



# Bootstrap 5

2024 년

# 개요



- 부트 스트랩(Bootstrap)?
  - 오픈 소스 프론트엔드 프레임워크
  - 웹사이트를 쉽게 만들 수 있게 도와주는 CSS, JS 프레임워크
  - 하나의 코드로 휴대폰, 태블릿, 데스크탑까지 다양한 기기에서 작동
  - 다양한 기능을 제공하여 사용자가 쉽게 웹사이트를 제작, 유지, 보수할 수 있음
- 트위터 의 마크 오토(Mark Otto)와 Jacob Thornton이 만들었다
- 정형화되지 않아 유지와 보수에 어려움
- 2011년 8월 19일 오픈 소스가 발표되면서 지어졌다
- 2012년 1월 31일 부트스트랩 2가 발표
  - 12컬럼 그리드 레이아웃과 반응형 디자인이 포함

## 구조와 기능

- 부트스트랩은 Sass 스타일시트를 기반
- CSS
  - HTML에서 사용되는 기본 스타일을 제공
- 재사용 가능한 컴포넌트
  - 기본 요소 외에도 사용자들이 자주 사용하는 요소들을 포함
  - 예를 들면, 각종 버튼들, 드롭다운 메뉴, 탭, 라벨, 상태 바 등
- 자바스크립트 컴포넌트
  - 자바 스크립트를 이용하여 드롭다운, 탭, 버튼 등의 기능을 구현

# 버전

- 3.x
  - 2013년 8월 19일 3.0 정식 버전
  - 테마 CSS 파일을 별도로 제공
- 4.x
  - 2015년 8월 19일 4주년 버전 알파테스트
  - 2016년 7월 27일 알파 3 버전이, 9월 5일에 알파 4 버전
- 5.x
  - 2021년 5월 5일 v5.0.0 정식 버전이 출시

## 반응형 웹 디자인이란?

반응형 웹 디자인은 소형 휴대폰에서 대형 데스크탑에 이르기까지 모든 장치에서 보기 좋게 자동으로 조정되는 웹 사이트를 만드는 것입니다.

## v4 vs v5

	Bootstrap4	Bootstrap5
Grid	5개 계층 xs, sm, md, lg, xl 사용	6개 계층 xs, sm, md, lg, xl, xxl
Color	정해진 몇가지 색상만 사용	추가된 색상과 팔레트와 음영 지원
jQuery	모든 관련 플러그인 사용	jQuery 제거
IE	IE 10, IE 11 모두 지원	IE 10, IE 11 지원 종료
Form	라디오 버튼, 체크박스는 OS를 따르고 기본 브라우저를 따릅니다.	폼 양식이 OS나 브라우저에 따라 변경되지 않으며 양식 컨트롤의 추가할 수 있고 브라우저에
API	유틸리티 수정이 불가	자유롭게 수정하고 생성 가능
아이콘	미지원 Font Awesome 활용	자체 SVG 아이콘 지원
Nav	인라인 블록 속성이 있고 dropdown-menu-dark Class는 기본값으로 흰색 드롭다운이 표시	인라인 블록 속성 제거, dropdown-menu-dark 기본값으로 검은색 드롭다운이 표시
Flexbox	열과 행을 쉽게 구현하고 justify-center-content 클래스 요구에 따라 정렬을 직접 사용	고급 그리드 시스템 사용과 상대적 위치가 없다.
RTL	오른쪽에서 왼쪽 전환 비활성화	오른쪽에서 왼쪽으로 전환 가능

# Bootstrap start

- Bootstrap 5 CDN

```
<!-- Latest compiled and minified CSS -->
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

<!-- Latest compiled JavaScript -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>
```

