Responsive Web Design

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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.

- Bootstrap is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first web sites.

- Bootstrap is completely free to download and use!

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

Bootstrap History

- Bootstrap was developed by Mark Otto and Jacob Thornton at Twitter, and released as an open source product in August 2011 on GitHub.

- 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, Safari, and Opera)

Where to Get Bootstrap?

- There are two ways to start using Bootstrap on your own web site.
  - Download Bootstrap from getbootstrap.com
    - If you want to download and host Bootstrap yourself, go to getbootstrap.com, and follow the instructions there.
  - Include Bootstrap from a 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.

Bootstrap CDN

- You must include the following Bootstrap's CSS, JavaScript, and jQuery from MaxCDN into your web page.

  ```
  <!-- Latest compiled and minified Bootstrap CSS -->
  <link rel="stylesheet"href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">


  <!-- Latest compiled Bootstrap JavaScript -->
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>


  <!-- latest jQuery library -->
  <script src="https://code.jquery.com/jquery-latest.js"></script>
  ```

- 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.

Create Web Page with Bootstrap (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>
```

Create Web Page with Bootstrap (2)

- Bootstrap 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.

Create Web Page with Bootstrap (3)

- Containers
  - Bootstrap also 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.** The .container-fluid class provides a **full width container**, spanning the entire width of the viewport.
- **Note:** Containers are not nestable (you cannot put a container inside another container).

Bootstrap Grids

- Bootstrap's grid system 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:

<div class="col-md-12">Span 12 columns</div>

<div class="col-md-6">Span 6</div><div class="col-md-6">Span 6</div>

<div class="col-md-4">Span 4</div><div class="col-md-8">Span 8</div>

<div class="col-md-4">Span 4</div><div class="col-md-4">Span 4</div> <div class="col-md-4">Span 4</div>

- Bootstrap's grid system is responsive, and the columns will re-arrange automatically depending on the screen size.

Grid Classes

- The Bootstrap grid system has four classes:
  - xs (for phones)
  - sm (for tablets)
  - md (for desktops)
  - lg (for larger desktops)
- The classes above can be combined to create more dynamic and flexible layouts.

Basic Structure of a Bootstrap Grid

```
<div class="row">
  <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>
```

- First; create a row (<div class="row">). Then, add the desired number of columns (tags with appropriate .col-*-*classes). Note that numbers in .col-*-* should always add up to 12 for each row.

Three Equal Columns

- Three equal columns (desktop version):
- Three equal columns (tablet version):
- Three equal columns (smart phone version):

References

- Discovering the Internet: Complete, Jennifer Campbell, Course Technology, Cengage Learning, 5th Edition-2015, ISBN 978-1-285-84540-1.

- Basics of Web Design HTML5 & CSS3, Second Edition, by Terry Felke-Morris, Peason, ISBN 978-0-13-312891-8.

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