🏠_Home_

Internet Technologies

GitHub - GDSE-62-64-Project-Zone/CSS-Basics

diagrams.net

CSS

- Cascading Style Sheets (CSS)
- Styling Sheet Language එකක්
- Website වලට styles දාන්න use කරයි.

Element වලට styles apply කරන්න පුලුවන් ක්‍රම,

- Inline styles

```
<h1 style="color: red"> Hello CSS </h1>
```

- Meta styles

```
<style>
    p{
       color: green;
    }
</style>
```

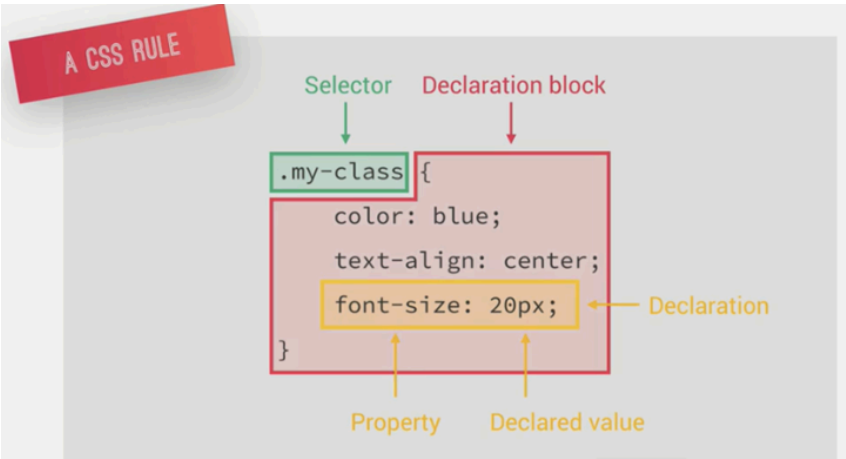
- External style

```
 <link rel="stylesheet"
href="assets/css/styles.css">
```

CSS Rule

- Style declarations groupe එකක්.

- Element වලට styles දාන්න Rules use කරයි.



- Declaration එකක තියෙන්නෙ property එකක් හා value එකක්.

property: value;

CSS Basic Selectors

➔ 1. Class selector

- අපිට ඕන group වනෙ වනෙම එකසැරේ select කරන්න

```
.selected{
   border: 1px solid red;
}
```

```
<h1 class="selected"> Hello CSS </h1>
```

➔ 2. Id selector

- uniquely select කරන්න
- එක id එකක් , එක පාරයි use කරන්න පුලුවන්

```
#selectByID{
   color: blueviolet;
}
```

```
<p id="selectByID"> Lorem ipsum dolor </p>
```

➔ 3. Universal selector

- මක්කොම එකපාර select කරන්න

```
*{
   color: red;
   font-family: 'Edu NSW ACT Foundation', cursive;
}
```

➔ 4. Type selector

- Element type එක අනුව select කරන්න
- ex : paragraph වලට විතරක් style එක apply කරන්න⬇

```
p{
   color: black;
   background-color: orange;
}
```

➔ 5. Attribute selector

- attribute එකකින් element select කරන්න
- ex : id attribute එක තියනෙ හැමතැනකටම style එක apply කරනෝ⬇

```
[id]{
   color: chartreuse;
}
```

```
<p id="a"> Lorem ipsum dolor</p>
<p id="b"> Lorem ipsum dolor</p>
```

- specially කියන්නත් පුලුවන්
- ex: දැන් “a” කියන id එකට විතරයි apply වෙන්නෙ

```css
[id = "a"]{
   color: chartreuse;
}
```

➔ Grouping selector ,

```css
h1, h2 {
     color: gold;
}
```

```css
 #special,.selected{
     background-color: orange;
 }
```

Pseudo classes (:)

:hover

Mouse එකනේ point කලාම වෙනස්කම් apply වෙනවා

```html
<h1> Hello </h1>
<h1> Hello </h1>
<h1> Hello </h1>
```

```css
:hover{
   color: red;
}

*{
   color: blue;
}
```

:nth-child(x)

ලගම parent ගෙ ඉදන්(x) වෙනි child select කරයි.

```html
<section>
    <h1> Hello </h1>
    <h1> Hello </h1>
    <p> Hello </p>
    <h1> Hello </h1>
    <h1> Hello </h1>
</section>
```

```css
:nth-child(3) {
   color: red;
}
```

Hello

Hello

Hello

Hello

Hello

:first-child & :last-child

```html
<section>
    <h1> Hello </h1>
    <h1> Hello </h1>
    <h1> Hello </h1>
    <h1> Hello </h1>
    <h1> Hello </h1>
    <h1> Hello </h1>
</section>
```

```css
:first-child {
   color: red;
}

:last-child {
   color: green;
}

* {
   color: blue;
}
```

Hello

Hello

Hello

Hello

Hello

Hello

- parent element එකක් නැත්නම් last child අඳුරගන්න බෑ.

