



# 5 : Introduction to bootstrap

IT2406 - Web Application Development 1

Level I - Semester 2

# Introduction

- Bootstrap is a front-end framework (Front end frameworks are used for decorating the look and feel of the view)
- Bootstrap helps in building mobile responsive websites quickly and easily
- Bootstrap is totally free for anyone to use
- First developed by Twitter known as Twitter Bootstrap
- It is now used for developing simple web applications to complex ones focusing the front end of the web sites

# Introduction

- Bootstrap has a number of jQuery plugins that can provide additional functionality
  - Eg: carousels, buttons, tooltips, typography, buttons, tables, navigation, modals and
- It includes HTML and CSS based design templates for, forms, buttons, tables, navigation, modals, image carousels and many other components, as well as optional JavaScript plugins
- It saves effort, cost of development and time
- A basic understanding of HTML and CSS to create sites that are responsive, mobile-first, and compatible with all modern browsers
- Preconditions
  - Basic knowledge of HTML and CSS

# License of Bootstrap

- Bootstrap is under MIT License
- See the project repository for more details of the license  
<https://github.com/twbs/bootstrap/blob/main/LICENSE>

## Permissions

- ✓ Commercial use
- ✓ Modification
- ✓ Distribution
- ✓ Private use

## Limitations

- ✗ Liability
- ✗ Warranty

## Conditions

- ⓘ License and copyright notice

Source: <https://github.com/twbs/bootstrap/blob/main/LICENSE>

# Setup Bootstrap into the development environment

- It is essential to integrated the bootstrap framework with the web pages you develop
- Integration can be done in two different ways
  1. You can download the bootstrap framework and integrate locally with the HTML files
  2. Directly refer the CDN (Content Delivery Network) links online

# Download and install in different environments

- Bootstrap allows source code version download or precompiled development ready versions or third party package managers to install bootstrap
  1. Compiled CSS and JS
  2. Source code
  3. Package managers
    - Examples: Npm, RubyGems, yarn, composer and nuget

# Using compiled CSS and JS

- This version includes
  - Compiled and minified CSS versions
  - Compiled and minified JavaScript plugins
- Source files, bootstrap documentation content and supportive materials are excluded
- Can be directly used in a local web development setup

```
bootstrap/  
├── css/  
│   ├── bootstrap-grid.css  
│   ├── bootstrap-grid.css.map  
│   ├── bootstrap-grid.min.css  
│   ├── bootstrap-grid.min.css.map  
│   ├── bootstrap-reboot.css  
│   ├── bootstrap-reboot.css.map  
│   ├── bootstrap-reboot.min.css  
│   ├── bootstrap-reboot.min.css.map  
│   ├── bootstrap.css  
│   ├── bootstrap.css.map  
│   ├── bootstrap.min.css  
│   └── bootstrap.min.css.map  
└── js/  
    ├── bootstrap.bundle.js  
    ├── bootstrap.bundle.js.map  
    ├── bootstrap.bundle.min.js  
    ├── bootstrap.bundle.min.js.map  
    ├── bootstrap.js  
    ├── bootstrap.js.map  
    ├── bootstrap.min.js  
    └── bootstrap.min.js.map
```

# Example integration

- Link external style sheet into the web page

<Link rel="stylesheet" href="local path to css file">

- Link javascript file into web page

<script src="local path to js file">



# Source files download

- Source files can be customized in case you need to change the default definitions
- If you download the source file version, it is your responsibility to compile it using a suitable compiler ([Syntactically awesome style sheets compiler](#))
  - Eg : Libsass , Ruby Sass
- Once you compile the source files you can use it for development purposes

# Bootstrap bundle contents

- “**dist**” directory contains the compiled version of js and css
- “**scss**” and “**js**” directories include the source files of js and css
- “**site**” directory includes the files related to documentation and example codes of Bootstrap usage
- any other included file provides support for packages, license information

```
bootstrap/  
├── dist/  
│   ├── css/  
│   └── js/  
├── site/  
│   └── docs/  
│       └── 4.5/  
│           └── examples/  
├── js/  
└── scss/
```

# Bootstrap CDN (Content Delivery Network)

- Integrate the bootstrap files through urls (Do not need to locally maintain the files)
- No need of downloading files and using in your projects locally
- Both css and JavaScript content can be linked through CDN
- Use conventional “link” and “script” tags to include css and javascript files
- Include CDN versions of [jQuery](#) and [Popper.js](#) before integrating the compiled JavaScript

# Example CSS integration through BootstrapCDN

```
<link rel="stylesheet"  
href="https://stackpath.bootstrapcdn.com/bootst  
rap/4.4.1/css/bootstrap.min.css"  
integrity="sha384Vkoo8x4CGsO3+Hh xv8T/Q5PaXt  
kKtu6ug5TOeNV6gBiFeWPGFN9MuhOf23Q9Ifjh"  
crossorigin="anonymous">
```

Source: <https://getbootstrap.com/docs/4.4/getting-started/download/>

# Example JavaScript integration through BootstrapCDN

```
<script  
src="https://stackpath.bootstrapcdn.com/bootstr  
ap/4.4.1/js/bootstrap.min.js"  
integrity="sha384wfSDF2E50Y2D1uUdj0O3uMBJn  
juUD4lh7YwaYd1iqfktj0Uod8GCExl3Og8ifwB6"  
crossorigin="anonymous">  
</script>
```

Source: <https://getbootstrap.com/docs/4.4/getting-started/download/>

# CDN versions of jQuery and Popper.js

- `<script src="https://code.jquery.com/jquery-3.4.1.slim.min.js" integrity="sha384-J6qa4849blE2+poT4WnyKhv5vZF5SrPo0iEjwBvKU7imGFAV0wwj1yYfoRSJoZ+n" crossorigin="anonymous"></script>`
- `<script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js" integrity="sha384-Q6E9RHvblyZFJoft+2mJbHaEWldlvI9IOYy5n3zV9zzTtmI3UksdQRVvoxMfooAo" crossorigin="anonymous"></script>`

Source: <https://getbootstrap.com/docs/4.4/getting-started/download/>

# Using Package Managers to install Bootstrap

| Package Manager | Command to install Bootstrap  |
|-----------------|---|
| npm             | npm install bootstrap   |
| yarn            | yarn add bootstrap  |
| RubyGems        | gem 'bootstrap', '~> 4.4.1'<br>(4.4.1 is the version you want to install) |
| Composer        | composer require twbs/bootstrap:4.4.1                                     |
| NuGet           | Install-Package bootstrap   |

# Example [all in one place]

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Example CDN Integration</title>
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>

<div class="container">
  <h1>My First Bootstrap Page</h1>
</div>
</body>
</html>
```



# Advantages of Bootstrap

- **Easy to use:** Needs basic knowledge of HTML and CSS to start using Bootstrap
- **Responsive features:** Allows to adjust the interface to phones, tablets, and desktops
- **Mobile-first:** Bootstrap 3, mobile-first styles are part of the core framework
- **Compatible with browsers:** Supports frequently used common browsers like Chrome, Firefox, Internet Explorer, Edge, Safari, and Opera

# Advantage of using the Bootstrap CDN:

- Bootstrap CDN will not load each site access
- It will be loaded from cache without recurrently downloading the files from the source online
- Caching files lead to faster loading time
- **jQuery (Important)**  
Bootstrap depends on jQuery for JavaScript plugins
  - (Eg: modals, tooltips, etc)
  - jQuery is not necessary only if the css part is used