WEB APPLICATION DEVELOPMENT

MOD-2

PART-A

1.)Explain basic grid system using bootstrap
A.) Bootstrap's grid system uses a series of containers, rows, and columns to layout and align content. It's built with flexbox and is fully responsive Bootstrap's grid system is responsive, and the columns will rearrange depending on the screen size: On a big screen it might look better with the content organised in three columns, but on a small screen it would be better if the content items were stacked on top of each other.
Grid System: Bootstrap Grid System allows up to 12 columns across the page. You can use each of them individually or merge them together for wider columns. You can use all combinations of values summing up to 12. You can use 12 columns each of width 1, or use 4 columns each of width 3 or any other combination.

The following is a basic structure of a Bootstrap grid:

```
<div class="container">
  <div class="row">
    <div class="col-*-*"></div>
    <div class="col-*-*"></div>
  </div>
  <div class="row">
    <div class="col-*-*"></div>
    <div class="col-*-*"></div>
    <div class="col-*-*"></div>
  </div>
  <div class="row">
    ...
  </div>
</div>
```

https://www.geeksforgeeks.org/bootstrap-grid-system/

 REFER THE LINK

2.)Build a basic Bootstrap table has a light padding and only horizontal]=dividers
A.)<!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 rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>

<div class="container">
  <h2>Basic Table</h2>
  <p>The .table class adds basic styling (light padding and only horizontal dividers) to a table:</p>
  <table class="table">
    <thead>
      <tr>
        <th>Firstname</th>
        <th>Lastname</th>
        <th>Email</th>
      </tr>
    </thead>
    <tbody>
      <tr>
        <td>John</td>
        <td>Doe</td>
        <td>john@example.com</td>
      </tr>
      <tr>

```
        <td>Mary</td>
        <td>Moe</td>
        <td>mary@example.com</td>
      </tr>
      <tr>
        <td>July</td>
        <td>Dooley</td>
        <td>july@example.com</td>
      </tr>
    </tbody>
  </table>
</div>

</body>
</html>
```

https://www.w3schools.com/bootstrap/tryit.asp?
filename=trybs_table_basic&stacked=h

3.)Explain Bootstrap Jumbotron and Page Header

A.)A jumbotron is a big grey box used to indicate some text which requires extra attention. Any text that seems to be important can be written inside a jumbotron to make it appear big and noticeable.

Steps to add jumbotron:

- Use a jumbotron class inside a div element.
- Write any text inside the div tag.
- Close the div element.

https://maxcdn.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css

https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js

https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.7/umd/popper.min.js

https://maxcdn.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js

A page header is like a section divider.

The `.page-header` class adds a horizontal line under the heading (+ adds some extra space around the element):

<!DOCTYPE html>

<html lang="en">

<head>

  <title>Bootstrap Example</title>

```html
    <meta charset="utf-8">

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

    <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/3.6.0/jquery.min.js"></script>

    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>

</head>

<body>

<div class="container">

  <div class="page-header">

    <h1>Example Page Header</h1>

  </div>

  <p>This is some text.</p>

  <p>This is another text.</p>

</div>
```

</body>

</html>

[CREATING PAGE HEADER]

https://www.w3schools.com/bootstrap/tryit.asp?filename=trybs_page-header&stacked=h

[BOOTSTRAP JUMBOTRON]

https://www.geeksforgeeks.org/bootstrap-4-jumbotron/

4.)Build user interface Dropdowns through bootstrap
A dropdown menu is a toggleable menu that allows the user to choose one value from a predefined list:
A.)
<!DOCTYPE html>
<html>

<head>
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <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/3.6.0/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>

