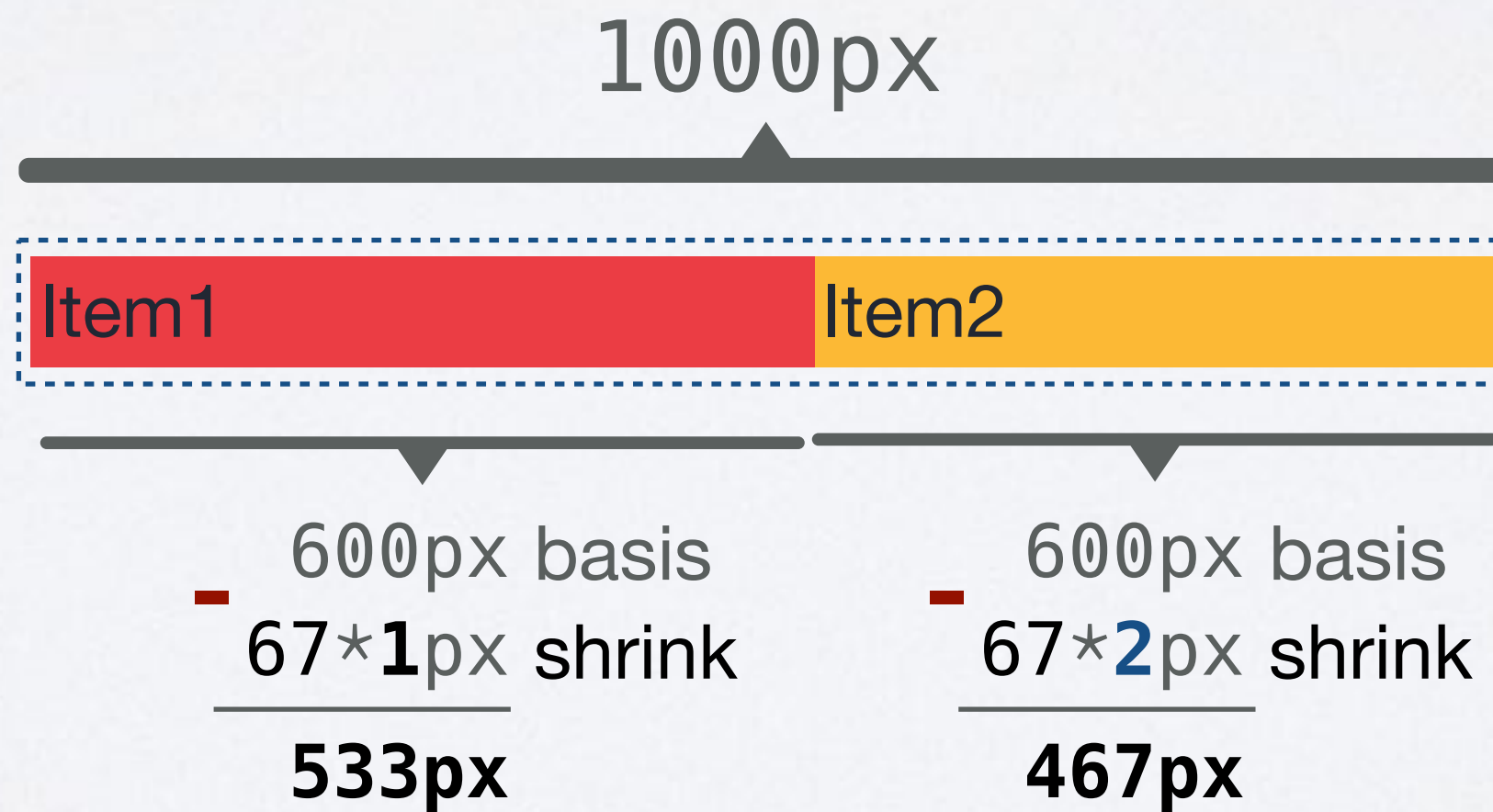
2

```
.i1 {flex-basis: 600px; flex-shrink: 1 /*Default*/}
.i2 {flex-basis: 600px; flex-shrink: 2 /*Default*/} ▶ 3
```

Diagram 2 shows a calculation for the shrink amount. A red hatched rectangle represents the 200px gap. Below it, the text reads:  $200px / 3 = 67px$ . To the right, the text reads: **flex-shrink: 1** followed by **67px**.