- Downloading Bootstrap 5
- npm

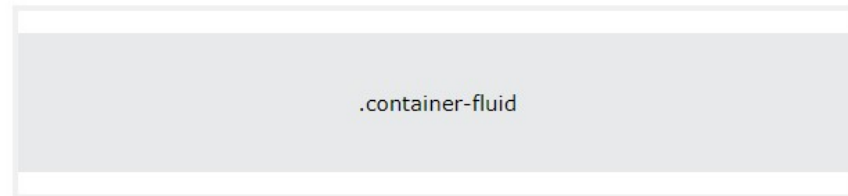
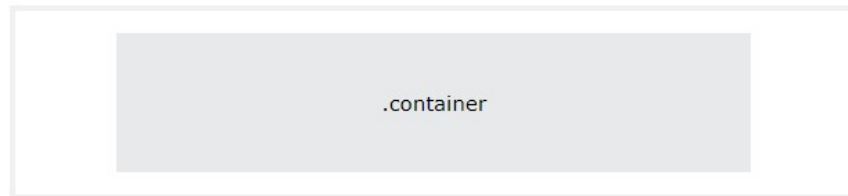
# Bootstrap

## 1. HTML5 doctype

## 2. Bootstrap 5 is mobile-first

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

## 3. Containers



# Bootstrap

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Bootstrap Example</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>
</head>
<body>

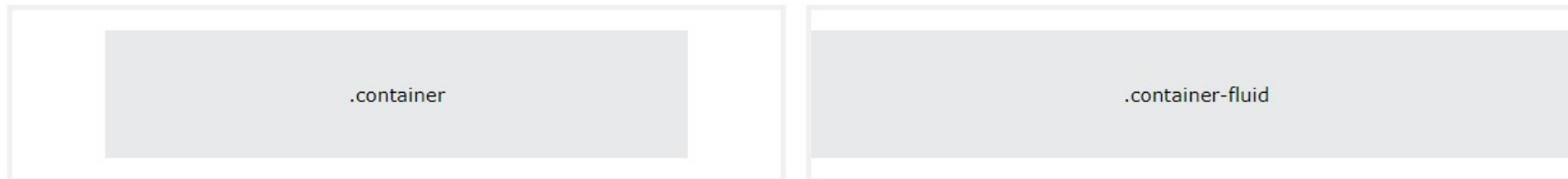
<div class="container">
  <h1>My First Bootstrap Page</h1>
  <p>This part is inside a .container class.</p>
  <p>The .container class provides a responsive fixed width container.</p>
</div>

</body>
</html>
```



# Bootstrap 5 Containers

- .container class vs .container-fluid class



- Fixed Container

	<b>Extra small &lt;576px</b>	<b>Small ≥576px</b>	<b>Medium ≥768px</b>	<b>Large ≥992px</b>	<b>Extra Large ≥1200px</b>	<b>XXL ≥1400px</b>
max-width	100%	540px	720px	960px	1140px	1320px

- Fluid Container
- Container Padding

```
<div class="container pt-5"> </div>
```

# Bootstrap 5 Containers

- Container Padding

```
<div class="container pt-5"> </div>
```

```
<div class="container p-5 my-5 border"> </div>
```

```
<div class="container p-5 my-5 bg-dark text-white">
```

```
<div class="container p-5 my-5 bg-primary text-white">
```

## My First Bootstrap Page

This container has a border and some extra padding and margins.

## My First Bootstrap Page

This container has a dark background color and a white text, and some extra padding and margins.

## My First Bootstrap Page

This container has a blue background color and a white text, and some extra padding and margins.

# Bootstrap 5 Containers

- Responsive Containers

Class	Extra small <576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra large ≥1200px	XXL ≥1400px
<code>.container-sm</code>	100%	540px	720px	960px	1140px	1320px
<code>.container-md</code>	100%	100%	720px	960px	1140px	1320px
<code>.container-lg</code>	100%	100%	100%	960px	1140px	1320px
<code>.container-xl</code>	100%	100%	100%	100%	1140px	1320px
<code>.container-xxl</code>	100%	100%	100%	100%	100%	1320px