<body>
<div class="container">
  <h2>Dropdowns</h2>
  <p>The .dropdown class is used to indicate a dropdown menu.</p>
  <p>Use the .dropdown-menu class to actually build the dropdown menu.</p>

```html
  <div class="dropdown">
    <button class="btn btn-default dropdown-toggle" type="button"
id="menu1" data-toggle="dropdown">Tutorials
    <span class="caret"></span>
    </button>
    <ul class="dropdown-menu" role="menu" aria-labelledby="menu1">
      <li role="presentation"><a role="menuitem" tabindex="-1"
href="#">HTML</a></li>
      <li role="presentation"><a role="menuitem" tabindex="-1"
href="#">CSS</a></li>
      <li role="presentation"><a role="menuitem" tabindex="-1"
href="#">JavaScript</a></li>
      <li role="presentation" class="divider"></li>
      <li role="presentation"><a role="menuitem" tabindex="-1"
href="#">About Us</a></li>
    </ul>
  </div>
</div>
</body>

</html>
```

[https://www.w3schools.com/bootstrap/tryit.asp?
filename=trybs_ref_comp_dropdown-menu&stacked=h](https://www.w3schools.com/bootstrap/tryit.asp?filename=trybs_ref_comp_dropdown-menu&stacked=h)

**5.)Demonstrate How To Create a Carousel using bootstrap and design
Carousel using bootstrap**
A.)<body>

```html
<!-- Carousel -->
<div id="demo" class="carousel slide" data-bs-ride="carousel">

  <!-- Indicators/dots -->
  <div class="carousel-indicators">
    <button type="button" data-bs-target="#demo" data-bs-slide-to="0"
class="active"></button>
  </div>

  <!-- The slideshow/carousel -->
  <div class="carousel-inner">
```

```
    <div class="carousel-item active">
      <img src="la.jpg" alt="Los Angeles" class="d-block"
style="width:100%">
    </div>
    <div class="carousel-item">
      <img src="chicago.jpg" alt="Chicago" class="d-block"
style="width:100%">
    </div>
    <div class="carousel-item">
      <img src="ny.jpg" alt="New York" class="d-block"
style="width:100%">
    </div>
  </div>
```

```
<div class="container-fluid mt-3">
  <h3>Carousel Example</h3>
  <p>The following example shows how to create a basic carousel with
indicators and controls.</p>
</div>

</body>
</html>
```

https://www.w3schools.com/bootstrap5/tryit.asp?
filename=trybs_carousel

6.)Explain Bootstrap Navigation Bar

A.) Refer part-b que 7

7.)Demonstrate a responsive web page using bootstrap

A.) Web pages can be viewed using many different devices: desktops, tablets, and phones. Your web page should look good, and be easy to use, regardless of the device.

Web pages should not leave out information to fit smaller devices, but rather adapt its content to fit any device:

Desktop

Tablet

Phone

It is called responsive web design when you use CSS and HTML to resize, hide, shrink, enlarge, or move the content to make it look good on any screen.

```html
<html>
  <head>
    <title>Responsive Webpage</title>
    <link href="/bootstrap.min.css" rel="stylesheet" />
    <script src="/js/bootstrap.bundle.min.js"></script>
  </head>
  <body>
    <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
      <div class="container-fluid">
        <a href="#" class="navbar-brand">Responsive Webpage</a>
        <button type="button" class="navbar-toggler" data-bs-toggle="collapse" data-bs-target="#navbarCollapse">
          <span class="navbar-toggler-icon"></span>
        </button>
        <div class="collapse navbar-collapse" id="navbarCollapse">
          <div class="navbar-nav">
            <a href="#" class="nav-item nav-link">Home</a>
            <a href="#" class="nav-item nav-link">Contact</a>
          </div>
        </div>
      </div>
    </nav>
    <div class="jumbotron">
      <h1 class="display-4">Hello, world!</h1>
      <p class="lead">This is a simple Jumbotron</p>
      <a class="btn btn-primary btn-lg text-white">Learn more</a>
    </div>
  </body>
</html>
```

