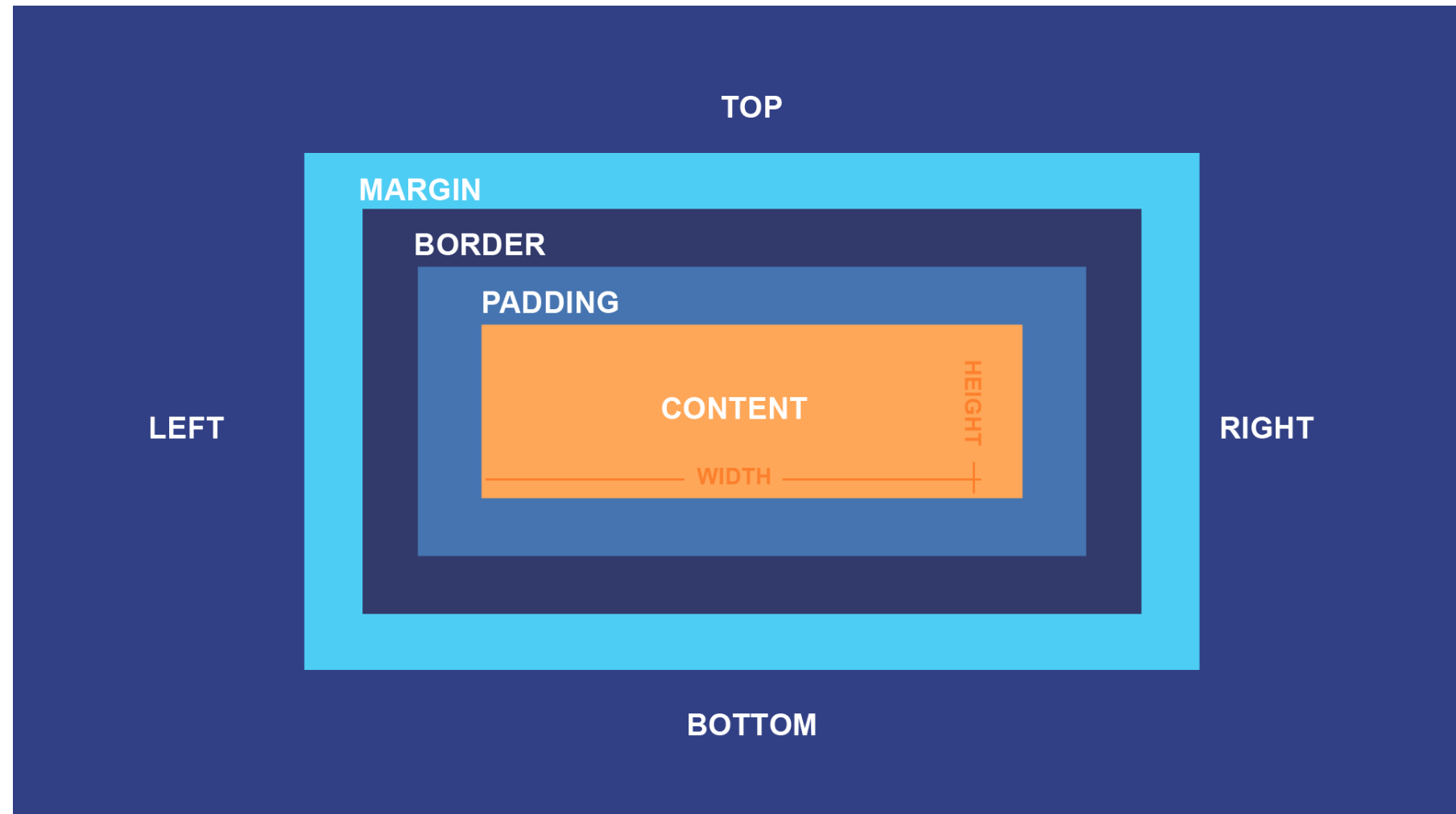


# **Web Application Development for Industrial Engineers**

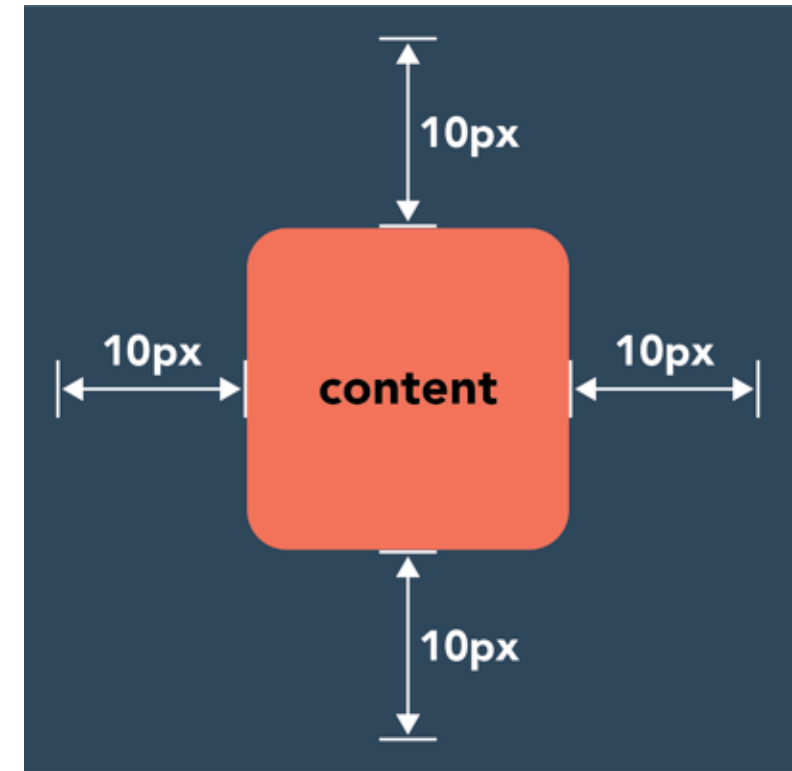
**การพัฒนาแอปพลิเคชันสำหรับวิศวกรอุตสาหกรรม**

