Experiment No. 3

Aim:

Bootstrap: Bootstrap Grid system, Forms, Button, Navbar, Breadcrumb, Jumbotron.

A. Theory:

What is Bootstrap?

- Bootstrap is a free front-end framework for faster and easier web development
- Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins
- Bootstrap also gives you the ability to easily create responsive designs

What   is   Responsive   Web   Design?

Responsive web design is about creating web sites which automatically adjust themselves to look good on all devices, from small phones to large desktops.

Why Use Bootstrap?

Advantages of Bootstrap:

- **Easy to use:** Anybody with just basic knowledge of HTML and CSS can start using Bootstrap
- **Responsive features:** Bootstrap's responsive CSS adjusts to phones, tablets, and desktops
- **Mobile-first approach:** In Bootstrap 3, mobile-first styles are part of the core framework
- **Browser compatibility:** Bootstrap is compatible with all modern browsers (Chrome, Firefox, Internet Explorer, Edge, Safari, and Opera)

Where to Get Bootstrap?

There are two ways to start using Bootstrap on your own web site.

You can:

- Download Bootstrap from getbootstrap.com
- Include Bootstrap from a CDN

Downloading Bootstrap

If you want to download and host Bootstrap yourself, go to getbootstrap.com, and follow the instructions there.

Bootstrap CDN

If you don't want to download and host Bootstrap yourself, you can include it from a CDN (Content Delivery Network).

MaxCDN provides CDN support for Bootstrap's CSS and JavaScript. You must also include jQuery:

MaxCDN:

```
<!-- Latest compiled and minified CSS -->
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">

<!-- jQuery library -->
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.4/jquery.min.js"></script>

<!-- Latest compiled JavaScript -->
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
```

One advantage of using the Bootstrap CDN: Many users already have downloaded Bootstrap from MaxCDN when visiting another site. As a result, it will be loaded from cache when they visit your site, which leads to faster loading time. Also, most CDN's will make sure that once a user requests a file from it, it will be served from the server closest to them, which also leads to faster loading time.

jQuery
Bootstrap uses jQuery for JavaScript plugins (like modals, tooltips, etc). However, if you just use the CSS part of Bootstrap, you don't need jQuery.

1. Add the HTML5 doctype

Bootstrap uses HTML elements and CSS properties that require the HTML5 doctype.

Always include the HTML5 doctype at the beginning of the page, along with the lang attribute and the correct character set:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
  </head>
</html>
```

2. Bootstrap 3 is mobile-first

Bootstrap 3 is designed to be responsive to mobile devices. Mobile-first styles are part of the core framework.

To ensure proper rendering and touch zooming, add the following <meta> tag inside the <head> element:

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

The width=device-width part sets the width of the page to follow the screen-width of the device (which will vary depending on the device).

The initial-scale=1 part sets the initial zoom level when the page is first loaded by the browser.

3. Containers

Bootstrap also requires a containing element to wrap site contents.

There are two container classes to choose from:

1. The .container class provides a responsive **fixed width container**
2. The .container-fluid class provides a **full width container**, spanning the entire width of the viewport

.container

.container-fluid

Two Basic Bootstrap Pages

Example

```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/3.6.4/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>
  <p>This is some text.</p>
</div>

</body>
</html>
```


My First Bootstrap Page

This is some text.

Example

```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/3.6.4/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>

<div class="container-fluid">
  <h1>My First Bootstrap Page</h1>
  <p>This is some text.</p>
</div>

</body>
</html>
```
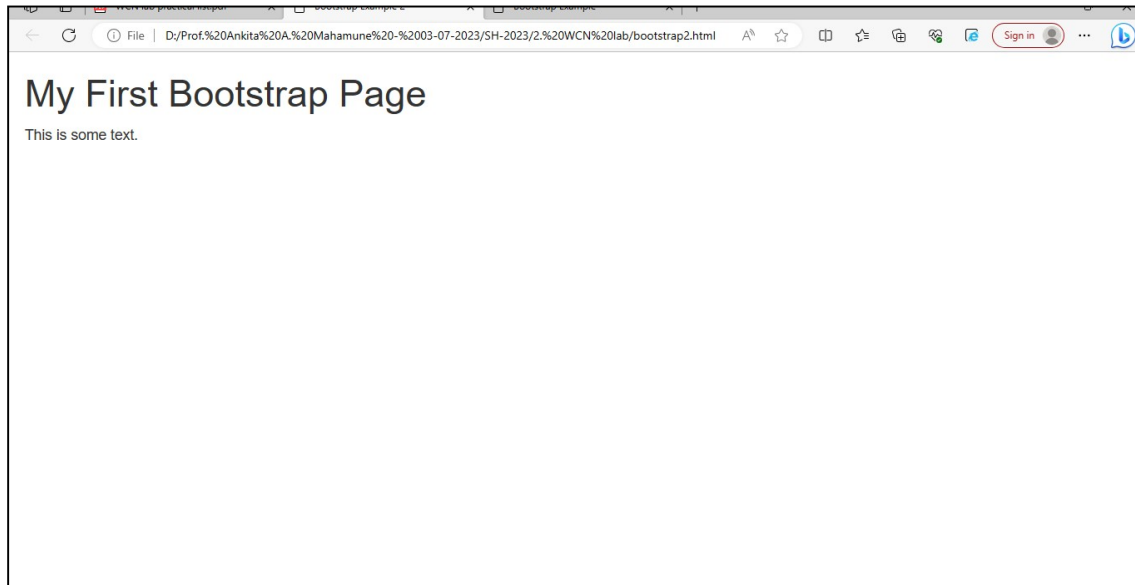
3. Bootstrap Example