REFER THE LINK FOR THE CODE

https://www.w3schools.com/css/tryit.asp?filename=tryresponsive_col-s

8.)1.Creating lists with Bootstrap 2.Bootstrap unstyled ordered and unordered list 3.Placing ordered and unordered list items inline 4.Creating horizontal definition lists with Bootstrap 5.Bootstrap list groups 6.Bootstrap list group with disabled and active items 7.Bootstrap edge-to-edge list groups 8.Bootstrap numbered list groups

```
<!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 rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/
3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/
jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/
bootstrap.min.js"></script>
</head>
<body>

<div class="container">
  <h2>Basic List Group</h2>
  <ul class="list-group">
    <li class="list-group-item">First item</li>
    <li class="list-group-item">Second item</li>
    <li class="list-group-item">Third item</li>
<a href="#" class="list-group-item active">First item</a>
 <a href="#" class="list-group-item disabled">First item</a>
  <div class="list-group">
  <a href="#" class="list-group-item active">
```

```html
    <h4 class="list-group-item-heading">First List Group Item Heading</h4>
    <p class="list-group-item-text">List Group Item Text</p>
  </a>
  <a href="#" class="list-group-item">
    <h4 class="list-group-item-heading">Second List Group Item Heading</h4>
    <p class="list-group-item-text">List Group Item Text</p>
  </a>
  </div>
</ul>
</div>
</body>

</html>
```

9.)1.Creating vertical form layouts with Bootstrap 2.Creating horizontal form layouts with Bootstrap 3.Creating inline form layouts with Bootstrap 4.Creating responsive form layouts with Bootstrap 5.Bootstrap static form controls 6.Placing checkboxes inline with Bootstrap 7.Placing radio buttons inline with Bootstrap 8.Height sizing of Inputs and select boxes with Bootstrap 9.Grid sizing of form controls with Bootstrap 10.Disabling form controls with Bootstrap

```html
<!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 rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>

<div class="container">
  <h2>Vertical (basic) form</h2>
  <form action="/action_page.php">
    <div class="form-group">
      <label for="email">Email:</label>
```

```
      <input type="email" class="form-control" id="email"
placeholder="Enter email" name="email">
    </div>
    <div class="form-group">
      <label for="pwd">Password:</label>
      <input type="password" class="form-control" id="pwd"
placeholder="Enter password" name="pwd">
    </div>
    <div class="checkbox">
      <label><input type="checkbox" name="remember"> Remember me</
label>
    </div>
    <button type="submit" class="btn btn-default">Submit</button>
  </form>
</div>

</body>
</html>
```

Additional rule for an inline form:

- Add class .form-inline to the <form> element

Additional rules for a horizontal form:

- Add class .form-horizontal to the <form> element
- Add class .control-label to all <label> elements

10.)1. Creating buttons with Bootstrap 2.Creating outline buttons styles in Bootstrap 3.Creating large buttons with Bootstrap 4.Creating small buttons with Bootstrap 5.Creating block buttons with Bootstrap 6.Creating disabled Bootstrap buttons using the input and button element

```
<!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 rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/
```

```
3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/
jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/
bootstrap.min.js"></script>
</head>
<body>

<div class="container">
  <h2>Button Styles</h2>
  <button type="button" class="btn">Basic</button>
  <button type="button" class="btn btn-default">Default</button>
  <button type="button" class="btn btn-primary">Primary</button>
  <button type="button" class="btn btn-success">Success</button>
  <button type="button" class="btn btn-info">Info</button>
  <button type="button" class="btn btn-warning">Warning</button>
  <button type="button" class="btn btn-danger">Danger</button>
  <button type="button" class="btn btn-link">Link</button>
</div>

</body>
</html>
```

PART-B

1.) Explain why Bootstrap is preferred for website development.
A.) Bootstrap is a free yet powerful front-end HTML, CSS, and JavaScript framework. This open-source toolkit contains code dedicated to supporting the front-end web development process. It's hosted and available for public use on GitHub.

1. Time-saving
Working on a project that has a number of templates can be time-consuming. Furthermore, even a small design change can lead to hours of manual editing over multiple webpages, especially if you're not careful. With Bootstrap, you get to use pre-made design themes and templates as your starting point. It allows modification of its code to make the framework suit your project's needs.

