

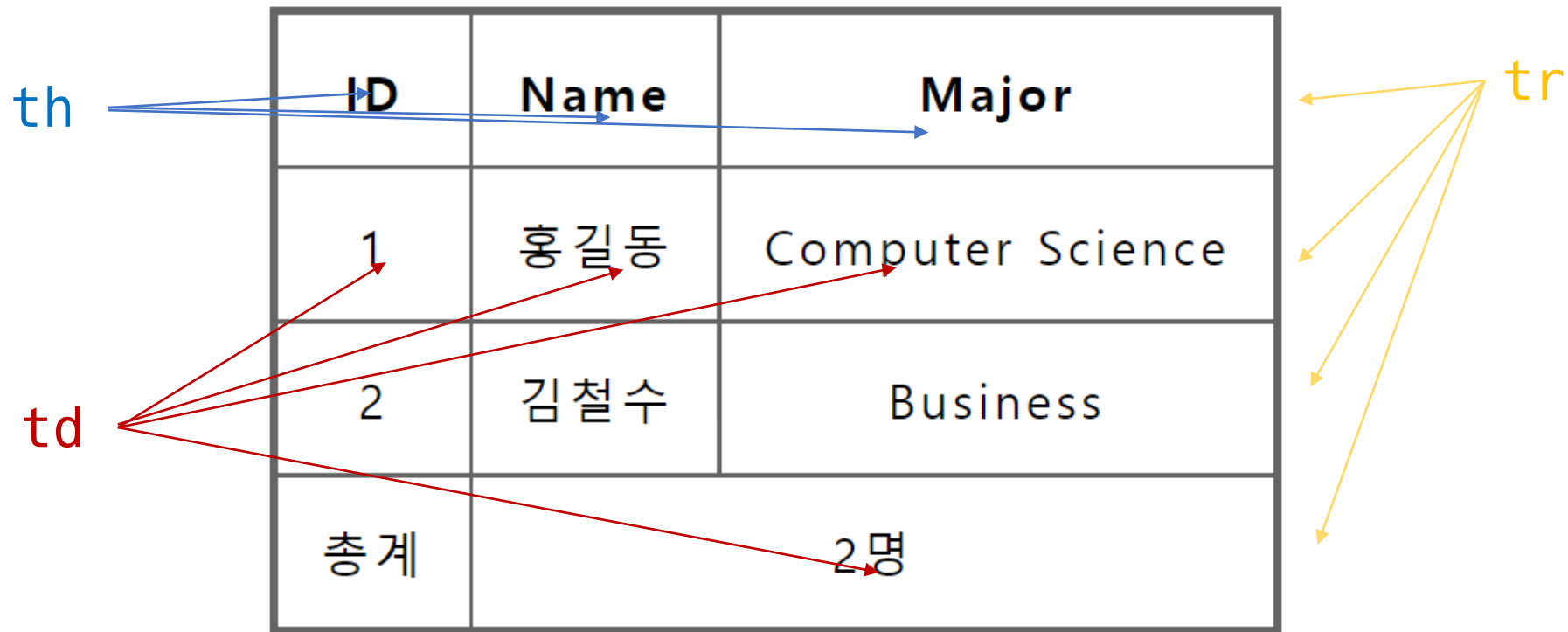


- table의 각 영역을 명시하기 위해 `<thead>` `<tbody>` `<tfoot>` 요소를 활용

ID	Name	Major	thead (header)
1	홍길동	Computer Science	tbody (body)
2	김철수	Business	
총계	2명		tfoot (footer)

1반 학생 명단

- <tr>으로 가로 줄을 구성하고 내부에는 <th> 혹은 <td>로 셀을 구성



The diagram illustrates the HTML structure of a table. It shows a table with 3 columns and 4 rows. The first row contains headers: 'ID', 'Name', and 'Major'. The second row contains '1', '홍길동', and 'Computer Science'. The third row contains '2', '김철수', and 'Business'. The fourth row contains '총계' and '2명'. Annotations include: blue arrows pointing from 'th' to the header cells; red arrows pointing from 'td' to the data cells; and yellow arrows pointing from 'tr' to each row.

ID	Name	Major
1	홍길동	Computer Science
2	김철수	Business
총계	2명	

1반 학생 명단

- colspan, rowspan 속성을 활용하여 셀 병합

ID	Name	Major
1	홍길동	Computer Science
2	김철수	Business
총계	2명	

colspan="2"

1반 학생 명단

- <caption>을 통해 표 설명 또는 제목을 나타냄

ID	Name	Major
1	홍길동	Computer Science
2	김철수	Business
총계	2명	

1반 학생 명단

caption

- table 태그 기본 구성
 - thead
 - tr > th
 - tbody
 - tr > td
 - tfoot
 - tr > td
 - caption