```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/3.6.4/jquery.min.js"></script>

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

</head>
<body>

<div class="jumbotron text-center">
  <h1>My First Bootstrap Page</h1>
  <p>Resize this responsive page to see the effect!</p>
</div>

<div class="container">
  <div class="row">
    <div class="col-sm-4">
      <h3>Column 1</h3>
      <p>Lorem ipsum dolor..</p>
    </div>
    <div class="col-sm-4">
      <h3>Column 2</h3>
      <p>Lorem ipsum dolor..</p>
    </div>

      <h3>Column 3</h3>
      <p>Lorem ipsum dolor..</p>
    </div>
```
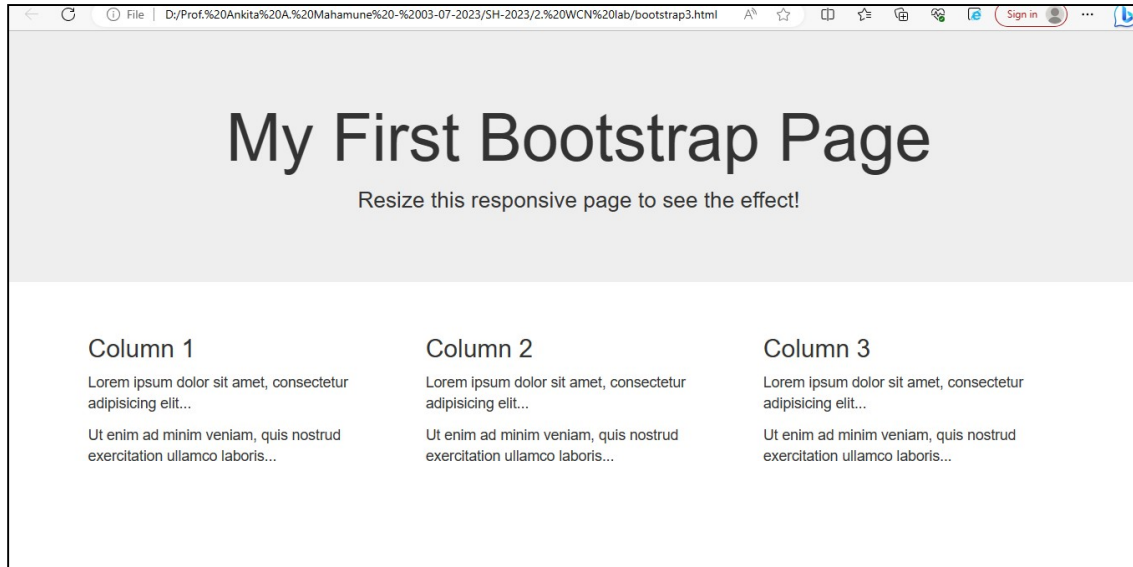
```
</div>

</body>
</html>
```


B. **Program:**

```html
<!DOCTYPE html>
<html>
<head>
  <title>Enhanced Bootstrap Example</title>
  <!-- Add Bootstrap CSS link -->
  <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">
</head>
<body>

  <!-- Bootstrap container -->
  <div class="container">
    <h1>Terna Engineering College Nerul, Navi Mumbai </h1>
    <p>Knowlwdge to Empower</p>
    <img src="https://ternatrust.org/wp-content/uploads/terna-logo.png" class="img-fluid
rounded mt-3" alt="Bootstrap Image"width="500" height="600">