2. Easy to Use

Bootstrap is very simple to use – the setup process doesn't take too long and is relatively easy, even for beginners. While it's not mandatory, having basic knowledge of HTML, CSS and JavaScript will undoubtedly help you modify the code with ease.

3. Responsive Grid System

One of today's most significant demands in terms of web development is making sure that websites are responsive and mobile-friendly. Bootstrap has that covered with their dedicated mobile-first grid system – it can divide the screen into twelve columns to accommodate various screen sizes, thus making its web design adaptable to all kinds of devices.

4. Customizable

If you're not happy with Bootstrap's design template, you can add your own twist to its CSS file. You can also combine it with the existing code and make them complement each other's functions. This ability is particularly useful if you want to create a unique look for your website but don't have the time or CSS knowledge to start everything from scratch.

5. Cross-browser Compatible

Bootstrap is compatible with the latest versions of all modern browsers and platforms. While Bootstrap claims that it doesn't support older or proxy browsers, that shouldn't affect its display and function.

6. Maintain Consistency

Bootstrap eliminates the use of libraries that always differ from one developer to the other. Thus, you get to maintain the stability of your project elements no matter who is tackling them.

Consistency also applies to the web display, meaning that you'll notice a uniform output regardless of what web browser you'll be using for your project.

7. Open Source

Bootstrap is an open-source framework, meaning that you can use and modify it without purchasing any licence.

8. Community-centred

Bootstrap has the full support of its community who offer tutorials and assistance for anyone who might need it. The developers keep the community informed by providing the latest news and updates regarding the framework's growth.

2.) Choose the key components of Bootstrap?

Essential components of Bootstrap

- **Jumbotron:** It simply puts extra attention to particular content or

information by making it larger and more eye-catching.

- **Alerts**: It is a popup with a predefined message that appears after a particular action.
- **Buttons**: It is customised buttons that are used to perform an action in the form, dialogue box, etc. They are in multiple states, sizes and have predefined styles.
- **Button group**: It is a group of buttons aligned in a single line and they can be arranged both vertically as well as horizontally.
- **Badge**: It Is a labelling component that is used to add additional information.
- **Progress Bar**: It is used to show the progress of a particular operation with a custom progress bar. They have text labels, stacked bars, and animated backgrounds.
- **Spinner**: The spinner displays the loading state of websites or projects. They are built with HTML, CSS and don't require any JavaScript.
- **Scrollspy**: It keeps updating the navigation bar to the currently active link based on the scroll position in the viewport.
- **List group**: It is used to display an unordered series of content in a proper way.
- **Card**: It provides a customizable, extensible, and flexible content container.
- **Dropdown**: It is used to drop the menu in the format of a list of links, they are contextual and toggleable overlays.
- **Navs**: It is used to create a basic and simple navigation menu with a .nav base class.
- **Navbar**: The navigation bar is the headers at the top of a website or webpage.
- **Forms**: Forms are used to take multiple inputs at once from the user. Bootstrap has two layouts available, stacked and inline.
- **Input groups**: They have extended form controls by adding a button, button group or text on either side of inputs.
- **Breadcrumb**: It provides the location of the current page in a navigational hierarchy and also adds separators through CSS.
- **Carousel**: It is a slide show of image or text content built with CSS 3D and JavaScript. H
- **Toast**: It displays a message for a small amount of time, a few seconds. They are alert messages designed to imitate push notifications popular in desktop and mobile systems.
- **Tooltip**: It provides small information about the element/link when the mouse hovers over the element.
- **Popovers**: It displays extra information about the element/link when clicked on it.
- **Collapse**: It is a JavaScript plugin that is used to show or hide the content.
- **Modal**: It is a small popup window positioned over the actual window.
- **Pagination**: It is used to easily navigate between different pages, a large

block of connected links is used for making them accessible.