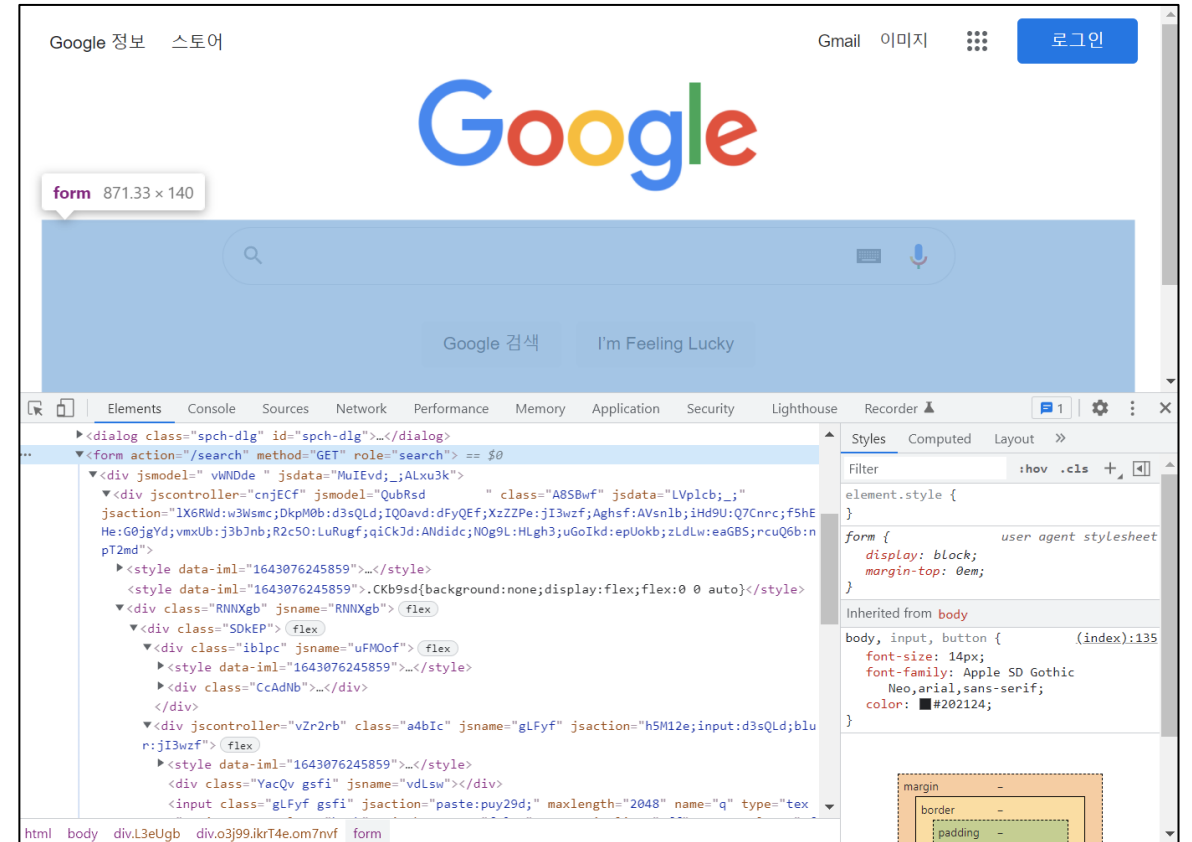
```
<body>
  <table>
    <thead>
      <tr>
        <th>ID</th>
        <th>Name</th>
        <th>Major</th>
      </tr>
    </thead>
    <tbody>
      <tr>
        <td>1</td>
        <td>홍길동</td>
        <td>Computer Science</td>
      </tr>
      <tr>
        <td>2</td>
        <td>김철수</td>
        <td>Business</td>
      </tr>
    </tbody>
    <tfoot>
      <tr>
        <td>총계</td>
        <td colspan="2">2명</td>
      </tr>
    </tfoot>
    <caption>1반 학생 명단</caption>
  </table>
</body>
```

form

- <form>은 정보(데이터)를 서버에 제출하기 위해 사용하는 태그
- <form> 기본 속성
 - action : form을 처리할 서버의 URL(데이터를 보낼 곳)
 - method : form을 제출할 때 사용할 HTTP 메서드 (GET 혹은 POST)
 - enctype : method가 post인 경우 데이터의 유형
 - application/x-www-form-urlencoded : 기본값
 - multipart/form-data : 파일 전송시 (input type이 file인 경우)
 - text/plain : HTML5 디버깅 용 (잘 사용되지 않음)