```
<div class="container-sm">.container-sm</div>
<div class="container-md">.container-md</div>
<div class="container-lg">.container-lg</div>
<div class="container-xl">.container-xl</div>
<div class="container-xxl">.container-xxl</div>
```



# Bootstrap 5 Grids

- Bootstrap 5 Grid System

span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1
span 4				span 4				span 4			
span 4				span 8							
span 6						span 6					
span 12											

- Grid Classes

- .col- (extra small devices - screen width less than 576px)
- .col-sm- (small devices - screen width equal to or greater than 576px)
- .col-md- (medium devices - screen width equal to or greater than 768px)
- .col-lg- (large devices - screen width equal to or greater than 992px)
- .col-xl- (xlarge devices - screen width equal to or greater than 1200px)
- .col-xxl- (xxlarge devices - screen width equal to or greater than 1400px)

# Bootstrap 5 Grids

- Three Equal Columns

```
<div class="row">  
  <div class="col">.col</div>  
  <div class="col">.col</div>  
  <div class="col">.col</div>  
</div>
```

# Text/Typography

- default
  - font-size 1rem (16px)
  - line-height : 1.5
  - <p> margin-top: 0 , margin-bottom : 1rem
- h
- display
- <small> -> .small
- <mark>

```
<h1 class="display-1">Display 1</h1>  
<h1 class="display-2">Display 2</h1>  
<h1 class="display-3">Display 3</h1>  
<h1 class="display-4">Display 4</h1>  
<h1 class="display-5">Display 5</h1>  
<h1 class="display-6">Display 6</h1>
```

# Colors

- text colors
  - .text-muted, .text-primary, .text-success, .text-info, .text-warning
  - .text-danger, .text-secondary, .text-white, .text-dark, .text-body

```
<p class="text-muted">This text is muted.</p>  
<p class="text-primary">This text is important.</p>  
<p class="text-success">This text indicates success.</p>
```

- Background Colors
  - .bg-primary, .bg-success, .bg-info, .bg-warning, .bg-danger, .bg-secondary, .bg-dark .bg-light.

```
<div class="bg-primary p-3"></div>  
<div class="bg-success p-3"></div>  
<div class="bg-info p-3"></div>
```



# Tables

- Basic Table
  - .table
- Striped Rows
  - .table-striped
- Bordered Table
  - .table-bordered
- Hover Rows
  - .table-hover
- Black/Dark Table
  - .table-dark
- Borderless Table
  - .table-borderless

## contextual classes

Class	Description
<code>.table-primary</code>	Blue: Indicates an important action
<code>.table-success</code>	Green: Indicates a successful or positive action
<code>.table-danger</code>	Red: Indicates a dangerous or potentially negative action
<code>.table-info</code>	Light blue: Indicates a neutral informative change or action
<code>.table-warning</code>	Orange: Indicates a warning that might need attention
<code>.table-active</code>	Grey: Applies the hover color to the table row or table cell
<code>.table-secondary</code>	Grey: Indicates a slightly less important action
<code>.table-light</code>	Light grey table or table row background
<code>.table-dark</code>	Dark grey table or table row background

# Table

- Responsive Tables

```
<div class="table-responsive">  
  <table class="table">  
    ...  
  </table>  
</div>
```

Class	Screen width
<code>.table-responsive-sm</code>	< 576px
<code>.table-responsive-md</code>	< 768px
<code>.table-responsive-lg</code>	< 992px
<code>.table-responsive-xl</code>	< 1200px
<code>.table-responsive-xxl</code>	< 1400px

# Images

- rounded Corners
  - .rounded
- Circle
  - .rounded-circle
- Thumbnail
  - .img-thumbnail

Rounded Corners:



Circle:



Thumbnail:



# Images

- Aligning Images
  - .float-start
  - .float-end



- Centered Image
  - .mx-auto (margin:auto) and .d-block (display:block)
- Responsive Images
  - .img-fluid : max-width: 100%; and height: auto;

# Jumbotron

- ver 3 제공.. ver 5 지원안함.

## Example of Jumbotron

### Jumbotron Example

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat..

