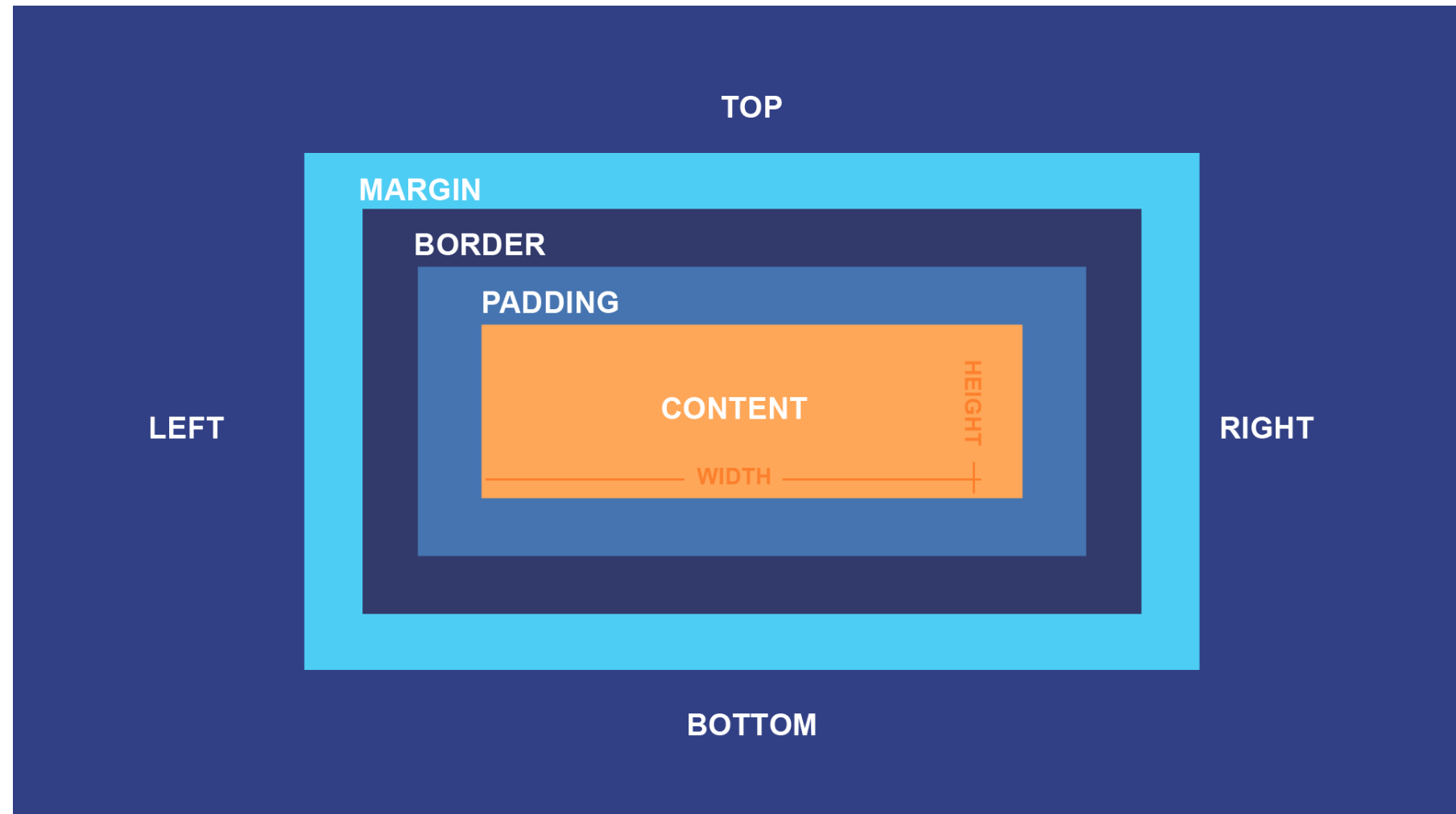


Web Application Development for Industrial Engineers

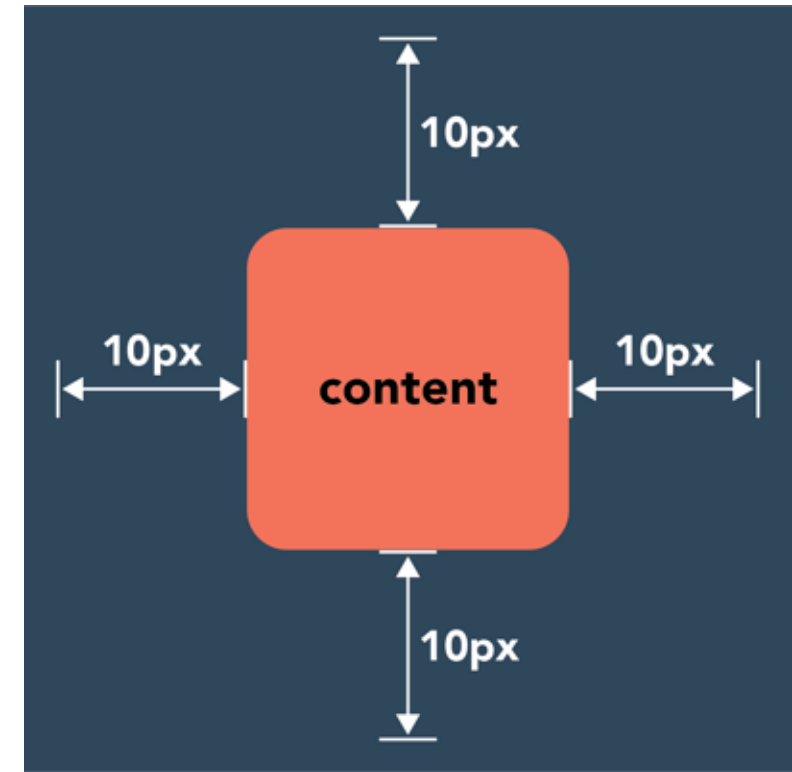
การพัฒนาแอปพลิเคชันสำหรับวิศวกรอุตสาหกรรม

Box Model