# Box Model



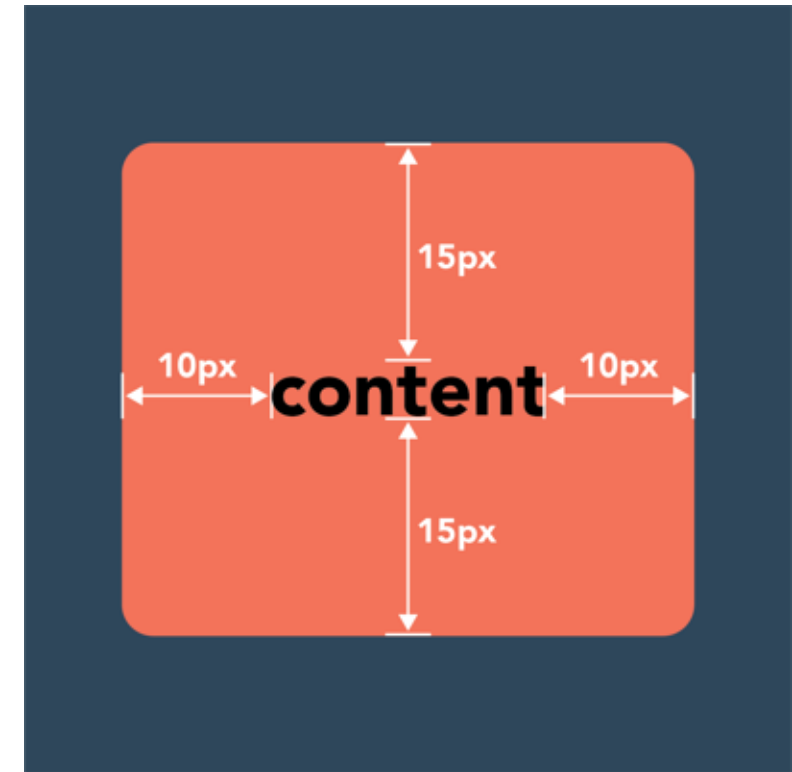
# Margin

- 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>&lt;span style="color: var(--hl-color)"&gt;px&lt;/span&gt;</code>	Pixels	1px = 1/96th of 1in
<code>&lt;span style="color: var(--hl-color)"&gt;in&lt;/span&gt;</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>&lt;span style="color: var(--hl-color)"&gt;em&lt;/span&gt;</code>	Font size of the parent ( <code>font-size</code> ) or itself ( <code>width</code> ).
<code>&lt;span style="color: var(--hl-color)"&gt;rem&lt;/span&gt;</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

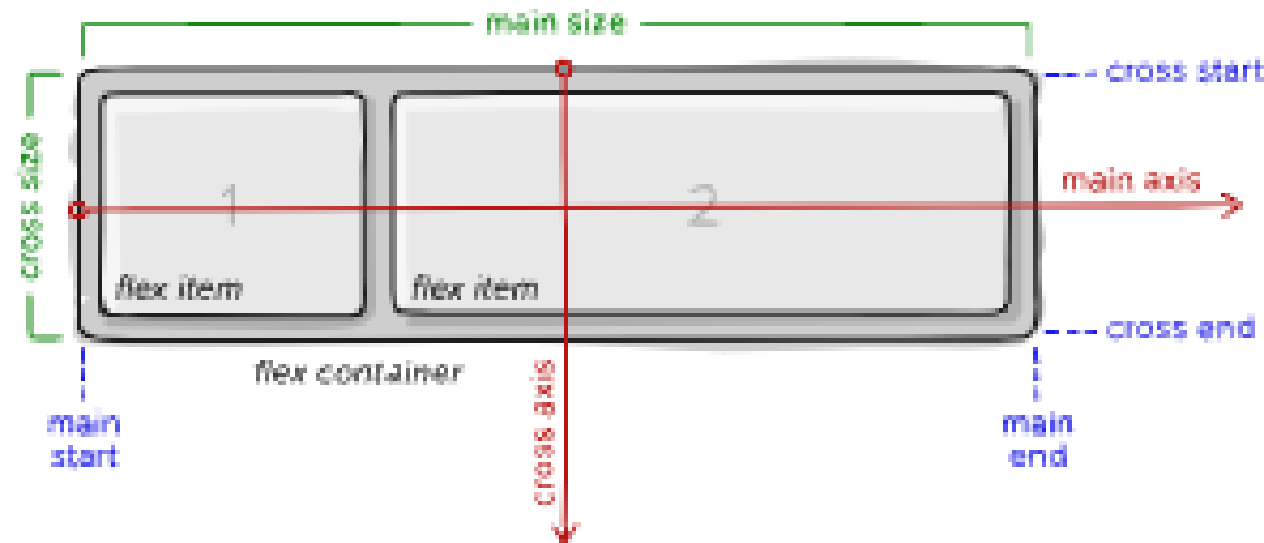
- Block elements
  - Can add margins and padding on all four sides.
- Inline elements
  - Can add space to the left and right.
  - **Cannot** add height to the top or bottom padding or margin.
- <https://codepen.io/nnnpoooh/pen/bGrJgMo>

# 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) { ... }`