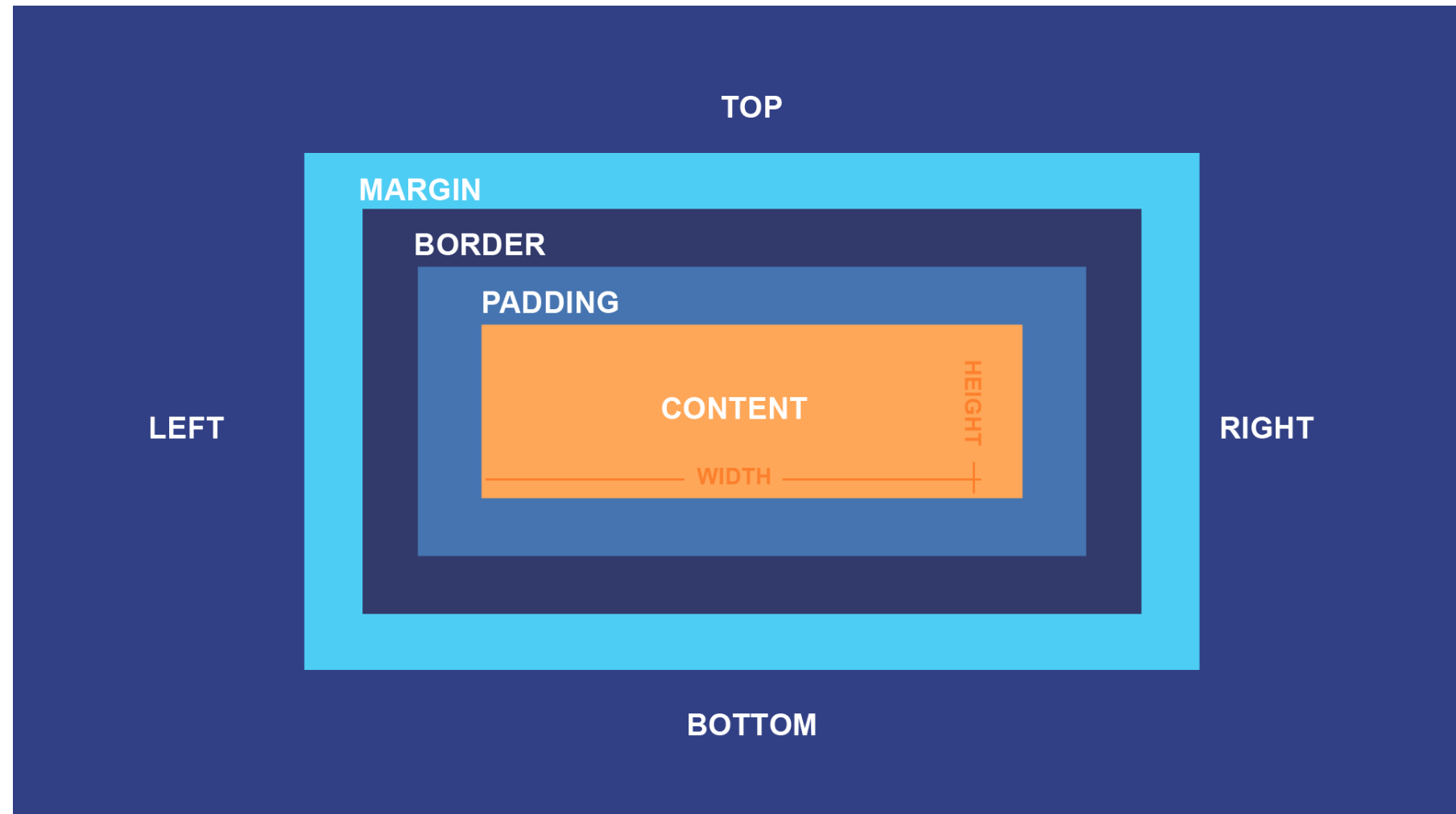


Web Application Development for Industrial Engineers

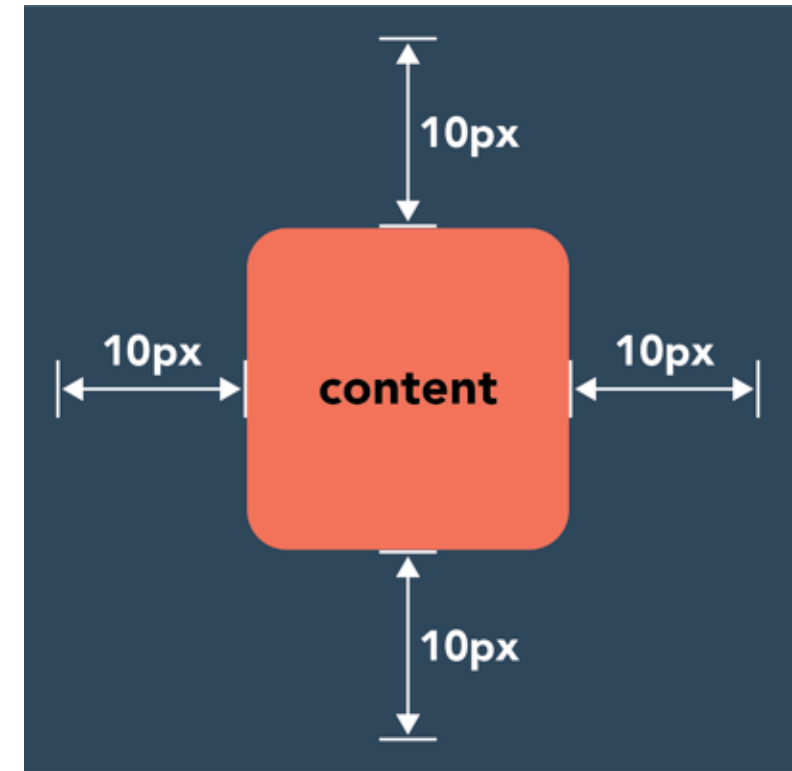
การพัฒนาแอปพลิเคชันสำหรับวิศวกรอุตสาหกรรม