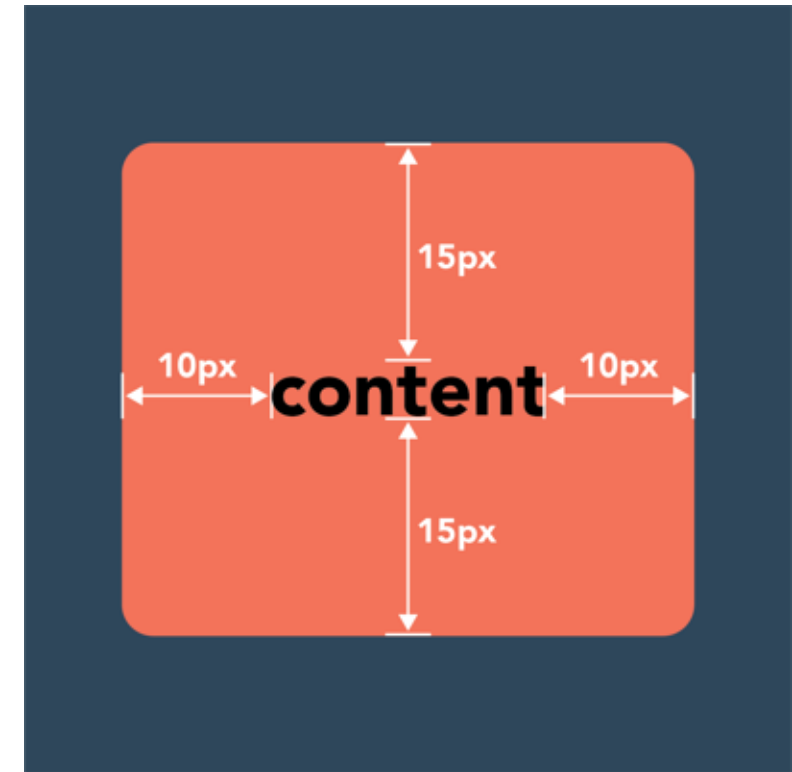
Margin

- Margin is the space around an element's border.



Padding

- Padding is the space between an element's border and the element's content.