- **Media Object:** The Media object is used for repetitive and complex components like tweets or blogs. The images or videos are placed/aligned to the left or the right of the content.

3.) What are Class loaders in Bootstrap?

A.) **Bootstrap Class Loader**: A Bootstrap Class loader is a Machine code which kickstarts the operation when the JVM calls it. It is not a java class. Its job is to load the first pure Java Class Loader. Bootstrap Class Loader loads classes from the location *rt.jar*. Bootstrap Class Loader doesn't have any parent, Class Loaders. It is also called the **Primordial Class Loader**.

Extension Class Loader: The Extension Class Loader is a child of Bootstrap Class Loader and loads the extensions of core java classes from the respective JDK Extension library. It loads files from *jre/lib/ext* directory or any other directory pointed by the system property *java.ext.dirs*.

System Class Loader: An Application Class Loader is also known as a System Class Loader. It loads the Application type classes found in the environment variable *CLASSPATH, -class path or -cp command line option*. The Application Class Loader is a child class of Extension Class Loader.

Note: The Class Loader Delegation Hierarchy Model always functions in the order Application Class Loader -> Extension Class Loader -> Bootstrap Class Loader. The Bootstrap Class Loader is always given the higher priority, next is Extension Class Loader and then Application Class Loader.

4.) Classify the types of layouts available in Bootstrap?

A.) Containers are the most basic layout element in Bootstrap and they are needed while using the default grid system. There are two major layouts for Bootstrap that are Fluid Layout and Fixed Layout.

- **Fluid-layout**: This uses the bootstrap *.container-fluid* class for the layout. This layout uses proportional values such as measuring units for a block of content, images, or any other item. Used for creating

an element that is 100 % wider and covers all the screen widths. Fluid layout continuously resizes as you change the width of your browser by any amount, leaving no extra empty space on the sides ever Hence it is named "fluid layout".

- **Fixed-layout**: This uses the bootstrap *.container* class for the layout. The fixed-layout has specific pixel width values that change its width value with the help of media queries. It provides a responsive fill
- widths as pixel values are specified.

5.) Why do we use Jumbotron in Bootstrap?

A.) A jumbotron is a big grey box used to indicate some text which requires extra attention. Any text that seems to be important can be written inside a jumbotron to make it appear big and noticeable.
Steps to add jumbotron:
- Use a jumbotron class inside a div element.
- Write any text inside the div tag.
- Close the div element.
Syntax:
<div class="jumbtron"> Contents... <div>

[REFER LINK FOR THE EXAMPLE CODE] https://ide.geeksforgeeks.org/tryit.php/7362a246-737b-42fd-b518-8bb80f4aa119

6.) Explain what pagination in bootstrap is and how they are classified?
A.) Pagination is used to enable navigation between pages in a website. The pagination used in Bootstrap has a large block of connected links that are hard to miss and are easily scalable.
Basic Pagination: The basic pagination can be specified using the following classes.
- The **.pagination** class is used to specify pagination on a list group.
- The **.page-item** class is used to specify each pagination item in the group.
- The **.page-link** class is used to specify the link in the pagination item

Disabled State: The pagination links could be styled to make them appear unclickable by using the. disabled class. This may be used for disabling the 'Previous' or 'Next' button.
The. disabled class internally makes use of 'pointer-events: none' to make

the link unclickable, however, as this specification is not always implemented, it is preferred to make it not possible to be navigated to by setting the 'tab index' property to -1. This property controls whether an element can be navigated using the tab key.

Active State: The pagination links could be styled to highlight them as the current active page by using the. active class on the pagination item.

[REFER LINK FOR THE EXAMPLE CODE]

7.) Explain how you can create Nav elements in Bootstrap?

A.)Bootstrap Navbar is a navigation header that is located at the top of the webpage

which can be extended or collapsed, depending on the screen size. Bootstrap Navbar is used to create responsive navigation for a website.