:focus & :active

```html
<button type="button"> test </button>
<button type="button"> test </button>
<button type="button"> test </button>
```

```css
button{
   background-color: yellow;
}

button:focus{
   background-color: blue;
}

button:active{
   background-color: red;
}
```

test test test

test test test

test test test

:visited

```html
<a href="https://www.facebook.com" target="_blank"> FaceBook
</a>
```

```
<br>
<a href="https://www.google.lk" target="_blank"> Google </a>
<br>
<a href="https://www.amazon.com" target="_blank"> Amazon
</a>
```

```
a:visited{
    color: red;
}

a{
    color: blue;
}
```

- Visit කරපු site පේනනෝ. (history එකනේ)

:before & :after

```
<h1>Hello</h1>
<h2>Hello</h2>
```

```
h1:before{
    content: "@ ";
}

h2:after{
    content: " #";
}
```

@ Hello

Hello #

Pseudo elements (::)

::first-letter

```
<h1>Hello CSS</h1>
```

```
h1::first-letter {
      color: red;
}
```

Hello CSS

::first-line

```
<p>Lorem ipsum dolor
sit amet, consectetur
adipisicing elit.
Adipisci eligen</p>
```

```
p::first-line{
    color: red;
}
```

Lorem ipsum dolor sit
atque, aut dolores duc
quo quod rerum sint s

::selection

```
p::selection{
    color: wheat;
    background-color:
black;
}
```

e, aut dolores ducim

::marker

```
li::marker{
    content: "@";
    background-color:
red;
}
```

@item 1
@item 2
@item 3
@item 4

::placeholder

```
input::placeholder{
```

```
    color: greenyellow;
}
```

text here

::file-selector-button

```
<input type="file">
```

```
input::file-selector-button{
    color: black;
    background-color: lawngreen;
    border: 10px;
    border-radius: 10px;
}
```

CSS Combinators

Selector 2ක් හෝ කිපයක් combine කරලා styles apply කරන්න use කරයි.

01. Child Combinator
02. Descendant Combinator
03. General Siblings Combinator
04. Adjacent Combinator

01. Child Combinator (>)

```
selector1 > selector2 { style
properties }
```

- Direct child කෙනේ නම් style එක apply වෙනෝ.(Direct only)

```html
<section>
   <h1>Hello</h1>
   <div>
     <h1>Hello</h1>
   </div>
</section>
<h1>Hello</h1>
```

```css
section > h1 {
   color: red;
}
```

(section එකකට Direct Child වුනු හැම h1 එකක්ම)

Hello

Hello

Hello

02. Descendant Combinator (Space)

```css
selector1 selector2 {
  /* property declarations */
}
```

- Parent ගෙ ඇතුලෙ කොහේ හිටියත් style එක apply වෙනෝ.(Direct & Indirect)

```html
<section>
   <h1>Hello</h1>
   <div>
     <h1>Hello</h1>
   </div>
</section>
<h1>Hello</h1>
```

```css
section h1 {
   color: red;
}
```

(section එකකට Child වුනු හැම h1 එකක්ම)

Hello

Hello

Hello

03. General Siblings Combinator (~)

```
former_element ~ target_element { style properties}
```

- Same root එකේ තියෙන ඕන.
- එක ලග තියෙන ඕන නෑ.

```html
<section>
    <h4>Hello</h4>
    <p>inside section 01</p>
    <h4>Hello</h4>
    <h4>Hello</h4>
    <div>
        <h4>Hello</h4>
        <h4>Hello</h4>
        <p>inside section 01 > div</p>
        <h4>Hello</h4>
    </div>
</section>
```

```css
h4~h4 {
    color: red;
}
```

(h4 න් **පස්සෙ** Same root එකේ තියෙන් හැම h4 ක්ම)

Hello

inside section 01

Hello

Hello

Hello

Hello

inside section 01 > div

Hello

04. Adjacent Combinator (+)

```
former_element + target_element { style properties }
```

- Same root එකේ තියෙන ඕන.
- එක ලග තියෙන ඕන.

```html
<section>
    <h4>Hello</h4>
    <p>inside section 01</p>
    <h4>Hello</h4>
    <h4>Hello</h4>
    <div>
        <h4>Hello</h4>
        <h4>Hello</h4>
        <p>inside section 01 > div</p>
        <h4>Hello</h4>
    </div>
</section>
```

```css
h4+h4 {
    color: red;
}
```

(h4 න් **පස්සෙ** **Same root එකේ, එක ළග** තියෙන් හැම h4 ක්ම)