form

```
<form action="/search" method="GET">
</form>
```

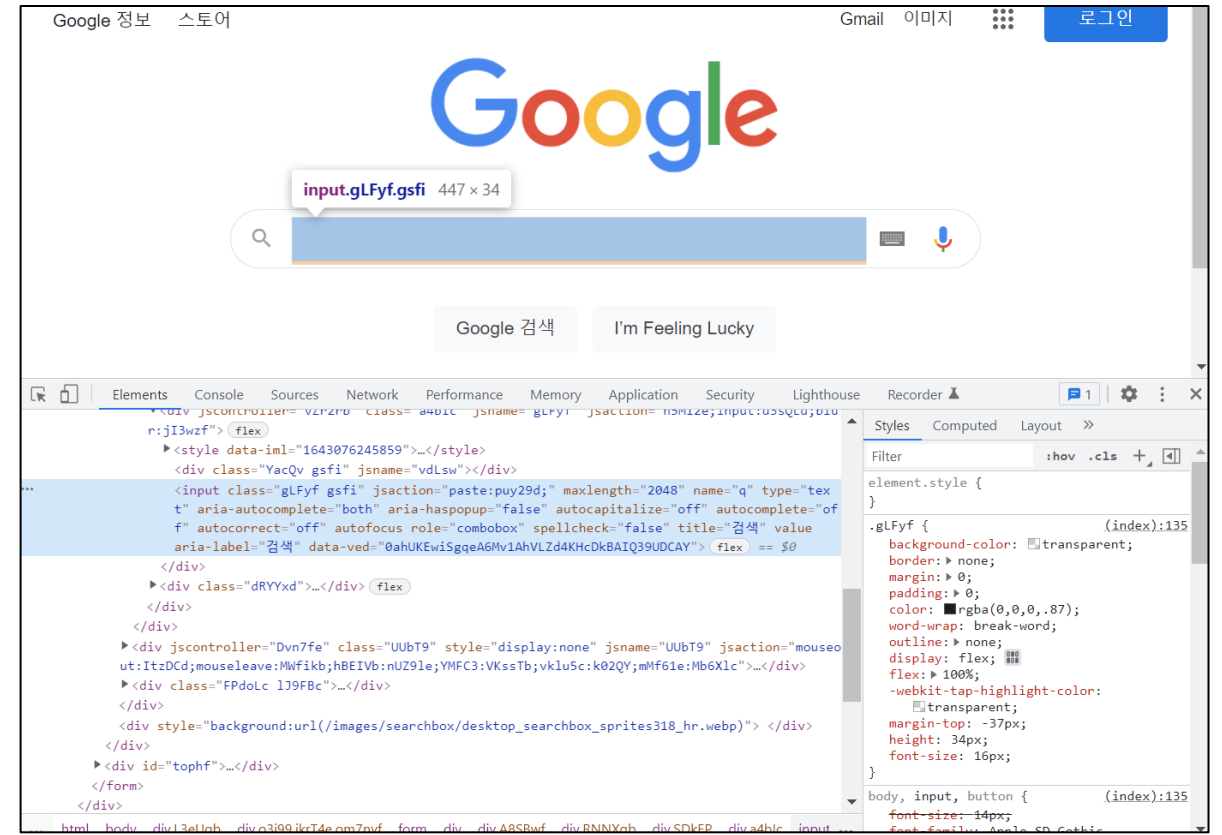


input

- 다양한 타입을 가지는 입력 데이터 유형과 위젯이 제공됨
- `<input>` 대표적인 속성
 - `name` : form control에 적용되는 이름 (이름/값 페어로 전송됨)
 - `value` : form control에 적용되는 값 (이름/값 페어로 전송됨)
 - `required`, `readonly`, `autofocus`, `autocomplete`, `disabled` 등

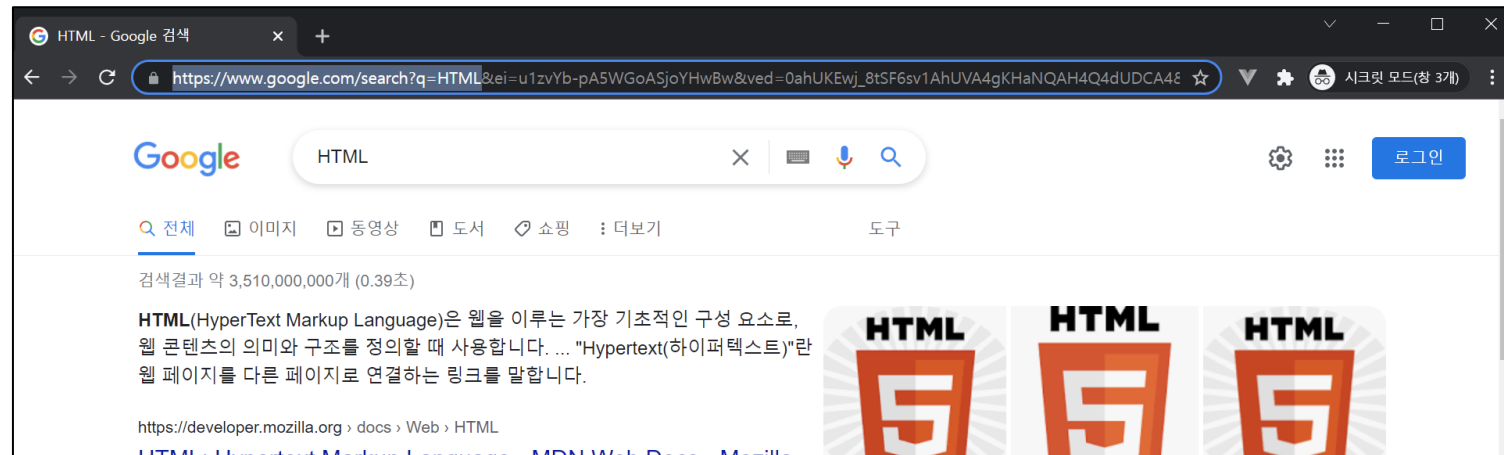
input

```
<form action="/search" method="GET">
  <input type="text" name="q">
</form>
```



input

<https://www.google.com/search?q=HTML>



```
<form action="/search" method="GET">  
  <input type="text" name="q">  
</form>
```

input label

- label을 클릭하여 input 자체의 초점을 맞추거나 활성화 시킬 수 있음
 - 사용자는 선택할 수 있는 영역이 늘어나 웹 / 모바일(터치) 환경에서 편하게 사용할 수 있음
 - label과 input 입력의 관계가 시각적 뿐만 아니라 화면리더기에서도 label을 읽어 쉽게 내용을 확인 할 수 있도록 함
- <input>에 id 속성을, <label>에는 for 속성을 활용하여 상호 연관을 시킴

```
<label for="agreement">개인정보 수집에 동의합니다.</label>  
<input type="checkbox" name="agreement" id="agreement">
```

vscode에서 직접해보기

```
<body>
  <h1>Form 활용 실습</h1>
  <form action="">
    <!-- autofocus 및 label 확인 -->
    <div class="input-group">
      <label for="username">아이디</label>
    </div>
    <input type="text" name="username" id="username" autofocus>

    <!-- disabled 및 value 확인 -->
    <div class="input-group">
      <label for="name">이름</label>
    </div>
    <input type="text" name="name" value="홍길동" id="name" disabled>

    <!-- label 확인 -->
    <div class="input-group">
      <label for="agreement">개인정보 수집에 동의합니다.</label>
    </div>
    <input type="checkbox" name="agreement" id="agreement">

    <div class="input-group">
      <label>최종 제출을 확인합니다.</label>
    </div>
    <input type="checkbox">

  </form>
  <input type="submit" value="제출">
</body>
```

Form 활용 실습

아이디

이름

개인정보 수집에 동의합니다.


☐

최종 제출을 확인합니다.