Step by Step Guide to implement Navbar in Bootstrap is as follows

Step 1: Include Bootstrap and jQuery CDN into the <head> tag before all other stylesheets to load our CSS.

<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>

Step 2: Add <nav> tag with .navbar and .navbar-default class in <body> tag.
<nav class="navbar navbar-default">
   <!-- Navbar content goes here -->
</nav>

Step 3: Add <div> tag with class container-fluid and also add another <div> with class .navbar-header to give name to header and add navigation list after closing <div> tag.
Note: The class .navbar-header is optional.

```
<div class="container-fluid">
  <div class="navbar-header">
    <a class="navbar-brand" href="#">WebSiteName</a>
  </div>

  <ul class="nav navbar-nav">
    <li class="active"><a href="#">Home</a></li>
    <li><a href="#">Page 1</a></li>
    <li><a href="#">Page 2</a></li>
    <li><a href="#">Page 3</a></li>
  </ul>
</div>
```
We have successfully implemented Navbar in Bootstrap.

https://ide.geeksforgeeks.org/tryit.php/070e079b-002b-4e28-a041-c0a771d9f755
REFER THE LINK FOR THE CODE.

8.) Explain contextual classes are available to style the panels

A.)
- A panel in bootstrap is a bordered box with some padding around its content
- Panels are created with the .panel class, and content inside the panel has a .panel-body class

```html
<!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 rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>

<div class="container">
  <h2>Basic Panel</h2>
  <div class="panel panel-default">
    <div class="panel-body">A Basic Panel</div>
  </div>
    <div class="panel panel-success">
      <div class="panel-heading">Panel with panel-success class</div>
      <div class="panel-body">Panel Content</div>
    </div>

</div>
</body>
</html>
```

FOR CREATING BASIC PANEL
https://www.w3schools.com/bootstrap/tryit.asp?filename=trybs_panels&stacked=h

Panels with Contextual Classes
To colour the panel, use contextual classes (.panel-default, .panel-primary, .panel-success, .panel-info, .panel-warning, or .panel-danger)

FOR CREATING PANEL USING CONTEXTUAL CLASSES
https://www.w3schools.com/bootstrap/tryit.asp?filename=trybs_panels_contextual&stacked=h

9.) How do you create and customise thumbnails in Bootstrap?

A.) Bootstrap helps web developers to create thumbnails that are used to show linked images in grids with the predefined classes which help to reduce codes length. Thumbnails are created to provide a quick preview of images with small images.

Thumbnail Image: A thumbnail is a small image that represents a larger image. Bootstrap has an easy way to do this with thumbnails. Bootstrap's *.thumbnail* class is used to show linked images in grids (grid system), a thumbnail is created using class *.thumbnail* within the element <a>. The class *.col-sm-** and *.col-md-** (where * represent number), it is used to create grids of the images.

Step by step guide for the implementation:
Step 1: Include Bootstrap and jQuery CDN into the <head> tag before all other stylesheets to load our CSS.
Step 2: Add <div> tag in the HTML body with class row. In that <div> create four *div* sections to create four images.
Step 3: Add "col-sm-6" and "col-md-3" to four *div* sections which creates a responsive webpage.
Step 4: Add <a> tag with class value *thumbnail* to define the link of the image in the next line.
<a href="#" class="thumbnail">

<body>
    <h3 style="color: green">Bootstrap thumbnails</h3>
    <div class="row">
    <div class="col-sm-6 col-md-3">
        <a href="#" class="thumbnail">
        <img
            src=

```
"https://media/web-development-image.png"
                style="height: 100px; width: 100px"
        />
        </a>
    </div>
    <div class="col-sm-6 col-md-3">
        <a href="#" class="thumbnail">
        <img
            src=
"https://media.geeksforgeeks.org/wp-content/cdn-uploads/
machineLearning3.png"
                style="height: 100px; width: 100px"
        />
        </a>
    </div>
    <div class="col-sm-6 col-md-3">
        <a href="#" class="thumbnail">
        <img
            src=
"https://media.geeksforgeeks.org/wp-content/cdn-uploads/
20210202223017/Competitive-Programming-%E2%80%93-A-Complete-
Guide.png"
                style="height: 100px; width: 100px"
        />
        </a>
    </div>

    </div>
```