3

```
.i1 {flex-basis: 600px; flex-shrink: 1;}
.i2 {flex-basis: 600px; flex-shrink: 2;}
```



# FLEX-SHRINK

## HTML

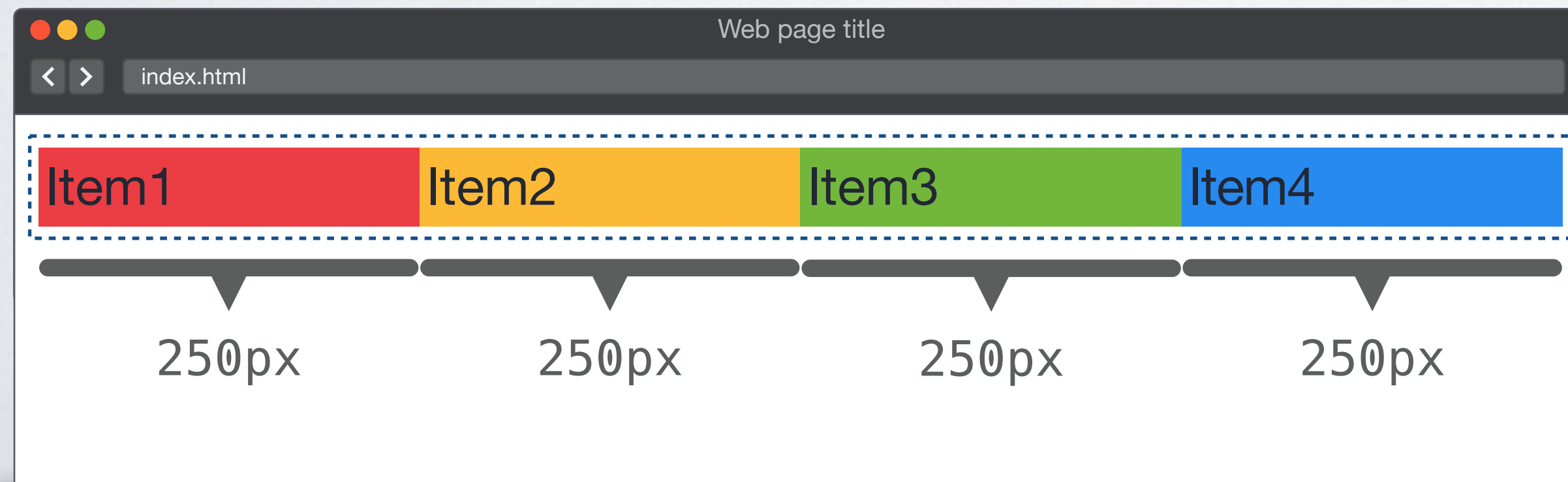
```
<body>
<div class="container">
  <div class="i1">Item1</div>
  <div class="i2">Item2</div>
  <div class="i3">Item3</div>
  <div class="i4">Item4</div>
</div>
</body>
```

## CSS

```
.container {
  display: flex;
  width: 1000px;
}

.i1, .i2, .i3, .i4 {
  flex-basis: 250px;
}
```

## Browser



1000px



## HTML

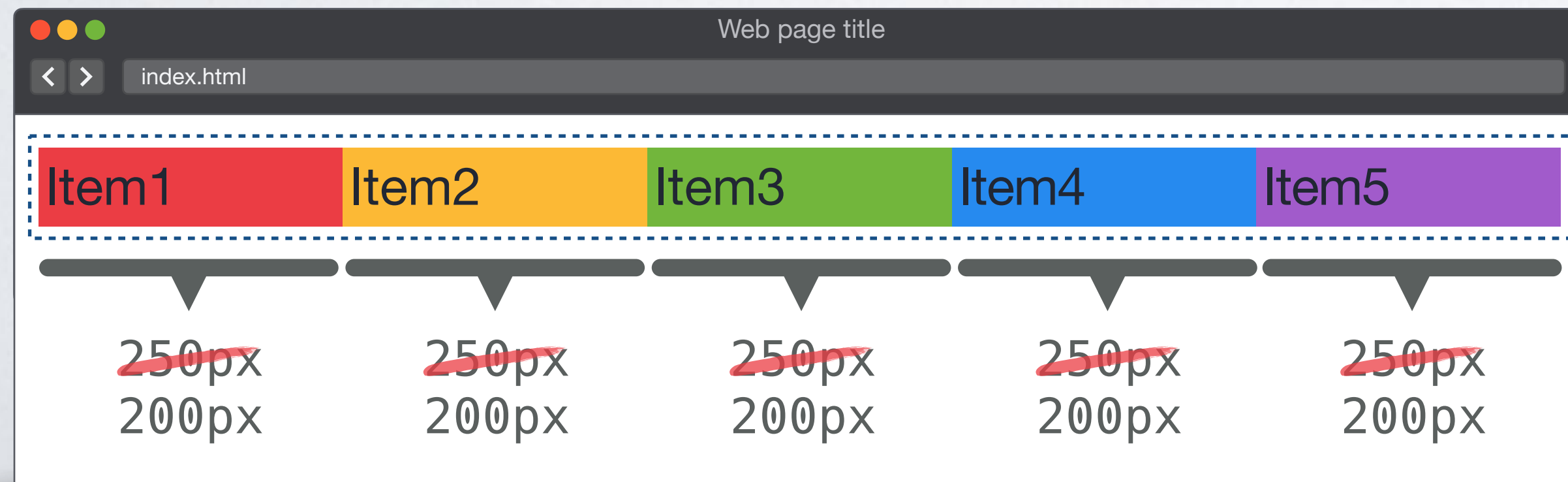
```
<body>
<div class="container">
  <div class="i1">Item1</div>
  <div class="i2">Item2</div>
  <div class="i3">Item3</div>
  <div class="i4">Item4</div>
  <div class="i5">Item5</div>
</div>
</body>
```