Hello

inside section 01

Hello

Hello

Hello

Hello

inside section 01 > div

Hello

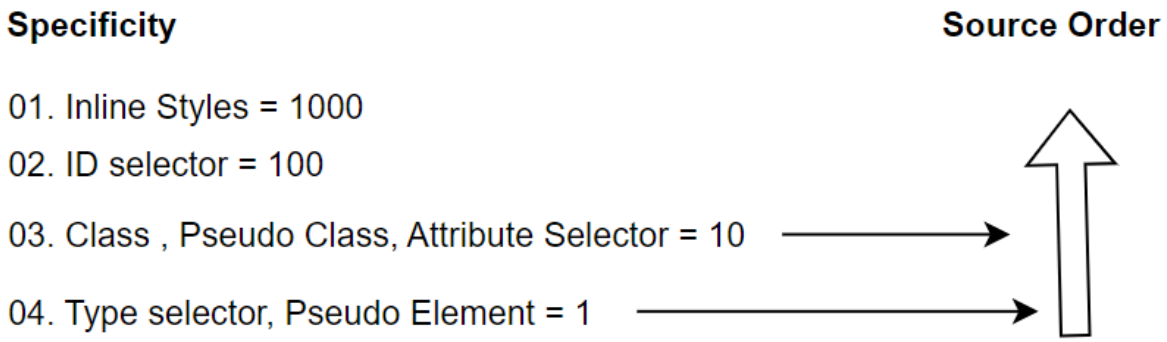
Cascade

Process of combining different stylesheets and resolving conflicts between different css rules and declarations. When more than one rule applies to a certain element.

එක element එකක් target කරගනෙ,
same property එකට, different selectors වලින්, different value එකක් apply කරන්න ගියාම, conflict එකක් ඇතිවෙනෝ.
ඒ conflict එක විසඳන mechanism එක→ cascade

```
*{
    color: red;
}
h1{
    color: green;
}
#mainHeader{
    color: orange;
}
.mainHeader{
    color: deeppink;
}
[id]{
    color: blueviolet;
}
:first-child{
    color: aqua;
}
```

Specificity order



එකම priority එක තියනෙ කට්ටිහ හම්බුනාම source order එකට යනේ.
(priority එක→ Stylesheet එකේ පහල priority එක වැඩි)

https://www.w3schools.com/css/css_specificity.asp

```
/*1+100+10+1+100+10+10+1+100+10+1+100+10+1+100+10 = 565*/
body#mainBody.bodyClass>section#mainSection.mainClass:nth-child(2)>section#s
ubSection.subClass>div#container.containerClass>h1#mainHeader.mainHeader{
   color: yellow;
}
```

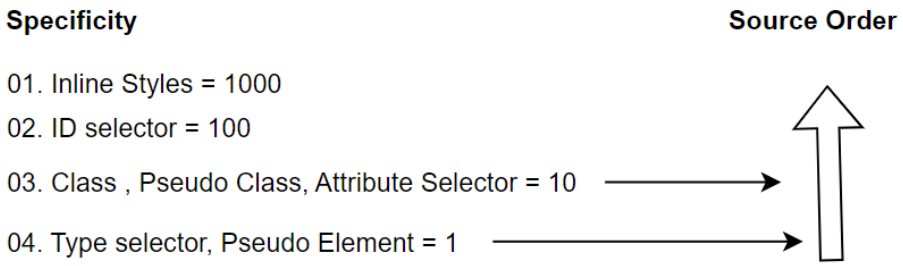
!important

```
color: darkmagenta !important;
```

!important දැම්මොත් specificity order එක බලපාන්නෙ නෑ.ඒකට වැඩි priority එක දනේ.

Cascade resolving steps

1. !important
2. Specificity order



3. Source order
(file එකේ style apply කරපු order එක. යටින්ම දාපු styleඑක apply වෙන්නෙ)

CSS values

CSS values තියෙන්න පුලුවන් විදි,

1. Integers (10)
2. Numbers (10.2)
3. Dimensions (10px 10em 10rem)
    - Length (10px 10cm)
        - Absolute (10px 10cm 10mm)
        - Relative (10rem 10vh 10vw) - parent අනුව size වෙනස් වෙනවා
    - Angle (10deg)
    - Time (10s 10ms 10h)
    - Resolution (10dpi)
4. Percentage (50%)
5. Keywords (red)
6. Functions (rgba())