Margin and Padding

- <https://codepen.io/nnnpoooh/pen/KKvLggx>

Border

- A box that surrounds an HTML element's padding.
- <https://codepen.io/nnnpoooh/pen/QWMPaRX>

CSS Unit

Data type	Description
number	1024 , -55 , 0.255 , -1.2
dimension	45deg , 150ms , or 10px
percentage	50%

Absolute Unit Length

Unit	Name	Equivalent to
<code>px</code>	Pixels	1px = 1/96th of 1in
<code>in</code>	Inches	1in = 2.54cm = 96px
cm	Centimeters	1cm = 37.8px = 25.2/64in
mm	Millimeters	1mm = 1/10th of 1cm
Q	Quarter-	1Q = 1/40th of 1cm

Relative Unit Length

Unit	Relative to
<code>em</code>	Font size of the parent (<code>font-size</code>) or itself (<code>width</code>).
<code>rem</code>	Font size of the root element.
<code>vw</code>	1% of the viewport's width.
<code>vh</code>	1% of the viewport's height.
<code>vmin</code>	1% of the viewport's smaller dimension.

[more here...](#)

`em` vs `rem` (Typography)

- For `font-size`, use `rem`.
- <https://codepen.io/nnnpoooh/pen/gOxEzzd>


em vs rem (Width/Height)

- For `width` and `height` (and ...), use `em`.
- <https://codepen.io/nnnpoooh/pen/eYEXrjZ>

Font Format

- TrueType Font (TTF)
 - Old standard
- OpenType (OTF)
 - Upgrade from TTF
- Embedded Open Type (EOT)
 - Not much browser support
- Web Open Font Format (WOFF/WOFF2)
 - Use this.
- Scalable Vector Graphics font (SVG)
 - iPhone and iPad

Browser Support

Font Format					
TTF/OTF	4.0	9.0*	3.5	3.1	10.0
WOFF	5.0	9.0	3.6	5.1	11.1
WOFF2	36.0	not supported	35.0*	not supported	26.0
SVG	4.0	not supported	not supported	3.2	9.0
EOT	not supported	6.0	not supported	not supported	not supported

- [Source](#)
- [Can I use?](#)

Font Weight

Value	Common weight name
100	Thin (Hairline)
200	Extra Light (Ultra Light)
300	Light
400	Normal (Regular)

Font Weight (Cont.)

Value	Common weight name
500	Medium
600	Semi Bold (Demi Bold)
700	Bold
800	Extra Bold (Ultra Bold)
900	Black (Heavy)

How to include Local font

- Download google font - [Mali](#)
- Extract and copy font files (TTF) into local folders.
- Use the `@font-face` rule
 - (`@` means special instructions for the browser, not directly related to styling.)


```
@font-face {  
  font-family: myLocalFont;  
  src: url(./font/Mali-Regular.ttf);  
  font-weight: normal;  
  font-style: normal;  
}  
  
@font-face {  
  font-family: myLocalFont;  
  src: url(./font/Mali-Bold.ttf);  
  font-weight: bold;  
  font-style: normal;  
}
```

- Note that even if you don't have the rule for `bold`, you can still see bold font. This 'bolding' is done by browser (see [faux bold](#)).

Hosted font

- Chakra Petch
- Choose Regular 400 and Bold 700
- Add @import
 - Add another css into the current sheet

```
@import url("https://fonts.googleapis.com/css2?family=Chakra+Petch:wght@400;700&display=swap");
```

Custom Properties

- Declare custom properties at the `:root` pseudo-class. For a HTML document, this is `<html>`

```
:root {  
  --main-bg-color: brown;  
}
```

- To use the property, do the following.

```
element {  
  background-color: var(--main-bg-color);  
}
```

Layout

- Block
- Inline-block
- Flex
- Grid
- Float

Block vs Inline

- `block` elements appear one below the other
- `inline` elements appear beside one another like the individual words in a paragraph.
- <https://codepen.io/nnnpoooh/pen/dyzLovq>