☐

input 유형 - 일반

- 일반적으로 입력을 받기 위하여 제공되며 타입별로 HTML기본 검증 혹은 추가 속성을 활용할 수 있음
 - text : 일반 텍스트 입력
 - password : 입력 시 값이 보이지 않고 문자를 특수기호(*)로 표현
 - email : 이메일 형식이 아닌 경우 form 제출 불가
 - number : min, max, step 속성을 활용하여 숫자 범위 설정 가능
 - file : accept 속성을 활용하여 파일 타입 지정 가능

text
<input type="text" value="test"/>
password
<input type="password" value="...."/>
email
<input type="text" value="test"/>
 이메일 주소에 '@'를 포함해 주세요. 'test'에 '@'가 없습니다.
<input type="text" value="4"/>
file
<input type="button" value="파일 선택"/> 선택된 파일 없음

input 유형 - 항목 중 선택

- 일반적으로 label 태그와 함께 사용하여 선택 항목을 작성함
- 동일 항목에 대하여는 name을 지정하고 선택된 항목에 대한 value를 지정해야 함
 - checkbox : 다중 선택
 - radio : 단일 선택

```
<div>
  <p>checkbox</p>
  <input id="html" type="checkbox" name="language" value="html">
  <label for="html">HTML</label>
  <input id="python" type="checkbox" name="language" value="python">
  <label for="python">파이썬</label>
  <input id="java" type="checkbox" name="language" value="java">
  <label for="java">자바</label>
  <hr>
</div>
```

checkbox

☒ HTML ☒ 파이썬 ☐ 자바

radio button


☐ 행복 ☒ 슬픔 ☐ 중립

input 유형 - 기타

- 다양한 종류의 input을 위한 picker를 제공
 - color : color picker
 - date : date picker
- hidden input을 활용하여 사용자 입력을 받지 않고 서버에 전송되어야 하는 값을 설정
 - hidden : 사용자에게 보이지 않는 input

color

date



Bootstrap



Bootstrap

Build fast, responsive sites with Bootstrap.

Quickly design and customize responsive mobile-first sites with Bootstrap, the world's most popular front-end open source toolkit, featuring Sass variables and mixins, responsive grid system, extensive prebuilt components, and powerful JavaScript plugins.



Bootstrap

Build fast, responsive sites with Bootstrap.

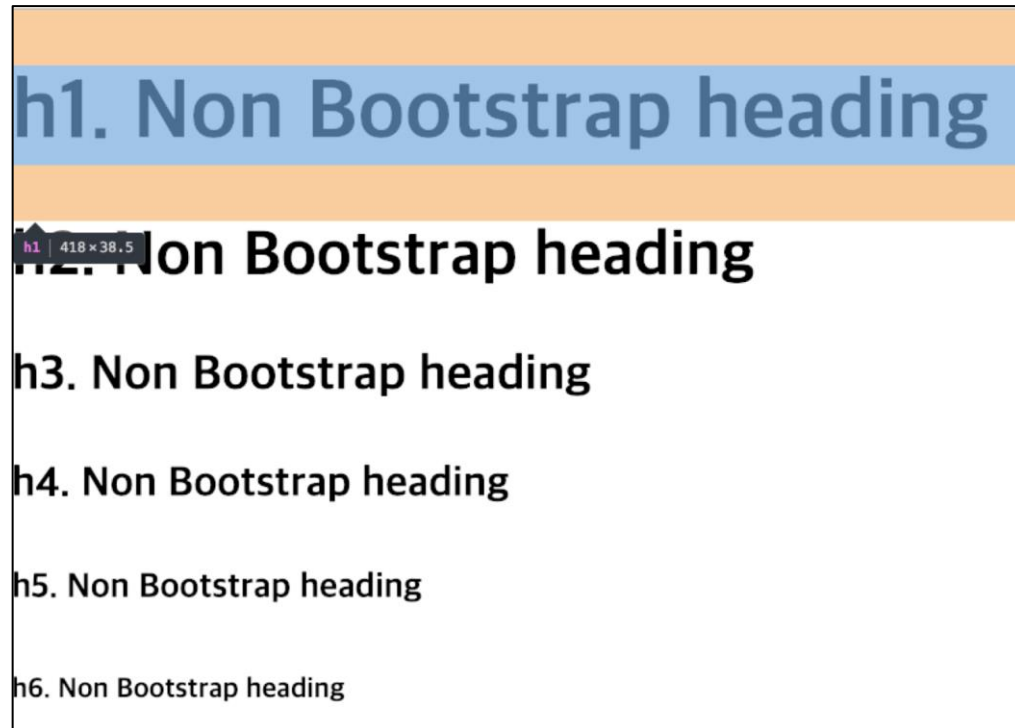
Quickly design and customize **responsive** mobile-first sites with Bootstrap, **the world's most popular** front-end open source toolkit, featuring Sass variables and mixins, **responsive grid system**, extensive **prebuilt components**, and powerful JavaScript plugins.

The world most popular front-end open source

Repositories Ranking

	1. freeCodeCamp/freeCodeCamp	★ 318842
	2. 996icu/996.ICU	★ 255081
	3. vuejs/vue	★ 178471
	4. EbookFoundation/free-progra...	★ 172051
	5. facebook/react	★ 162399
	6. jwasham/coding-interview-un...	★ 154360
	7. tensorflow/tensorflow	★ 152642
	8. sindresorhus/awesome	★ 151433
	9. twbs/bootstrap	★ 147282
	10. kamranahmedse/developer-roa...	★ 146235

Reboot.css



Reboot.css



You can use the mark tag to highlight text.

~~This line of text is meant to be treated as deleted text.~~

~~This line of text is meant to be treated as no longer accurate.~~

This line of text is meant to be treated as an addition to the document.

This line of text will render as underlined

This line of text is meant to be treated as fine print.

This line rendered as bold text.

This line rendered as italicized text.



You can use the mark tag to highlight text.

~~This line of text is meant to be treated as deleted text.~~

~~This line of text is meant to be treated as no longer accurate.~~

This line of text is meant to be treated as an addition to the document.

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This line rendered as bold text.

This line rendered as italicized text.

