WEB PROGRAMMING AND APPLICATIONS (Tutorial 4)

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Introduction

Bootstrap stands out as the leading CSS Framework utilized in the creation of websites that are responsive and prioritized for mobile devices.
- Bootstrap is a free front-end framework for faster and easier web development
- It incorporates design templates in HTML and CSS for various elements such as typography, forms, buttons, tables, navigation, modals, image carousels, among others, alongside optional JavaScript plugins.
- Additionally, Bootstrap facilitates the creation of responsive designs with great ease. (Responsive web design is about creating web sites which automatically adjust themselves to look good on all devices, from small phones to large desktops.)

Advantages of Bootstrap
- User-friendly: Bootstrap is accessible to anyone with rudimentary understanding of HTML and CSS.
- Bootstrap's CSS is responsive, ensuring seamless display across phones, tablets, and desktops.
- Bootstrap integrates mobile-centric design principles as a fundamental aspect of its framework.
- Cross-browser support: Bootstrap 4 functions seamlessly on contemporary browsers such as Chrome, Firefox, Internet Explorer 10+, Edge, Safari, and Opera.

Bootstrap Containers

Bootstrap 4 requires a containing element to wrap site contents. There are two container classes to choose from:
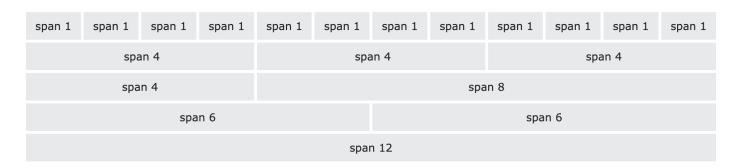- The `.container` class provides a responsive fixed width container. Note that its width (max-width) will change on different screen sizes.
- The `.container-fluid` class provides a full width container, spanning the entire width of the viewport (`width` is always `100%`)

	Extra small <576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra large ≥1200px
`.container`	100%	540px	720px	960px	1140px
`.container-sm`	100%	540px	720px	960px	1140px
`.container-md`	100%	100%	720px	960px	1140px
`.container-lg`	100%	100%	100%	960px	1140px
`.container-xl`	100%	100%	100%	100%	1140px

.container-fluid	100%	100%	100%	100%	100%

Bootstrap Grid System

Bootstrap's grid system is built with flexbox and allows up to 12 columns across the page. If you do not want to use all 12 columns individually, you can group the columns together to create wider columns:

span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1
span 4				span 4				span 4			
span 4				span 8							
span 6						span 6					
span 12											

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)

Basic structure of a Bootstrap 4 grid:

```
<!-- Control the column width, and how they should appear on different devices -->
<div class="row">
  <div class="col-*-*"></div>
  <div class="col-*-*"></div>
</div>

<!-- Or let Bootstrap automatically handle the layout -->
<div class="row">
  <div class="col"></div>
  <div class="col"></div>
  <div class="col"></div>
</div>
```

The following example shows how to get two various-width columns starting at tablets and scaling to large extra desktops

.col-sm-4	.col-sm-8

```
<div class="row">
  <div class="col-sm-4">.col-sm-4</div>
  <div class="col-sm-8">.col-sm-8</div>
</div>
```

Bootstrap Forms

Form Layouts

Bootstrap provides two types of form layouts:

- Stacked (full-width) form
- Inline form

An example of Stacked form

```
<form action="/action_page.php">
  <div class="form-group">
    <label for="email">Email address:</label>
    <input type="email" class="form-control" placeholder="Enter email" id="email">
  </div>
  <div class="form-group">
    <label for="pwd">Password:</label>
    <input type="password" class="form-control" placeholder="Enter password" id="pwd">
  </div>
  <div class="form-group form-check">
    <label class="form-check-label">
      <input class="form-check-input" type="checkbox"> Remember me
    </label>
  </div>
  <button type="submit" class="btn btn-primary">Submit</button>
</form>
```

Bootstrap 4 Stacked Form

Email:

<div style="border:1px solid #ccc;padding:8px;border-radius:4px;color:#888;">Enter email</div>

Password:

<div style="border:1px solid #ccc;padding:8px;border-radius:4px;color:#888;">Enter password</div>