Measurement units

Absolute measurement units

- **parent** මත බලපාන්නෙ නෑ **size** එක
    - px

- cm
- mm
- pc
- pt

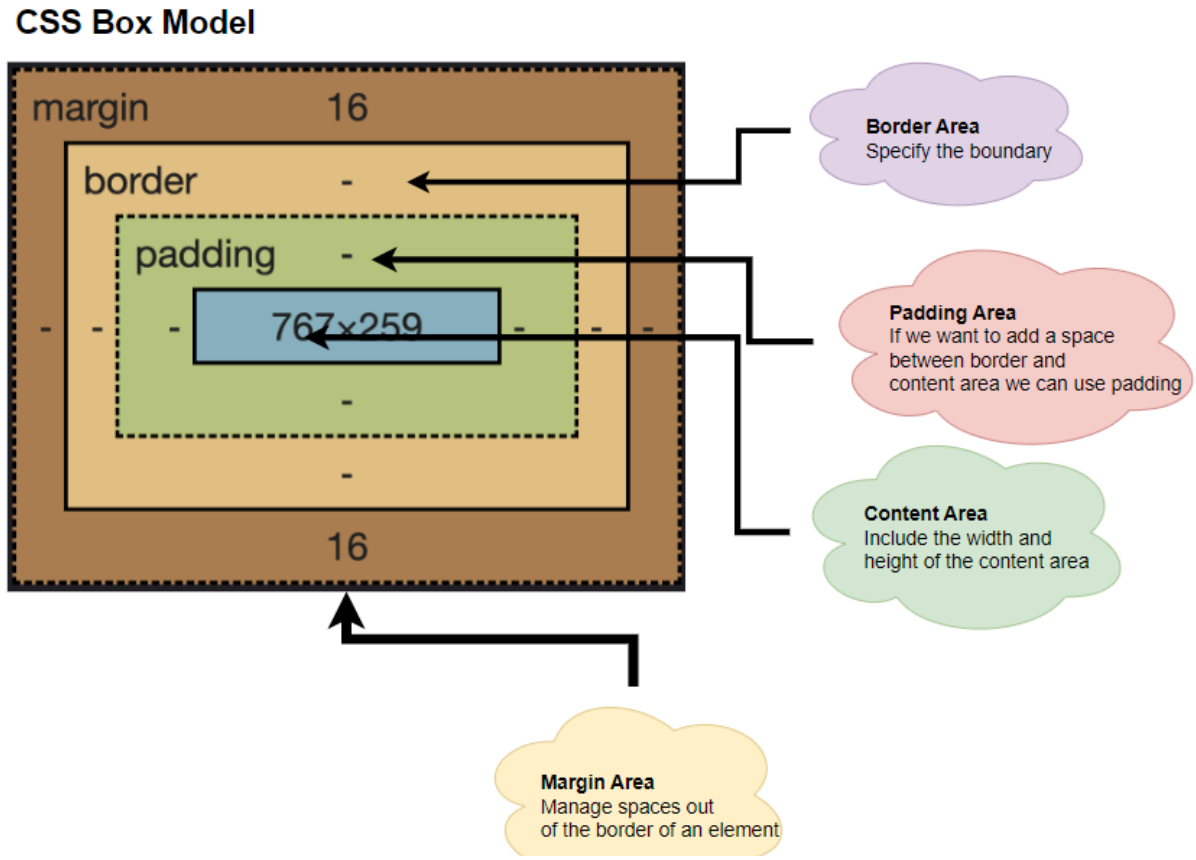
Relative measurement units

- **parent** අනුව **size** වෙනස් වෙනවා
  - em (nearest parent ගෙ font size එකට relative)
  - rem (root element එකේ font size එකට relative)
  - vh (viewport height අනුව වෙනස් වෙනවා)
  - vw (viewport width අනුව වෙනස් වෙනවා)
  - fr (fragment , grid හදද්දි row column බෙදෙන්න ඕන ප්‍රමාණ දෙදෙදි)

Box model

Elements වල structure එක, size එක, spacing, සහ borders calculated වී ඇති ආකාරය විස්තර කරන, web design වල මූලික සංකල්පයකි.

- Element එකක content area එකේ ඉදන් margin area එක වෙනකම්, spaces manage කරන්න box model එක use කරයි.
- හැම element එකකටම box model එකක් තියෙනවා.



Content Area

Element එකෙ content වල width & height

Border Area

Element එකෙ Boundary එක

Padding Area

Content area එකයි Border එකයි අතර space එක

```
padding: 10px 20px 30px 40px;
(top, right, bottom, left) (clockwise)
```

Margin Area

Border එකෙන් පිට space එක

CSS Positions

🔗CSS Positions ← Example code

html elements අපිට ඕන විදියට move කරන්න use කරයි.

- Static position ← default
- Relative position
- Absolute position
- Fix position
- Sticky position

position: static; ← default

position: relative; ← position එක වනෙස් වනෙෝ, flow එකට බලපෑමක් නොවී.

position: absolute; ← flow එක වනෙස් වනෙෝ. (parent කනෙකේට සාපේක්ෂව)

- Parent ගෙ width & height ගැලපෙන ඕන,
- position static නොවී තියෙන ඕන.
  එහෙමෙ නැත්නම් parent විදියට ගන්නෙ නෑ.

position: fixed; ← viewport එකට සාපේක්ෂව පිහිටයි. (page එක scroll කරත් එකම තැන ඉන්නෙ)

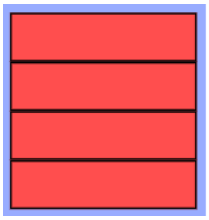
position:sticky; ← Scroll කරද්දි, එක් point එකක් දක්වා normal position එකෙ ඉන්නෝ, විශේෂ point එකකට පස්සෙ viewport එකට සාපේක්ෂව පිහිටයි(එක තැන).

