Week 3

❖ Working with Libraries :

- APIs are interact of data with your code provided by frameworks and libraries
- Libraries and Frameworks are referred to be dependencies because they are used for calling the API that runs the website
- Bootstrap is a popular library use to develop user interfaces
- Bootstrap can be included in a webpage by just use link tag that has href attribute and rel attribute to announce that you use stylesheet

✓ Ex :

```
<link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstra
p.min.css" rel="stylesheet">
```

- Bootstrap also provides a JavaScript library that enables enhanced functionality
  - ➢ Drop down
  - ➢ Tooltips

✓ Ex :

```
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.
bundle.min.js"></script>
```

- It has the same link of CSS Bootstrap but the difference you change the CSS to JavaScript code

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- Dependencies can depend on libraries and frameworks this is called dependency tree

- Dependency tree can vary and get different versions and types to setup all this and configure them we use **Package Manager**

- package manager is a tool that automatically downloads and installs dependencies(packages)
  - ➤ provides the capability to publish your own packages
  - ➤ downloads the specified version you need so you cannot get a conflict
  - ➤ The most common Packet manager is NPM(Node Packet Manager)
- To add the downloaded data we get by package manager we use bundling tool
- Bundler is used to combine the data of package in a single file
- Most common bundlers :
  - ➤ Gulp
  - ➤ Webpack

- Responsive websites are websites that stretch and shrink depends on the screen that displayed on and this occurred by :
  - ➤ CSS media queries and screen resolutions
  - ➤ classified fluid images
  - ➤ fixed and fluid grids
- resolution known by the number of pixels that is usually expressed as the number of horizontal pixels multiplied by the number of vertical pixels

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- these pixels by new high resolutions screens group the physical ones together to display one logical pixel gives smoother images and text
- Firstly to make the website response by the change of resolution is **Flexible Grids** and contain :
  - ➤ Columns : the most of website content part
  - ➤ Gutters : the space between the columns
  - ➤ Margins : the spaces between the content and the left and right edges of the screen

✓ Note : we use percentage value instead of pixels and flexible grids to adjust depending on the screen size

- Secondly , Fluid images: we use it by setting the image size 100% so it can shrink when column shrink and still the same size when the column stretched out so it can't be pixelated
- Finally , Media queries : part of CSS that allow developers :
  - ➤ Query the display size
  - ➤ Orientation
  - ➤ aspect ratio to conditionally apply CSS rules

✓ Ex :

```
@media screen and (max-width: 600px) {
  body {
    color: red;
  }
}
```

- In the example above (max-width: 600px) it's called a breakpoint

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- Breakpoint : is the point at which a website's content and layout will adapt to provide the best possible user experience
- Breakpoint can function in different ways across three different grids :
  - ➤ Fixed grid
    - o Fixed grid has a fixed column width with flexible margin
    - o Fixed content with that doesn't change in a specific breakpoint range while the flexible margins occupy the remaining space on screen
  - ➤ Fluid or fullwidth grids
    - o Fluid columns with fixed gutters and side margins
    - o flexible content with that goes edge to edge as per the screen size
    - o columns either grow or shrink to adapt to the available space
  - ➤ Hybrid grid
    - o A mix between the fluid and fixed grid

❖ Bootstrap Framework

- Bootstrap is often described as a way to "build fast, responsive sites" and it is a "feature-packed, powerful, and extensible frontend toolkit

- Bootstrap is a library of CSS and JavaScript code that you can combine to quickly build visually appealing websites.

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- Bootstrap comes with multiple components for very fast construction of multiple components, or parts of components.

- Responsive grid : allow web pages to adapt their layout and content depending on the device in which they are viewed

- Bootstrap is very popular amongst developers as it saves development time and provides a way for developers to build visually appealing prototypes and websites

- Bootstrap has quite a large CSS library built by Bootstraps developers using thousands of use cases

- The way that CSS library works by using classes in fixes and it is used for responsive breakpoints in bootstrap grid

- Responsive breakpoints are the triggers in bootstrap for how your layout changes across device or viewpoint sizes example :

Responsive breakpoint	Class infix	Range
Extra small	No need, the default mode	< 576 pixels wide
Small	SM	≥576pixels
Medium	MD	≥768
Large	LG	≥992
Extra Large	XL	≥1200
Extra extra large	XXL	≥1400

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- Bootstrap provides a range of modifiers for its components and utilities, making it easy to customize elements like buttons, alerts, cards, navigation bars, and more

- Bootstrap generates it by combining base classes and modifiers, you can create a consistent and visually appealing design for your website while leveraging the power and convenience of Bootstrap's pre-built styles

✓ Ex :

```
Default Bootstrap button

<button class="btn">Default Button</button>


Button with a primary modifier

<button class="btn btn-primary">Primary Button</button>
```

- Bootstrap modifiers can be vary and Here is a list of modifiers available in Bootstrap :
  - ➤ Primary
  - ➤ Secondary
  - ➤ Success
  - ➤ Info
  - ➤ Warning
  - ➤ Danger
  - ➤ Light
  - ➤ Dark

- In nutshell bootstrap modifiers add a CSS class to change the visual style of components

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- Bootstrap grid system helps us to create web page layouts through a series of rows and columns that house our content

- Bootstrap grid uses a 12 column grid system that can be fluid or fixed and

- The bootstrap grid system always has a container, rows and columns. The container is the root element of your grid