REFER THE LINK FOR HTML CODE
https://ide.geeksforgeeks.org/tryit.php/b1a5731f-a8a0-4b47-a143-575df7c9e094

10.) What are the features of Bootstrap v4?
A.) **Bootstrap 4.0 Release: What's New?**
- Normalise Dropped, Reboot Here to Stay.
- Major Browser Support Change.
- Giant Move to Flexbox.
- Improved Grid System.

- Media Queries on Steroids.
- Improved Form Support in Bootstrap 4.
- Sass By Default, Less Eliminated.
- Elevated Card Components.

REFER THE LINK FOR BETTER UNDERSTANDING
https://www.ecanarys.com/Blogs/ArticleID/210/what-39-s-new-features-are-coming-in-Bootstrap4

11.) How to visible elements based on device screen?
A.)

12.)Develop a grid size in Bootstrap 4?.

A.)Bootstrap's grid system allows up to 12 columns across the page.If you do not want to use all 12 column individually, you can group the columns together to create wider columns:

Bootstrap's grid system is responsive, and the columns will rearrange depending on the screen size: On a big screen it might look better with the content organised in three columns, but on a small screen it would be better if the content items were stacked on top of each other.

Grid Classes

The Bootstrap 4 grid system has five 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)

The classes above can be combined to create more dynamic and flexible layouts.

BASIC STRUCTURE OF GRID

https://www.w3schools.com/bootstrap4/tryit.asp?filename=trybs_grid_ex_structure&stacked=h

13.)What are cards in Bootstrap 4?

A.)A card in Bootstrap 4 is a bordered box with some padding around its content. It includes options for headers, footers, content, colors, etc.Cards are built with as little markup and styles as possible, but still manage to deliver a ton of control and customization. Built with flexbox, they offer easy alignment and mix well with other Bootstrap components. They have no margin by default, so use spacing utilities as needed.

A basic card is created with the .card class, and content inside the card has a .card-body class:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Bootstrap Card</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css">
  <script src="https://cdn.jsdelivr.net/npm/jquery@3.6.0/dist/jquery.slim.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.1/dist/umd/popper.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/js/bootstrap.bundle.min.js"></script>
```

```
</head>
<body>

<div class="container">
  <h2>Basic Card</h2>
  <div class="card">
    <div class="card-body">Basic card</div>
  </div>
</div>

</body>
</html>
```

HTML CODE FOR BASIC CARD

https://www.w3schools.com/bootstrap4/tryit.asp?
filename=trybs_card&stacked=h

14.)Explain types of lists supported by Bootstrap.

A.)A list is a record of information that makes finding items easy using bullets.
There are 3 types of lists supported by Bootstrap are:

- **Unordered Lists:** In Unordered lists, items are marked with bullets.
- **Ordered Lists:** In Ordered lists items are marked with numerical bullets such as 1,2, i, ii, etc.
- **Definition Lists:** In Definition lists, items are defined with its description.
- Definition lists are created using <dl> tag.
- <dt> tag which specifies description of list.
- <dd> tag which defines description details

https://ide.geeksforgeeks.org/tryit.php/fbaee861-
a208-4772-905e-77c16733d19a **[CODE FOR UNORDERED LIST]**

```
<body>
    <h2 class="mb-3">Unordered List</h2>
    <ul>
        <li>Chocolates</li>
        <li>Biscuits</li>
```