```
<div class="container mt-3">  
  <h2>Example of Jumbotron</h2>  
  <div class="mt-4 p-5 bg-primary text-white rounded">  
    <h1>Jumbotron Example</h1>  
    <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut  
labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi  
ut aliquip ex ea commodo consequat..</p>  
  </div>  
</div>
```

# Alerts

- predefined alert messages:
- .alert
  - contextual classes
  - .alert-success, .alert-info, .alert-warning, .alert-danger, .alert-primary
  - , .alert-secondary, .alert-light or .alert-dark

# Buttons

- Button Styles
  - btn
  - btn-xxxx
  - <a>, <button>, or <input>

Basic

Primary Secondary Success Info Warning Danger Dark Light [Link](#)

- Button Outline
  - btn btn-outline-xxxx

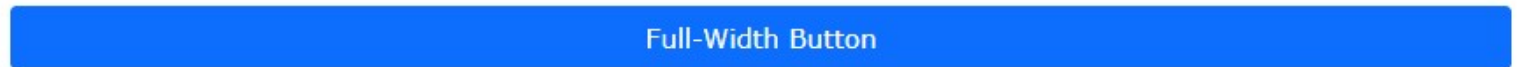
Primary Secondary Success Info Warning Danger Dark Light

- Button Sizes
  - .btn-lg , .btn-sm

Large Default Small

# Buttons

- Block Level Buttons



- Active/Disabled Buttons

- .active / .disabled



- Spinner Buttons



```
<button class="btn btn-primary">  
  <span class="spinner-border spinner-border-sm"></span>  
</button>
```



# Button Groups

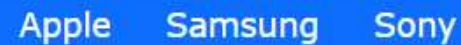
- Button Groups
  - .btn-group



```
<div class="btn-group">
  <button type="button" class="btn btn-primary">Apple</button>
  <button type="button" class="btn btn-primary">Samsung</button>
  <button type="button" class="btn btn-primary">Sony</button>
</div>
```

```
<div class="btn-group btn-group-lg">
```

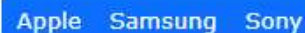
Large Buttons:



Default Buttons:



Small Buttons:



# Button Groups

- Vertical Button Groups

```
<div class="btn-group-vertical">  
  <button type="button" class="btn btn-primary">Apple</button>  
  <button type="button" class="btn btn-primary">Samsung</button>  
  <button type="button" class="btn btn-primary">Sony</button>  
</div>
```



- Button Groups Side by Side

```
<div class="btn-group">  
  <button type="button" class="btn btn-primary">Apple</button>  
  <button type="button" class="btn btn-primary">Samsung</button>  
  <button type="button" class="btn btn-primary">Sony</button>  
</div>  
  
<div class="btn-group">  
  <button type="button" class="btn btn-primary">BMW</button>  
  <button type="button" class="btn btn-primary">Mercedes</button>  
  <button type="button" class="btn btn-primary">Volvo</button>  
</div>
```



# Button Groups

- Nesting Button Groups & Dropdown Menus



```
<div class="btn-group">
  <button type="button" class="btn btn-primary">Apple</button>
  <button type="button" class="btn btn-primary">Samsung</button>
  <div class="btn-group">
    <button type="button" class="btn btn-primary dropdown-toggle" data-bs-toggle="dropdown">
      Sony</button>
    <div class="dropdown-menu">
      <a class="dropdown-item" href="#">Tablet</a>
      <a class="dropdown-item" href="#">Smartphone</a>
    </div>
  </div>
</div>
```

# Badges

- Badges

Example heading **New**

Example heading **New**

Example heading **New**

Example heading **New**

Example heading **New**

Example heading **New**