Block and Inline - Margin and Padding

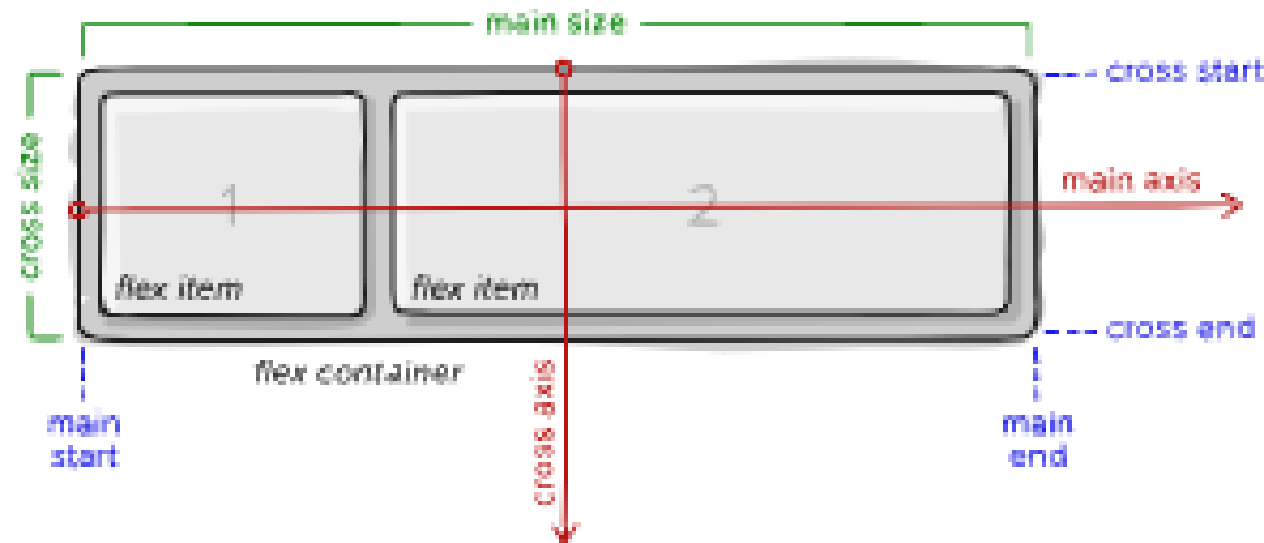
- Block elements
 - Can add margins and padding on all four sides.
- Inline elements
 - Can add space to the left and right.
 - **Cannot** add height to the top or bottom padding or margin.
- <https://codepen.io/nnnpoooh/pen/bGrJgMo>

Inline vs Inline-Block

- `inline-block` allows one to set a width and height on the element.
 - The top and bottom margins/paddings are respected, but with `display: inline` they are not.
- <https://codepen.io/nnnpoooh/pen/zYdXGwE>

Flex

- Lay things out in one dimension
 - Either as a row or as a column
- <https://codepen.io/nnnpoooh/pen/ExvJjMR>
- Alos, see this [guide](#).



Grid

- Grid Layout is designed for two dimensions — lining things up in rows and columns.
- <https://codepen.io/nnnpoooh/pen/wvqZWQP>
- Also, see this [guide](#).

Float

- Floating an element changes the behavior of that element and the block level elements that follow it in normal flow.
- The floated element is moved to the left or right and removed from normal flow, and the surrounding content floats around it.
- <https://codepen.io/nnnpoooh/pen/porBarb>

Positioning

- Static
- Relative
- Absolute
- Fixed
- Sticky

Static

- The element is positioned according to the normal flow of the document.
- The `top`, `right`, `bottom`, `left`, and `z-index` properties have no effect.
- This is the default value.

Relative

- The element is positioned according to the normal flow of the document
 - then offset relative to itself based on the values of `top`, `right`, `bottom`, and `left`.
- The offset does not affect the position of any other elements.
- <https://codepen.io/nnnpoooh/pen/VwzNYNX>

Absolute

- The element is removed from the normal document flow.
- It is positioned relative to its closest `relative` ancestor.
 - Its final position is determined by the values of `top`, `right`, `bottom`, and `left`.
- <https://codepen.io/nnnpoooh/pen/bGrJNPY>

Fixed

- It is positioned relative to the initial containing block established by the viewport
 - Except when one of its ancestors has a transform, perspective, or filter property set to something other than `none`.
- Its final position is determined by the values of `top`, `right`, `bottom`, and `left`.
- <https://codepen.io/nnnpoooh/pen/wvqZBVb>

Sticky

- Sticky positioning is a hybrid of relative and fixed positioning.
- The element is treated as `relative` positioned until it crosses a specified threshold, at which point it is treated as `fixed` positioned.
- <https://codepen.io/nnnpoooh/pen/GRvLQXb>

Responsive design

- Flex: <https://codepen.io/nnnpoooh/pen/dyzEpyY>
- Media query: <https://codepen.io/nnnpoooh/pen/XWaQZvE>

Media query

- Media types

- `all`, `print`, `screen`, `speech`

- Logical operators

`not`, `and`, `only`

- Examples

- `@media print { ... }`
- `@media (hover: hover) { ... }`
- `@media (max-width: 12450px) { ... }`
- `@media (min-width: 30em) and (orientation: landscape) { ... }`