    <!-- Bootstrap button that triggers a modal -->


    <!-- Bootstrap form -->
    <form>
      <div class="form-group">
        <label for="exampleInputEmail">Email address</label>
        <input type="email" class="form-control" id="exampleInputEmail" aria-
describedby="emailHelp" placeholder="Enter email">
```

```html
        <small id="emailHelp" class="form-text text-muted">We'll never share your email with
anyone else.</small>
      </div>
      <div class="form-group">
        <label for="exampleInputPassword">Password</label>
        <input type="password" class="form-control" id="exampleInputPassword"
placeholder="Password">
      </div>
      <div class="form-check">
        <input type="checkbox" class="form-check-input" id="exampleCheck" >
        <label class="form-check-label" for="exampleCheck"> I'm not a robot</label>
      </div>


    </form>
    <button class="btn btn-primary" data-toggle="modal" data-
target="#exampleModal">SignUp</button>
    <button  type="submit" class="btn btn-primary" >Submit</button>

    <!-- Bootstrap modal dialog -->
    <div class="modal fade" id="exampleModal" tabindex="-1" role="dialog" aria-
labelledby="exampleModalLabel" aria-hidden="true">
      <div class="modal-dialog" role="document">
        <div class="modal-content">
          <div class="modal-header">
            <h5 class="modal-title" id="exampleModalLabel">Modal Title</h5>
            <button type="button" class="close" data-dismiss="modal" aria-label="Close">
              <span aria-hidden="true">&times;</span>
            </button>
          </div>
          <div class="modal-body">
            <p>Hello Bootstrap, Are you Sure?</p>
          </div>
          <div class="modal-footer">
            <button type="button" class="btn btn-secondary" data-
dismiss="modal">Close</button>
            <button type="button" class="btn btn-primary">Save changes</button>
          </div>
        </div>
      </div>
    </div>

    <!-- Bootstrap image -->
  </div>

  <!-- Add Bootstrap JavaScript link (jQuery is required) -->
  <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
  <script
src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>
</body>
</html>
```
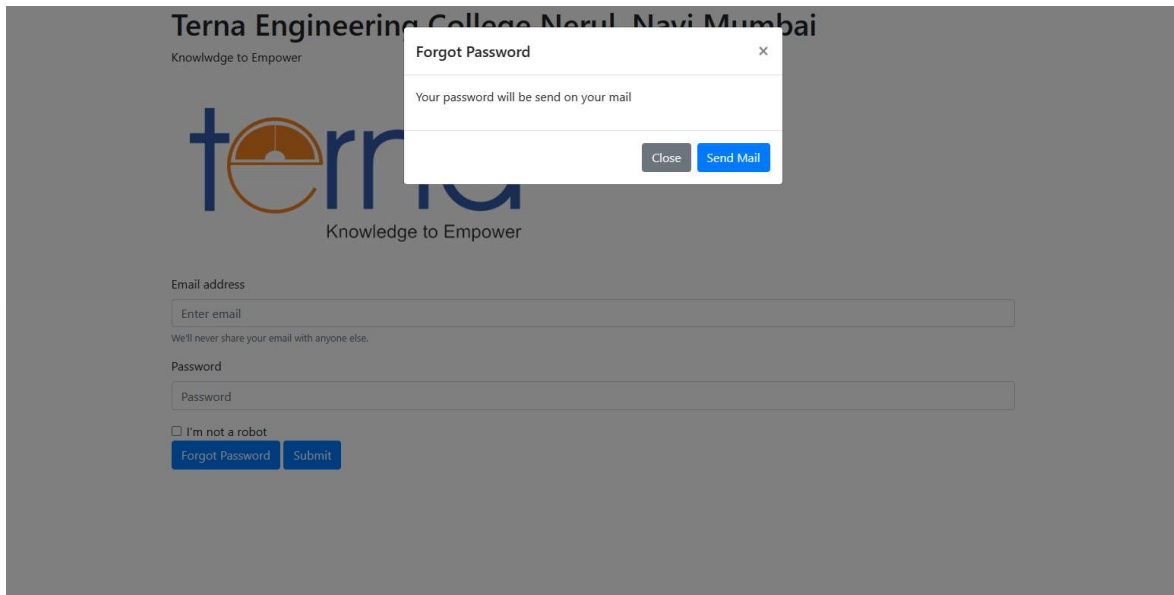
c. Output and findings:

Conclusion

The experiment with Bootstrap demonstrated its effectiveness as a powerful front-end framework. It enabled the creation of responsive layouts using the grid system and streamlined development with pre-designed components like forms, buttons, and navigation bars. The framework's adaptability and extensive community support make it a popular choice for web development, facilitating the construction of modern, visually appealing, and user-friendly websites and applications.