```
<h1>Example heading <span class="badge bg-secondary">New</span></h1>
```

- Contextual Badges

**Primary** **Secondary** **Success** **Danger** **Warning** **Info** **Light** **Dark**

```
<span class="badge bg-primary">Primary</span>
```

# Progress Bars

- Basic Progress Bar : progress-bar

```
<div class="progress" style="height:20px">  
  <div class="progress-bar" style="width:40%;"></div>  
</div>
```

- Progress Bar Height

```
<div class="progress">  
  <div class="progress-bar" style="width:70%">70%</div>  
</div>
```

- Progress Bar Labels

```
<div class="progress">  
  <div class="progress-bar" style="width:70%">70%</div>  
</div>
```

- Colored Progress Bars

```
<div class="progress">  
  <div class="progress-bar progress-bar-striped" style="width:40%"></div>  
</div>
```

- Striped Progress Bars

- Animated Progress Bar

```
<div class="progress-bar progress-bar-striped progress-bar-animated" style="width:40%"></div>
```

- Multiple Progress Bars

```
<div class="progress">  
  <div class="progress-bar bg-success" style="width:40%">Free Space</div>  
  <div class="progress-bar bg-warning" style="width:10%">Warning</div>  
  <div class="progress-bar bg-danger" style="width:20%">Danger</div>  
</div>
```

# Dropdown

- class
  - .dropdown
  - .dropdown-toggle
  - data-bs-toggle="dropdown"
  - .dropdown-item

Dropdown button Dropdown button ▾

## DropUp

Lorem ipsum dolor sit amet consectetur adipisicing elit. Nesciunt laudantium, quo eligendi facere nostrum doloremque dolor consequuntur quia, cum sint soluta hic fugiat dolores qui dignissimos. Ullam quasi temporibus id.

Dropup Button ▲

Apple Samsung sony ▾

## vertical

Apple

Samsung

sony ▶

Tablet

Smartphone

# Collapse

```
<button data-bs-toggle="collapse" data-bs-target="#demo">Collapsible</button>

<div id="demo" class="collapse">
  Lorem ipsum dolor text....
</div>
```

- Accordion

```
<div id="accordion">
  <div class="card">
    <div class="card-header">
      <a class="btn" data-bs-toggle="collapse" href="#collapseOne">
        Collapsible Group Item #1
      </a>
    </div>
    <div id="collapseOne" class="collapse show" data-bs-parent="#accordion">
      <div class="card-body">
        Lorem ipsum..
      </div>
    </div>
  </div>
</div>
```

# Navs

- `.nav > .nav-item > .nav-link`



# Navbar

# Carousel

**Modal**

## Tooltip

# Popover

# Toasts

# Scrollspy

# Offcanvas



# Utilities / Helper Classes -1

- Borders
  - border-1 ~ border-5
- Border Color
  - border-xxx
- Border Radius
  - rounded, rounded-top , -end, -bottom
  - rounded-start , circle, -pill
  - rounded-0 ~ 5
- Float and Clearfix
  - .float-start, -end , clearfix
- Responsive Floats
  - .float-\*-start|end
- Center Align
  - .mx-auto : margin-left and margin-right: auto
- Width
  - w-\* , 25, 50, 75
- Height
  - .h-\* : 25, 50,...
- Spacing
  - {property}{sides}-{size}
  - {property}{sides}-{breakpoint}-{size}
  - property
    - m: margin    p : padding
  - sides
    - t ,b,s(left), e(right)
    - x : left and right
    - y : top and bottom
  - size
    - 0 ~ 5, auto
- Shadows
  - shadow, -none, sm
- Vertical Align
  - align-baseline, -top, -middle, -bottom
  - -text-top, -text-bottom

# Utilities / Helper Classes -2

- Aspect Ratio
  - responsive video or slideshows
  - .ratio-\*
- Visibility
  - visible, invisible
- Close icon
  - .btn-close
- Screenreaders
  - visually-hidden