## CSS

```
.container {
  display: flex;
  width: 1000px;
}

.i1, .i2, .i3, .i4, .i5 {
  flex-basis: 250px;
}
```

## Browser



1000px

Default shrinking applied.  
flex-shrink: 1

## HTML

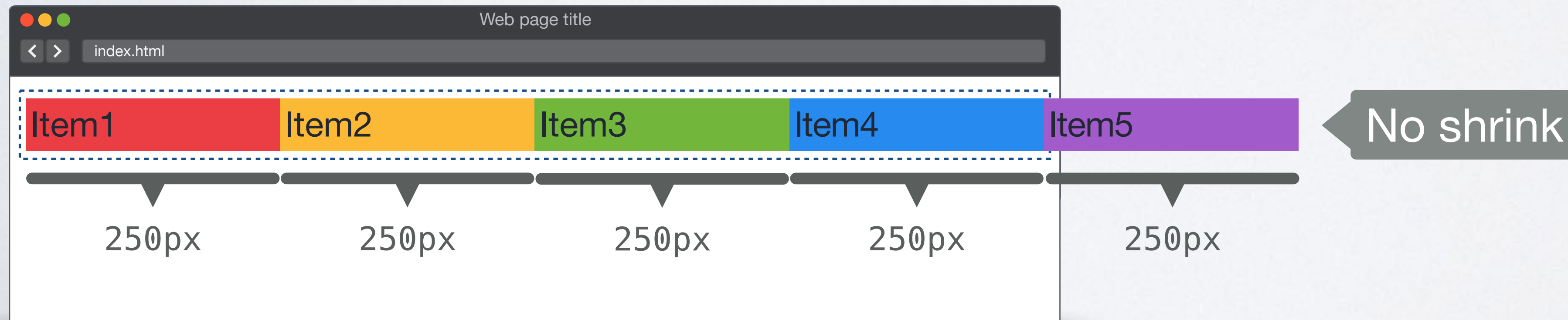
```
<body>
<div class="container">
  <div class="i1">Item1</div>
  <div class="i2">Item2</div>
  <div class="i3">Item3</div>
  <div class="i4">Item4</div>
  <div class="i5">Item5</div>
</div>
</body>
```

## CSS

```
.container {
  display: flex;
  width: 1000px;
}

.i1, .i2, .i3, .i4, .i5 {
  flex-basis: 250px;
  flex-shrink: 0;
}
```

## Browser



**FLEX-BASIS**

+

**FLEX-GROW**

+

**FLEX-SHRINK**



---

**FLEX**

**flex**

*flex-grow flex-shrink flex-basis*

none

---

W3C: “Authors are encouraged to control flexibility using the `flex` shorthand rather than with `flex-basis`, `flex-grow` and `flex-shrink` directly.”

**flex**

***flex-grow***

Default: **0**  
If omitted: **1**

***flex-shrink***

Default: **1**  
If omitted: **1**

***flex-basis***

Default: **auto**  
If omitted: **0**

**none**

**flex:**

1

1

20%

=

flex-grow: 1

flex-shrink: 1

flex-basis: 20%

**flex**

*flex-grow flex-shrink flex-basis*

**none**

**flex:**

none

=

flex-grow: 0

flex-shrink: 0

flex-basis: auto

**flex:**

auto

=

flex-grow: 1

flex-shrink: 1

flex-basis: auto



# flex



*flex-grow*

Default: 0  
If omitted: 1

*flex-shrink*

Default: 1  
If omitted: 1

*flex-basis*

Default: **auto**  
If omitted: 0



**none**

flex: 0 0 auto



## Flexulator

grow:	1
shrink:	1
basis:	100
add	

<b>1280</b>	-	<b>300</b>	=	<b>980</b>
Container		Total Flex Basis		Remaining Space



CSS

FLEXBOX & CSS GRID

FLEXBOX

# Flexibility

Basis / Grow / Shrink



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Learn front-end development at *rocket speed*