편하게 사용해보자

Include via CDN

When you only need to include Bootstrap's compiled CSS or JS, you can use [jsDelivr](#). See it in action with our simple [quick start](#), or [browse the examples](#) to jumpstart your next project. You can also choose to include Popper and our JS [separately](#).

```
<!-- CSS only -->  
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.0/dist/css/bo
```



```
<!-- JavaScript Bundle with Popper -->  
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.0/dist/js/bo
```



CDN

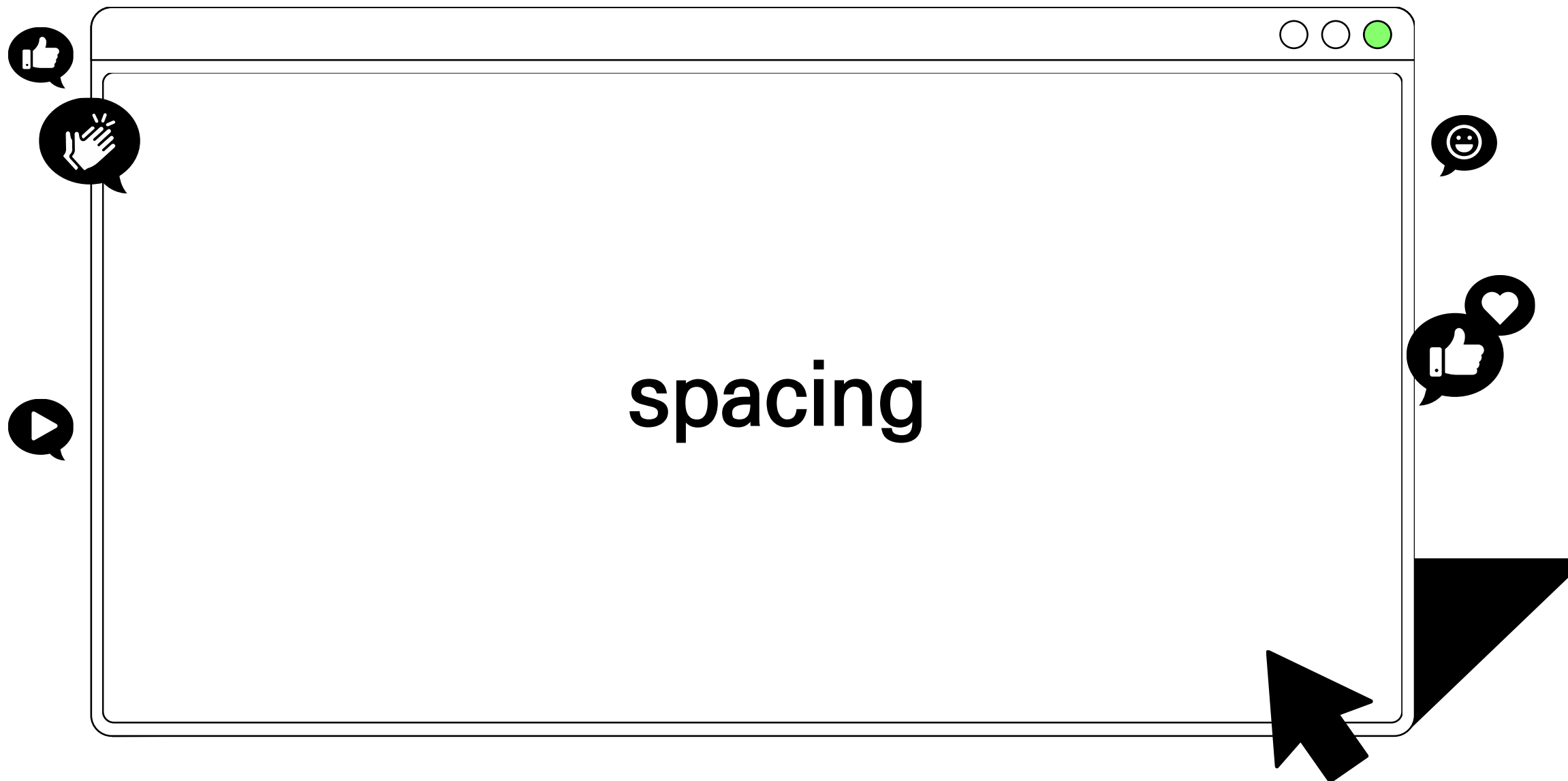
Content Delivery(Distribution) Network

컨텐츠(CSS, JS, Image, Text 등)를 효율적으로 전달하기 위해

여러 노드에 가진 네트워크에 데이터를 제공하는 시스템.

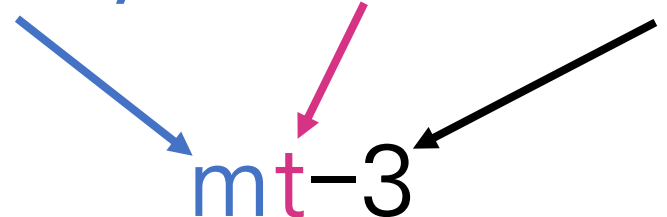
개별 end-user의 가까운 서버를 통해 빠르게 전달 가능(지리적 이점)

외부 서버를 활용함으로써 본인 서버의 부하가 적어짐



spacing (Margin and padding)

{property}{sides}-{size}



mt-3

```
<div class="mt-3 ms-5">bootstrap-spacing</div>
```

spacing (Margin and padding)

`{property}{sides}-{size}`

Where *property* is one of:

- `m` - for classes that set `margin`
- `p` - for classes that set `padding`

spacing (Margin and padding)

`{property}{sides}-{size}`

Where *sides* is one of:

- `t` - for classes that set `margin-top` or `padding-top`
- `b` - for classes that set `margin-bottom` or `padding-bottom`
- `s` - (start) for classes that set `margin-left` or `padding-left` in LTR, `margin-right` or `padding-right` in RTL
- `e` - (end) for classes that set `margin-right` or `padding-right` in LTR, `margin-left` or `padding-left` in RTL
- `x` - for classes that set both `*-left` and `*-right`
- `y` - for classes that set both `*-top` and `*-bottom`
- blank - for classes that set a `margin` or `padding` on all 4 sides of the element

spacing (Margin and padding)

`{property}{sides}-{size}`

Where *size* is one of:

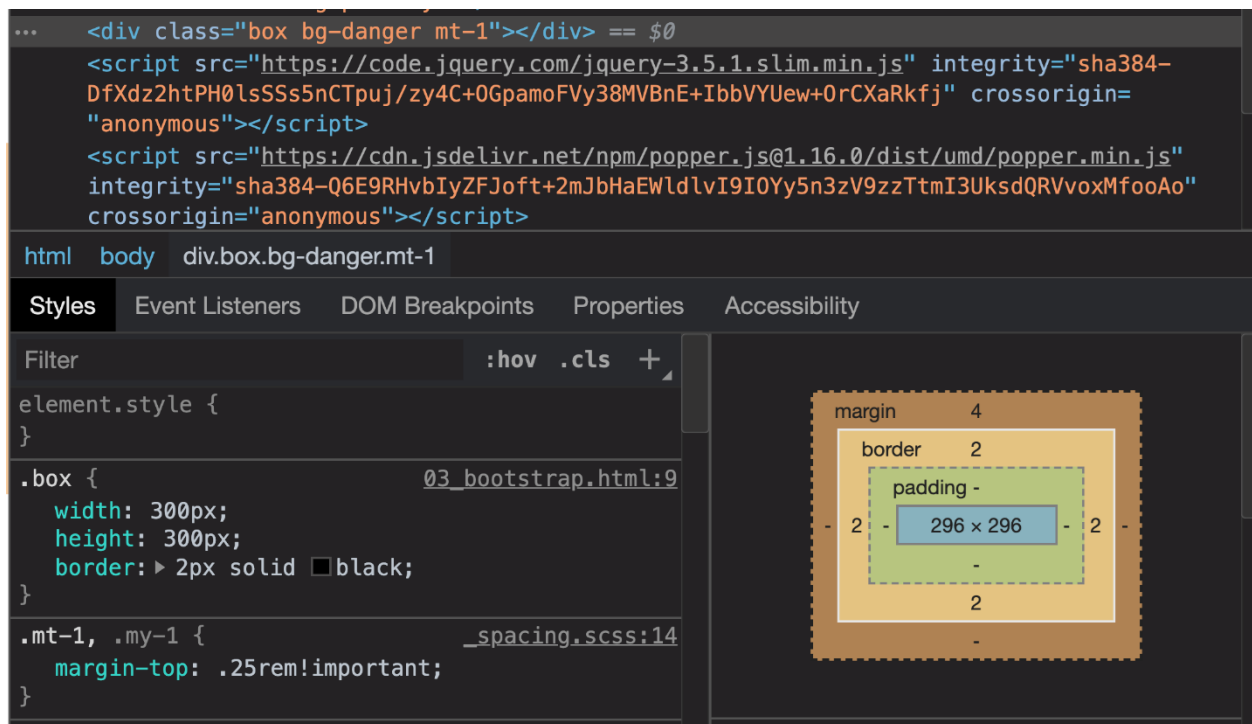
- `0` - for classes that eliminate the `margin` or `padding` by setting it to `0`
- `1` - (by default) for classes that set the `margin` or `padding` to `$spacer * .25`
- `2` - (by default) for classes that set the `margin` or `padding` to `$spacer * .5`
- `3` - (by default) for classes that set the `margin` or `padding` to `$spacer`
- `4` - (by default) for classes that set the `margin` or `padding` to `$spacer * 1.5`
- `5` - (by default) for classes that set the `margin` or `padding` to `$spacer * 3`
- `auto` - for classes that set the `margin` to `auto`

spacing

```
.mt-1 {  
  margin-top: 0.25rem !important;  
}
```

0.25rem ?

spacing



$$16 * 0.25 = 4px$$

브라우저 `<html>`의
root 글꼴 크기는
16px

spacing

class name	rem	px
m-1	0.25	4
m-2	0.5	8
m-3	1	16
m-4	1.5	24
m-5	3	48

spacing

.mx-0 ?

spacing

```
.mx-0 {  
  margin-right: 0 !important;  
  margin-left: 0 !important;  
}
```

bootstrap.css

spacing

.mx-0 ?

가로(왼쪽, 오른쪽) margin0 | 0

spacing

.mx-auto

spacing

.mx-auto

```
.mx-auto {  
  margin-right: auto !important;  
  margin-left: auto !important;  
}
```

spacing

.mx-auto

블록 요소
수평 중앙 정렬
가로 가운데 정렬!

spacing

.py-0 ?

spacing

```
.py-0 {  
  padding-top: 0 !important;  
  padding-bottom: 0 !important;  
}
```


spacing

.py-0 ?