Box Model



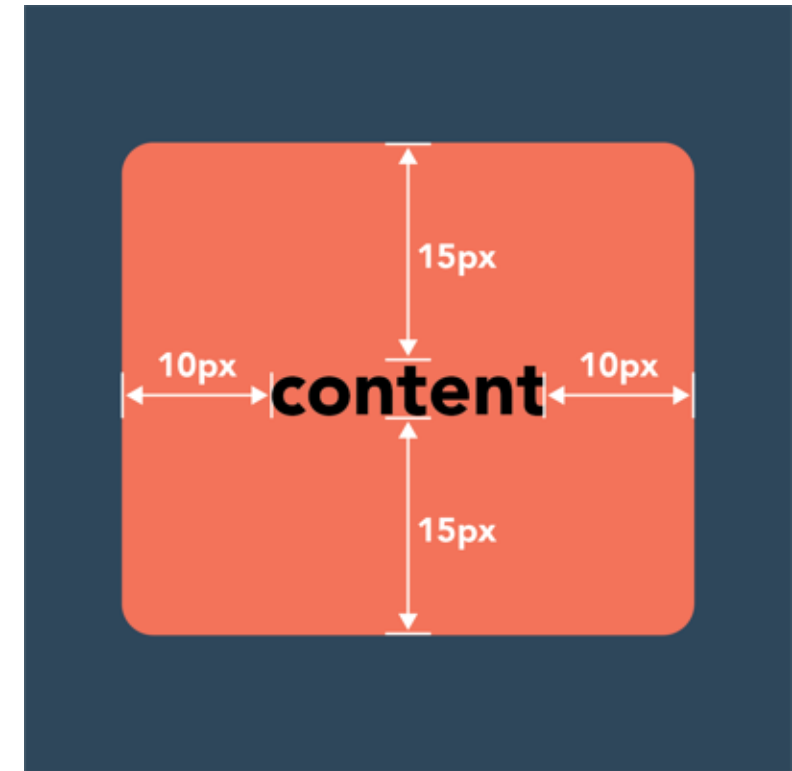
Margin

- 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 Lenght

| 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

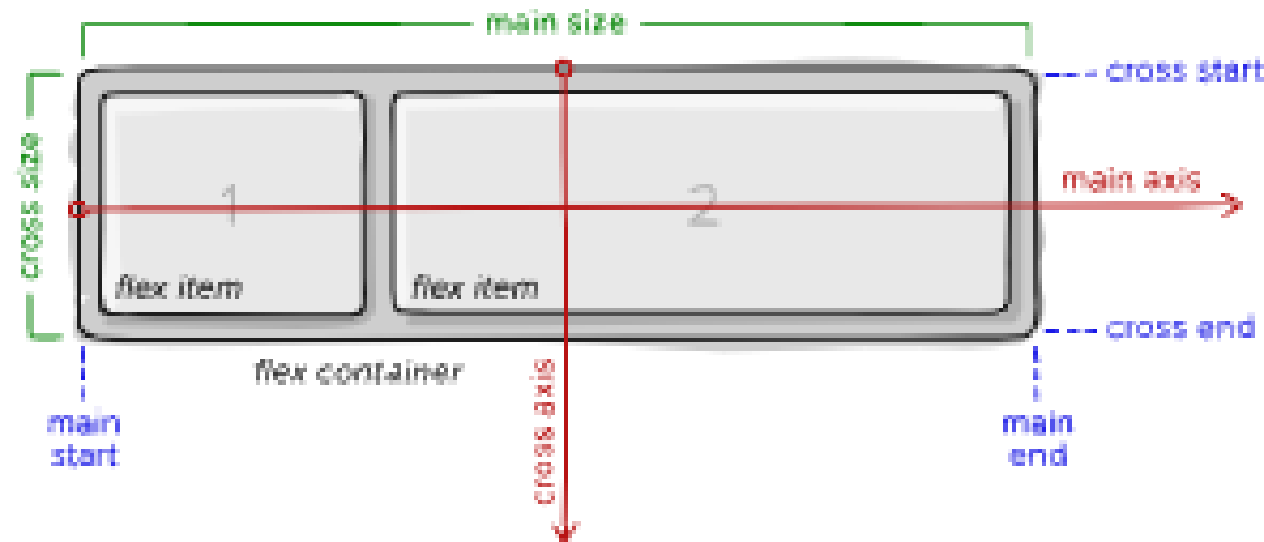
- Block elements
 - Can add margins and padding on all four sides.
- Inline elements
 - Can add space to the left and right.
 - **Cannot** add height to the top or bottom padding or margin.
- <https://codepen.io/nnnpoooh/pen/bGrJgMo>

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) { ... }`