Inline & Block elements

🔗Block level & Inline elements with display: ← Example code

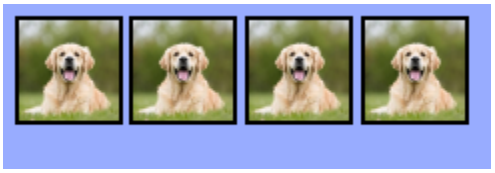
HTML element වර්ග 2යි,

- Block level element
  - Height එක හැදෙන්නෙ content එකෙ height එක අනුව, width එක හැදෙන්නෙ ළඟම ඉන්න parent ගෙ width එක අනුව
  - By default එකම line එකෙ තියෙන්නෙ නෑ (පහලට තියෙන්නෙ)



- ex: `<div>`, `<p>`, `<h1>`, `<article>`, `<section>`, `<figure>`, `<footer>`

- Inline elements
  - Element එකෙ width එකයි height එකයි අනුව height එකයි width එකයි හදාගන්නෙ.
    (width, height box model එකේ apply වෙන්නෙ නෑ)
  - By default එකම line එකෙ තියෙන්නෙ



  - ex : `<img>`, `<button>`, `<a>`, `<code>`, `<cite>`, `<span>`, `<input>`

display: none; ← display එකේ අයින් කරන්න පුලුවන්

display : inline; ← inline කරන්න පුලුවන්
display : block; ← block කරන්න පුලුවන්

display: inline-block; ← width height properties තියාගෙන inline කරන්න පුලුවන් (inline, block mix එකක්)

normalize.css

- CSS rules set එකක් (normalize.css)
- Web Browser එකේ apply කරන default styles අයින්(reset/normalize) කරන්න use කරයි.

🔗[Normalize.css: Make browsers render all elements more consistently.]

z-index

Default → z-index : 0 ;
Flow එකෙ උඩට / යටට ගනෙියන්න use කරයි.
අඩු values නම් flow එකෙ යටට
වැඩි values නම් flow එකෙ උඩට

transform

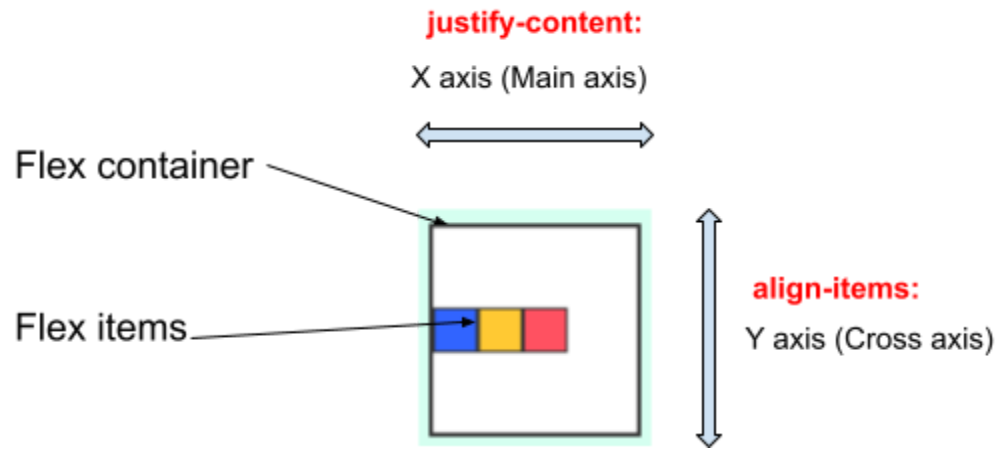
```
transform: rotate(44deg);
```

display : flex; (CSS Flexbox)

🔗CSS Flexbox ← Example code

https://github.com/GDSE-62-64-Project-Zone/CSS-Basics/blob/master/32_Flex_Box_Advacned.html

Flex is the value of css display . By using display flex in parent element, child elements automatically align like column or row with auto width and auto height



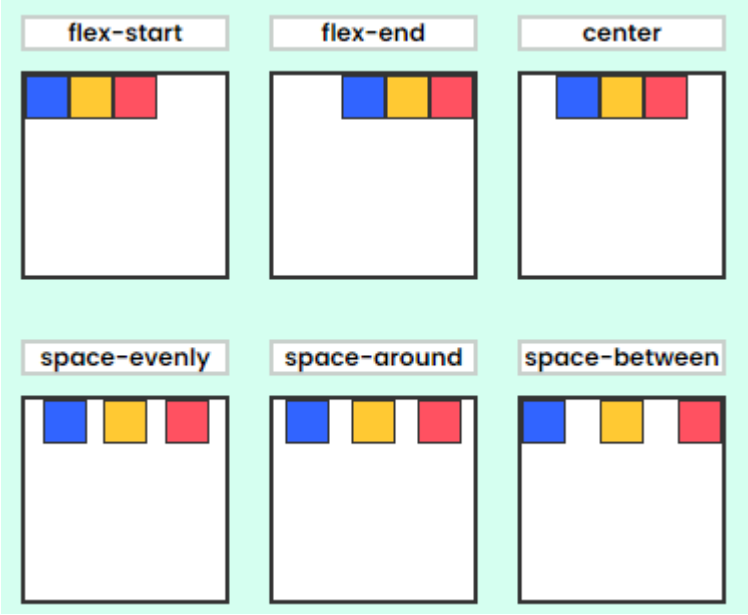
Flex Container Properties

- Manage content according to y-axis (cross-axis)

```
align-items: center;
( flex-start | flex-end  | center )
```