위 아래 padding이 0

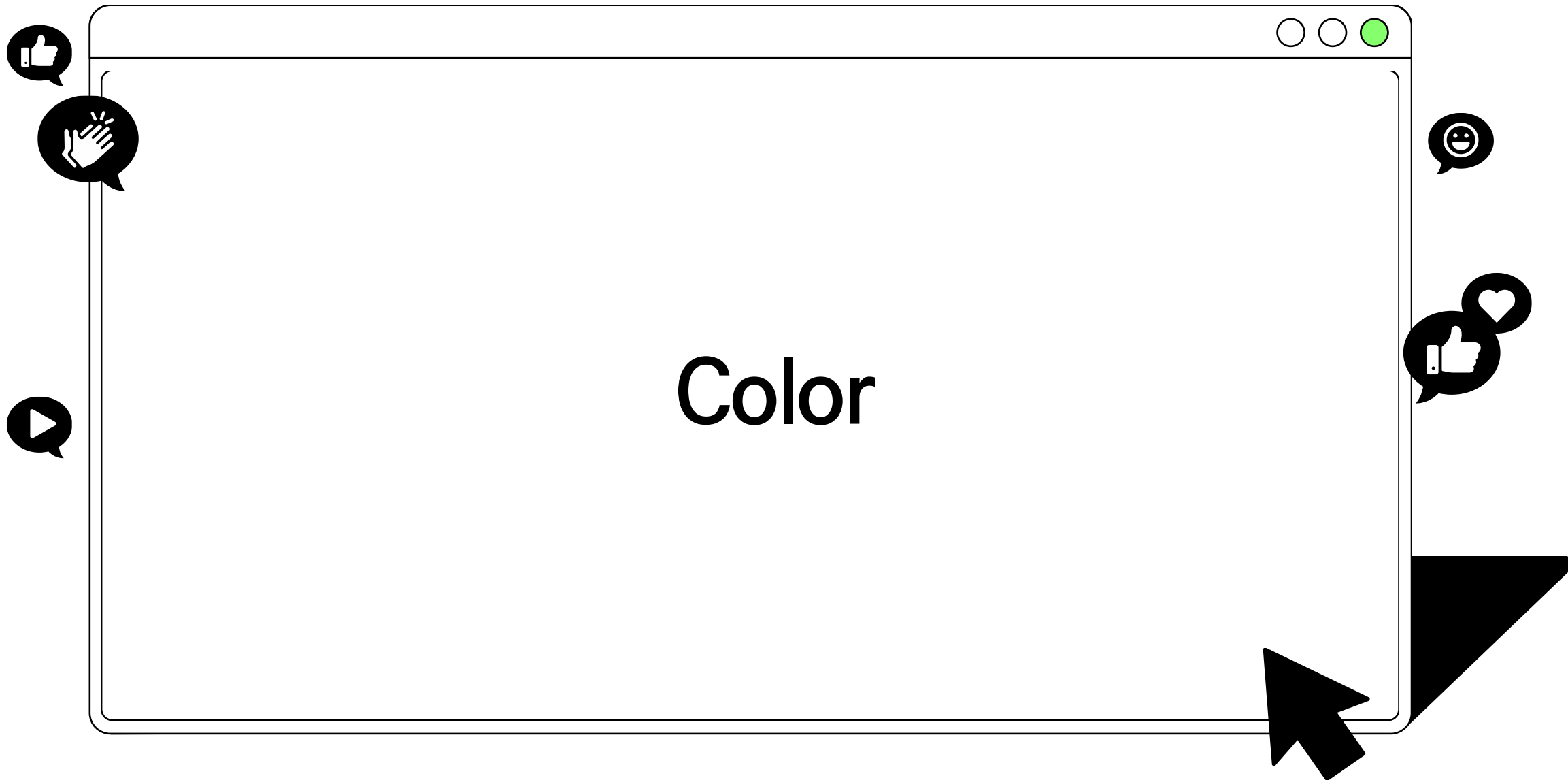
spacing 종합

m	margin
p	padding

t	top
b	bottom
s	left
e	right
x	left, right
y	top, bottom

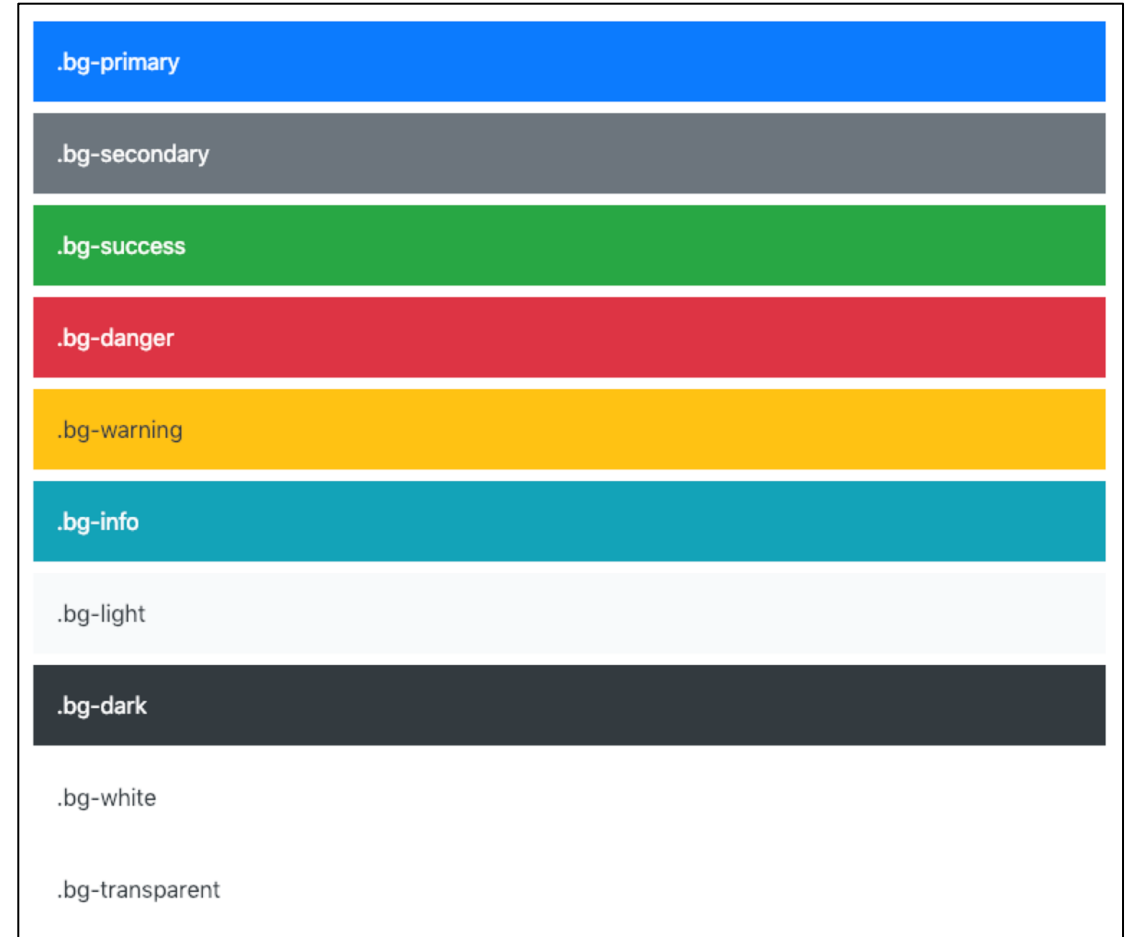
0	0 rem	0px
1	0.25 rem	4px
2	0.5 rem	8px
3	1 rem	16px
4	1.5 rem	24px
5	3 rem	48px

Color



color

```
:root {  
  --primary: #007bff;  
  --secondary: #6c757d;  
  --success: #28a745;  
  --info: #17a2b8;  
  --warning: #ffc107;  
  --danger: #dc3545;  
  --light: #f8f9fa;  
  --dark: #343a40;  
}
```



Color

이건 파랑

이건 회색

이건 빨강

이건 초록색 글씨

이건 빨간색 글씨

```
<h2>Color</h2>
<div class="bg-primary">이건 파랑</div>
<div class="bg-secondary">이건 회색</div>
<div class="bg-danger">이건 빨강</div>
<p class="text-success">이건 초록색 글씨</p>
<p class="text-danger">이건 빨간색 글씨</p>
```

Text

Text

Start aligned text on all viewport sizes.

