

JSON AND BOOTSTRAP FUNDAMENTALS

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Lecture 6, Week 7

LAST TIME

- ❑ How JavaScript can change and update both HTML and CSS
- ❑ How JavaScript can calculate, manipulate and update data
- ❑ ES5 features
- ❑ HTML DOM (Document Object Model)

TODAY

- ❑ How to use JSON
- ❑ How to Bootstrap

JSON

JSON stands for JavaScript Object Notation

JSON is a lightweight format for storing and transporting data

JSON is often used when data is sent from a server to a web page.

JSON is purely a string with a specified data format

JSON requires double quotes to be used around strings and property names. Single quotes are not valid other than surrounding the entire JSON string.

JSON SYNTAX RULE

- ❑ Data is in name/value pairs
- ❑ Data is separated by commas
- ❑ Curly braces hold objects
- ❑ Square brackets hold arrays

JSON ARRAYS

JSON arrays are written inside square brackets.

Just like in JavaScript, an array can contain objects:

EXAMPLES:

```
"employees":[
  {"firstName":"John", "lastName":"Doe"},
  {"firstName":"Anna", "lastName":"Smith"},
  {"firstName":"Peter", "lastName":"Jones"}
]
```

In the example above, the object "employees" is an array. It contains three objects.

Each object is a record of a person (with a first name and a last name).

CONVERTING A JSON TEXT TO A JAVASCRIPT OBJECT

A common use of JSON is to read data from a web server, and display the data in a web page.

For simplicity, this can be demonstrated using a string as input.

First, create a JavaScript string containing JSON syntax:

(SCRIPT.JS)

```
<script>

  var text = '{ "employees" : [' +
  '{ "firstName":"John" , "lastName":"Doe" },' +
  '{ "firstName":"Anna" , "lastName":"Smith" },' +
  '{ "firstName":"Peter" , "lastName":"Jones" } ]}';
  //to convert json text to object
  var obj = JSON.parse(text);

  <p id="demo"></p>

  document.getElementById("demo").innerHTML =
  obj.employees[1].firstName + " " + obj.employees[1].lastName;

</script>

//OUTPUT

----- Anna Smith -----
```

BOOTSTRAP

Bootstrap is the most popular CSS Framework for developing responsive and mobile-first websites.

Bootstrap 5 is the newest version of Bootstrap. Click on this link to access its documentation and components. www.getbootstrap.com

To add Bootstrap to your project use jsDelivr, a free open source CDN.

For css(add this cdn to the head section)

```
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta3/dist/css/bootstrap.min.css" rel="stylesheet"
integrity="sha384-eOJMYsd53ii+scO/bJGFsiCZc+5NDVN2yr8+0RDqr0Ql0h+rpP48ckxlpbzkGwra6"
crossorigin="anonymous">
```

For JavaScript(place this before the closing body tag)

```
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta3/dist/js/bootstrap.bundle.min.js"
integrity="sha384-JEW9xMcG8R+pH31jmWH6WWP0WintQrMb4s7ZOdauHnUtxwoG2vI5DkLtS3qm9Ekf"
crossorigin="anonymous"></script>
```

BOOTSTRAP CONTAINERS

The container class is one of the most important Bootstrap classes.

It provides margins, padding, alignments, and more, to HTML elements.

RESPONSIVE COLUMN

Three equal-width columns scaling to stack on top of each other on small screens

EXAMPLE

```
<!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/4.1.3/css/bootstrap.min.css">
  <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>
  <script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.3/umd/popper.min.js"></script>
  <script
src="https://maxcdn.bootstrapcdn.com/bootstrap/4.1.3/js/bootstrap.min.js"></script>
</head>
<body>

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

<div class="container">
  <div class="row">
    <div class="col-sm-4">
      <h2>London</h2>
      <p>London is the most populous city in the United Kingdom,
        with a metropolitan area of over 13 million inhabitants.</p>
    </div>
```

```

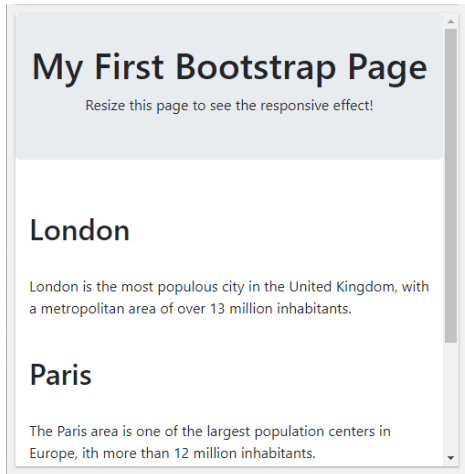
<div class="col-sm-4">
  <h2>Paris</h2>
  <p>The Paris area is one of the largest population centers in Europe,
  with more than 12 million inhabitants.</p>
</div>
<div class="col-sm-4">
  <h2>Tokyo</h2>
  <p>Tokyo is the center of the Greater Tokyo Area,
  and the most populous metropolitan area in the world.</p>
</div>
</div>
</div>
</body>
</html>

```

Output for large

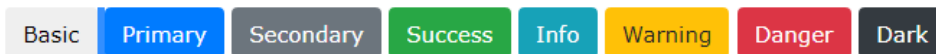


Output on smaller screen



Bootstrap Buttons

Bootstrap provides different styles of buttons:



Example

```
<button type="button" class="btn">Basic</button>
<button type="button" class="btn btn-primary">Primary</button>
<button type="button" class="btn btn-secondary">Secondary</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-dark">Dark</button>
```