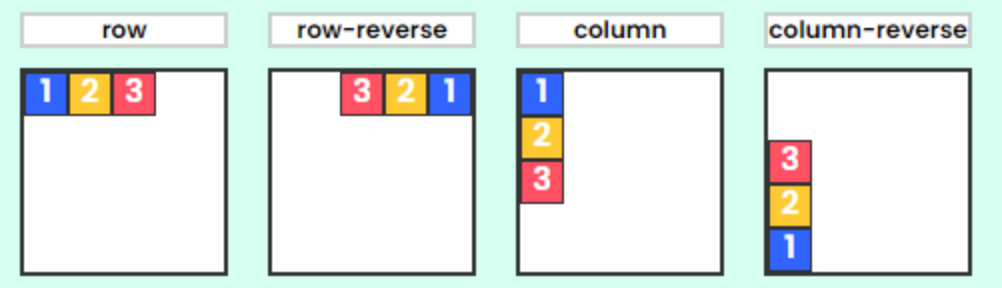
- Manage content according to x-axis (main-axis)

```
justify-content: space-around;
( flex-start | flex-end | center | space-evenly | space-around | space-between)
```



space-evenly (equal spaces)
space-around (place spaces around left and right flex items and then the rest of space between the center element)
space-between (remove the left and right flex items spaces and put all spaces between the center flex elements)

```
flex-direction: row;
( row | row-reverse | column | column-reverse )
```



Flex Items Properties

- **flex-grow:** ← unit less proportion value


```
div:nth-child(1){
    flex-grow: 0;
}

div:nth-child(2){
    flex-grow: 5;
}

div:nth-child(3){
    flex-grow: 1;
}
```

- **align-self:** flex-start;
  (flex-start | flex-end | center) container එකට සාපේක්ෂව items වල positions වෙනස් කරනවා.

- Flex container එකක් ඇතුලෙ තියනෙ ඒවගෙ width height container එකනේ පිට යන්න දෙන්නෙ නෑ. (default flex-shrink: 1; නිසා)

- flex-shrink: 0; ← 0 කරාම flex container එකේ පිට යනෝ

- order: ← flex items wala order eka wenas karanna


```
div:nth-child(1) {
   order: 3;
}

div:nth-child(2) {
   order: 1;
}

div:nth-child(3) {
   order: 2;
}
```

- flex-wrap (Container එකට Apply කරන්නෙ) ← container එකේ එලියට පනින ඒව ඇතුලට දාගන්නෙ.(flex-shrink: 0; වලෝ තියෙන්න ඕන item එකෙ)

display: grid;

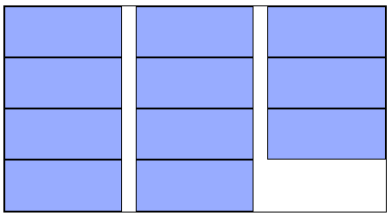
grid-template-rows: 1fr 1fr 1fr 1fr 1fr;

```
grid-template-columns: 1fr 1fr 1fr
```

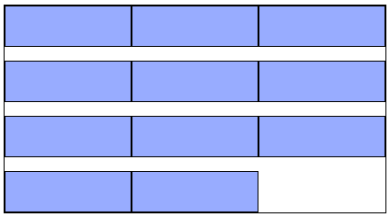
- fr ← fragment (Relative measurement unit එකක්)

```
grid-template-rows: repeat(5, 1fr);
grid-template-columns:  repeat(6, 1fr);
```

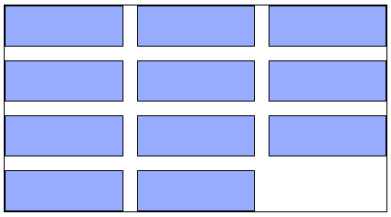
- grid-column-gap: 10px;