Center aligned text on all viewport sizes.

End aligned text on all viewport sizes.

[Non-underlined link](#)

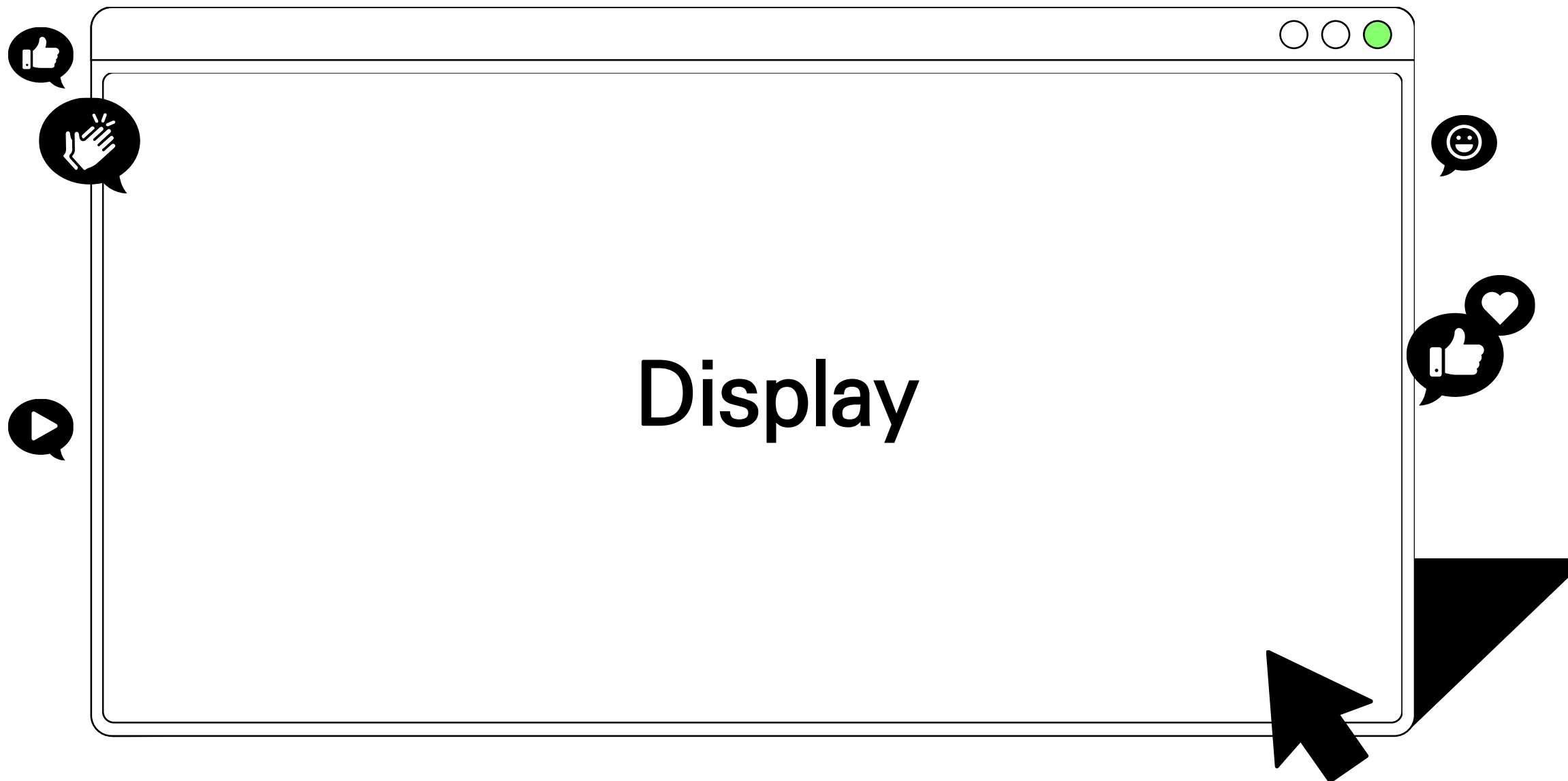
Bold text.

Normal weight text.

Light weight text.

Italic text.

```
<h2>Text</h2>
<p class="text-start">margin-top 3</p>
<p class="text-center">margin 4</p>
<p class="text-end">mx-auto, 가운데 정렬</p>
<a href="#" class="text-decoration-none">Non-underlined link</a>
<p class="fw-bold">Bold text.</p>
<p class="fw-normal">Normal weight text.</p>
<p class="fw-light">Light weight text.</p>
<p class="fst-italic">Italic text.</p>
```



Display, Position을 공식문서를 보며 진행해보자.

Display

Display

d-inline

d-inline

d-block

d-block

보이나?? 안보
이나??

보이나?? 안보
이나??

```
<h2>Display</h2>
<div class="d-inline p-2 bg-primary text-white">d-inline</div>
<div class="d-inline p-2 bg-dark text-white">d-inline</div>
<div class="d-block p-2 bg-dark text-white">d-inline</div>
<div class="d-block p-2 bg-primary text-white">d-inline</div>
<div class="box bg-warning d-sm-none d-md-block">보이나?? 안보이나??</div>
<div class="box bg-success d-md-none d-xl-block">보이나?? 안보이나??</div>
```

Position

fixed-top

fixed-bottom

```
<h2>Position</h2>  
<div class="box fixed-top">fixed-top</div>  
<div class="box fixed-bottom">fixed-bottom</div>
```