☐ Remember me

Submit

An example of Inline form

```
<form class="form-inline" action="/action_page.php">
  <label for="email">Email address:</label>
  <input type="email" class="form-control" placeholder="Enter email" id="email">
  <label for="pwd">Password:</label>
  <input type="password" class="form-control" placeholder="Enter
password" id="pwd">
  <div class="form-check">
    <label class="form-check-label">
      <input class="form-check-input" type="checkbox"> Remember me
    </label>
  </div>
  <button type="submit" class="btn btn-primary">Submit</button>
</form>
```

Bootstrap Inline Form

Email: [Enter email]   Password: [Enter password]   ☐ Remember me **Submit**

Form Validation

You can use different validation classes to provide valuable feedback to users. Add either `.was-validated` or `.needs-validation` to the `<form>` element, depending on whether you want to provide validation feedback before or after submitting the form.

You can also add a `.valid-feedback` or `.invalid-feedback` message to tell the user explicitly what's missing.

Note that you will also have to add some jQuery code `form.checkValidity()` to validate the form properly on form submission event (onsubmit).

Bootstrap Input

Bootstrap supports the following form controls:
- Input (all the HTML5 input types: text, password, datetime, datetime-local, date, month, time, week, number, email, url, search, tel, and color)
- textarea
- checkbox
- radio
- select

Input

we use the `.form-control` class to style inputs with full-width and proper padding

```
<div class="form-group">
  <label for="usr">Name:</label>
  <input type="text" class="form-control" id="usr">
</div>
<div class="form-group">
  <label for="pwd">Password:</label>
  <input type="password" class="form-control" id="pwd">
</div>
```

Checkboxes

☐ Option 1
☐ Option 2
☐ Option 3

```
<div class="form-check">
  <label class="form-check-label">
    <input type="checkbox" class="form-check-input" value="">Option 1
  </label>
</div>
<div class="form-check">
  <label class="form-check-label">
    <input type="checkbox" class="form-check-input" value="">Option 2
  </label>
```

```
    </div>
    <div class="form-check">
      <label class="form-check-label">
        <input type="checkbox" class="form-check-input" value="" disabled>Option 3
      </label>
    </div>
```

Use the `.form-check-inline` class if you want the checkboxes to appear on the same line:

☐ Option 1   ☐ Option 2   ☐ Option 3

Radio Buttons

◯ Option 1
◯ Option 2
◯ Option 3

```
<div class="form-check">
  <label class="form-check-label">
    <input type="radio" class="form-check-input" name="optradio">Option 1
  </label>
</div>
<div class="form-check">
  <label class="form-check-label">
    <input type="radio" class="form-check-input" name="optradio">Option 2
  </label>
</div>
<div class="form-check disabled">
  <label class="form-check-label">
    <input type="radio" class="form-check-input" name="optradio" disabled>Option 3
  </label>
</div>
```

As with checkboxes, use the `.form-check-inline` class if you want the radio buttons to appear on the same line:

◯ Option 1   ◯ Option 2   ◯ Option 3

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Select List

```
<div class="form-group">
  <label for="sel1">Select list:</label>
  <select class="form-control" id="sel1">
    <option>1</option>
    <option>2</option>
    <option>3</option>
    <option>4</option>
  </select>
</div>
```

Input Groups

The `.input-group` class is a container to enhance an input by adding an icon, text or a button in front or behind the input field as a "help text".

Use `.input-group-prepend` to add the help text in front of the input, and `.input-group-append` to add it behind the input.

At last, add the `.input-group-text` class to style the specified help text.

Example:

```
<form>
  <div class="input-group mb-3">
    <div class="input-group-prepend">
      <span class="input-group-text">@</span>
    </div>
    <input type="text" class="form-control" placeholder="Username">
  </div>

  <div class="input-group mb-3">
    <input type="text" class="form-control" placeholder="Your Email">
    <div class="input-group-append">
      <span class="input-group-text">@example.com</span>
    </div>
  </div>
</form>
```

References

https://getbootstrap.com/docs/4.0/getting-started/introduction/
https://www.w3schools.com/bootstrap4/default.asp