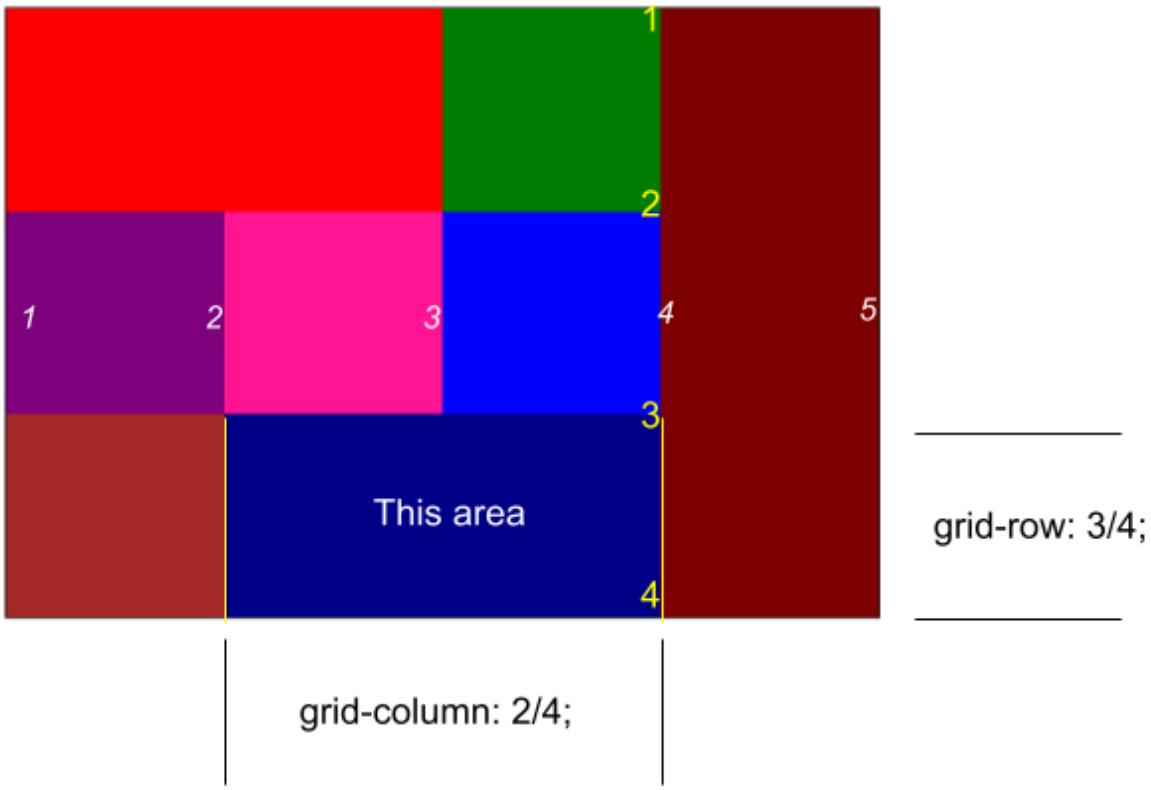
- grid-row-gap: 10px;



- grid-gap: 10px;



- grid-column: 1/3; (1 - start point, 3 - end point)



Transition

html element එකක්, එක css state එකක ඉඳන් තව state එකකට smoothly change කරන්න පුලුවන් ක්‍රමයක්.

```
div {
   height: 100px;
   width: 100px;
   background-color: #960707;

   transition: 2s;
}

div:hover {
   border-radius: 100%;
   left: 100px;
   transition: 2s;
}
```

transition-duration: 2s; or **transition: 2s;** ← transition එකට යන time එක
transition-property: left, border-radius; ← property 1ක කට විතරක් transition apply කරන්න

Animation

Time duration එකක් ඇතුලෙ css rules set එකක් smoothly වෙනස් කරන්න පුලුවන් ක්‍රමයක්. කැමති වාර ගානක් run කරන්න පුලුවන්.

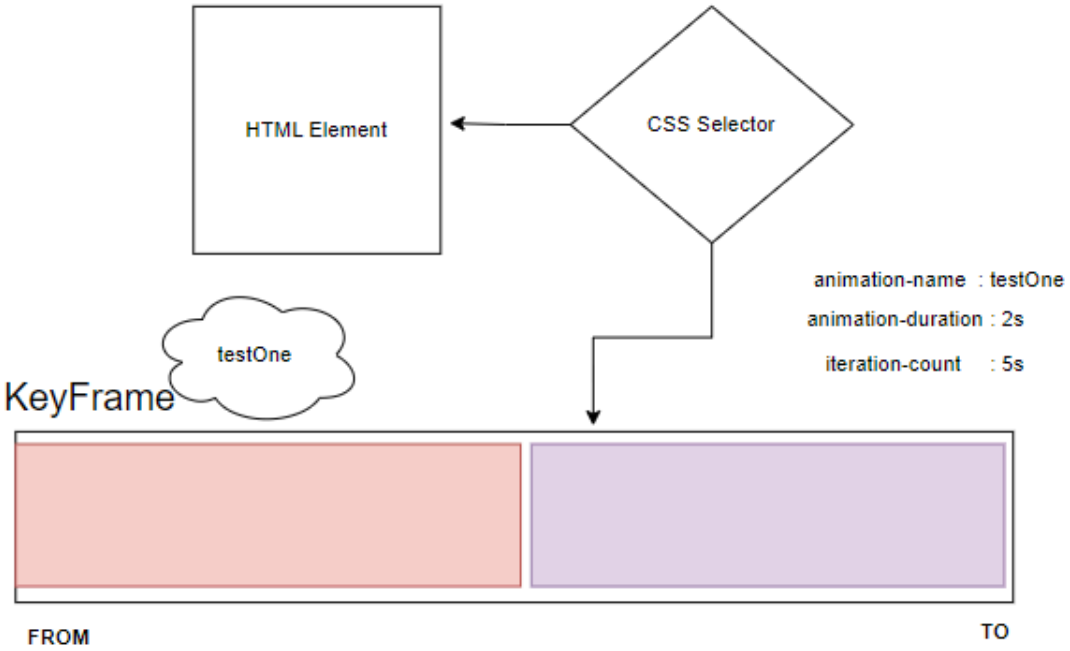
keyframes
specified time duration එකක් ඇතුලෙ element එකකට apply වෙන්න ඕන style හෝ animations sequence එකක් define කරන්න හාවිතා වේ.