```
        <ul>
            <li>Jim-Jam</li>
            <li>Oreo</li>
        </ul>
        <li>Fruits</li>
        <li>Gifts</li>
    </ul>
</body>
```

https://ide.geeksforgeeks.org/tryit.php/e404d19b-01aa-49e0-ad3b-cf6de12fc9aa**[CODE FOR ORDERED LIST]**

https://ide.geeksforgeeks.org/tryit.php/5f62aef1-1359-4ee7-8b28-27e06e09c245**[CODE FOR DEFINITION LISTS]**

15.)What is the media object in Bootstrap and what are their types?

A.)Bootstrap media objects can be useful to place some content. Besides some media that helps to make attractive and interesting content to the websites. The Media Objects such as images or videos can be aligned to the left or to the right of some content in an easy and efficient manner. The Bootstrap Media Objects are used where some data is positioned alongside content to build up complicated and recursive components of the content. The two main classes of media objects are:

- .media
- .media-body

Approach:
- Wrap the child elements inside a .media class.
- Then use a <img> tag to specify the media content like images.
- Then inside the .media-body class, add the media contents.
- We can also create nested media contents inside a parent .media-body class..

https://www.geeksforgeeks.org/explain-media-object-and-their-types-in-bootstrap/ **[REFER LINK FOR THE CODE]**

16.)What are bootstrap alerts and how will you create them?.

A.)Bootstrap Alerts are used to provide an easy way to create predefined alert messages. Alert adds a style to your messages to make it more appealing to the users.

There are four classes that are used within <div> element for alerts.

- .alert-success
- .alert-info
- .alert-warning
- .alert-danger

Bootstrap 4 adds 4 new alerts in Bootstrap Alerts.

These are:

- **Primary:** This alert box indicates an important action.
- **Secondary:** This alert box indicates a less important action.
- **Dark:** Dark grey alert box.
- **Light:** Light grey alert box.

https://www.javatpoint.com/oprweb/test.jsp?filename=bootstrapalert1

[REFER THE LINK FOR THE CODE]

17.)Develop Bootstrap panels? Explain how to create a Bootstrap panel with a heading

A.)<!DOCTYPE html>

<html lang="en">

```html
<head>

  <title>Bootstrap Example</title>

  <meta charset="utf-8">

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

  <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/3.6.0/jquery.min.js"></script>

  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>

</head>

<body>

 <div class="container">

  <h2>Panel Heading</h2>

  <div class="panel panel-default">

    <div class="panel-heading">Panel Heading</div>

    <div class="panel-body">Panel Content</div>

  </div>
```

```
</div>

</body>

</html>
```

BOOTSTRAP PANEL WITH A HEADING CODE

Also refer part-b que 8

18.)Why do we need to use Bootstrap?

A.)It is easy to set up and master, it has a lot of components, a good grid system, styling for many HTML elements ranging from typography to buttons, as well as support of JavaScript plugins, making it even more flexible.

Bootstrap is great for creating layouts, as its responsive CSS is designed to conform to different devices. It can be employed to ensure consistency, eliminate cross-browser issues, and so on.

19.)What is the Button group and which class is used for the basic button group?What is the Bootstrap Panel?

A.)"Button Groups" in Bootstrap is a class of name "btn-group" which is used to create a series of buttons in groups (without spaces) vertically or

horizontally.

This is the basic syntax of the button group class where each button has its own class of "btn".

```
<div class="btn-group">
   <button type="button" class="btn">Click</button>
</div>
```

Buttons have a default border-radius on the first and last buttons of the group.

Adding Styles on Buttons: Bootstrap allows you to add styles to your buttons using the following classes:

- .btn-default
- .btn-primary
- .btn-success
- .btn-info
- .btn-warning
- .btn-danger
- .btn-link

CODE FOR CREATING BUTTONS

https://ide.geeksforgeeks.org/tryit.php/db36d918-c135-4f0a-a469-599b45ae9671

20.)What is Normalise in Bootstrap?

A.)Bootstrap uses Normalise to establish cross browser consistency. Normalize.css is a modern, HTML5-ready alternative to CSS resets. It is a small CSS file that provides better cross-browser consistency in the default styling of HTML elements. It is up to you to choose the way you do your CSS, whether you make a grid or whatever; you don't even have to make a grid.