ex:

- **Two keyframes**

```
section{
   width: 100px;
   height: 100px;
   background: yellow;
   position: relative;
   left: 0;

   animation:testOne;
   animation-duration: 2s;
   animation-iteration-count: 2;

}

@keyframes testOne {
   from{
       width: 100px;
       height: 100px;
       background: red;
   }
   to{
       width: 100px;
       height: 100px;
```

```
        background: green;
        border-radius: 100%;
        left: 300px;
    }

}
```



- **More keyframes**

```
@keyframes testOne {
    0% {
        left: 0;
        top: 0;
        background: brown;
    }
    25% {
        top: 0;
        left: 500px;
    }
```

```
    50% {
        top: 400px;
        left: 500px;
    }
    75% {
        top: 400px;
        left: 0;
    }
    100% {
        left: 0;
        top: 0;
        background: green;
    }

}
```

Media query

The @media rule, introduced in CSS2, made it possible to define different style rules for different media types.

Examples: You could have one set of style rules for computer screens, one for printers, one for handheld devices, one for television-type devices, and so on.

- Media query danna kalin daanna oon,

<meta content="width=device-width initial-scale=1" name="viewport">

```
@media (width: 1440px) {
    h1{
        color: red;
    }
}
```

Add wenne 1440px width ekata witarai

```
@media (min-width: 1440px) {
   h1{
       color: red;
   }
}
```

1440px ha eeta wadi wiata apply weno.
(apply wena min width eka 1440px, eeta wadi eewata kohomath apply weno)

```
@media (max-width: 1440px) {
   h1{
       color: red;
   }
}
```

1440px ha eeta adu eewata apply weno.
(apply wena max width eka 1440px, eeta adu eewata kohomath apply weno)

```
@media all {
   h1{
       color: red;
   }
}
```

Hama device ekatama apply weno

```
@media (max-width: 768px) and (min-width: 320px) {
   h1 {
       color: red;
   }
}
```

Deepu range ekata adalawa apply weno
(768px ha eeta adu, 320px ha eeta wadi device seratama apply weno)

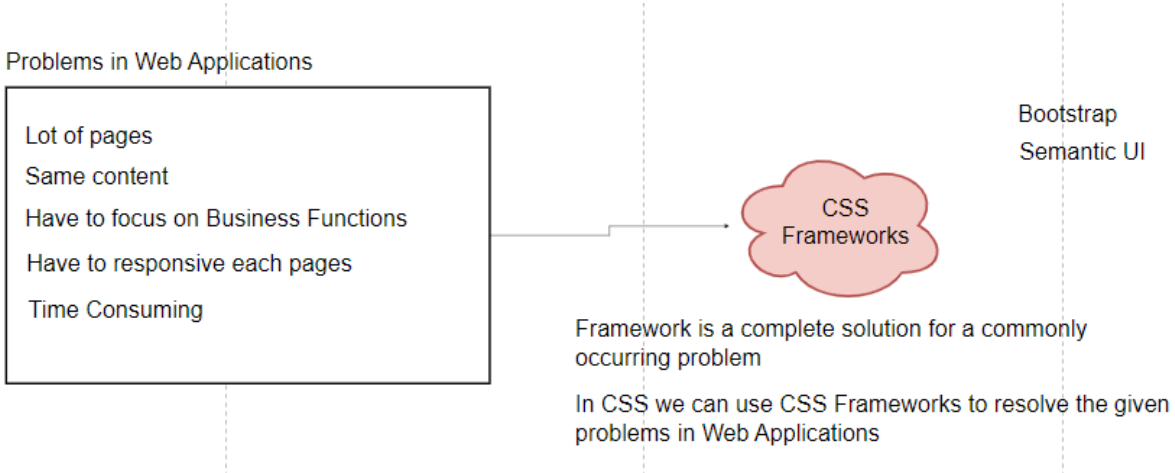
==========

Framework

Common Problem එකකට තියෙන complete solution එකක්.

CSS Framework

CSS වල complexity එක අඩු කරන්න තියෙන complete solution එකක්.



Bootstrap

CSS Framework ekak

https://getbootstrap.com/docs/5.3/getting-started/introduction/

```
<section class="container"> ← depatten gap ekak eno
```

Responsive

https://getbootstrap.com/docs/5.3/layout/grid/

	xs <576px	sm ≥576px	md ≥768px	lg ≥992px	xl ≥1200px	xxl ≥1400px
Container `max-width`	None (auto)	540px	720px	960px	1140px	1320px
Class prefix	`.col-`	`.col-sm-`	`.col-md-`	`.col-lg-`	`.col-xl-`	`.col-xxl-`
# of columns	12					
Gutter width	1.5rem (.75rem on left and right)					
Custom gutters	Yes					
Nestable	Yes					
Column ordering	Yes					

.col eka podima eka
 → pattata apply wenne

col-12 col-sm-12 col-md-4 col-lg-4 col-xxl-4
(extra small, small device waladi pahalata wateno row 2k widiyata, anit eewage 4/12 space ekaka set weno)