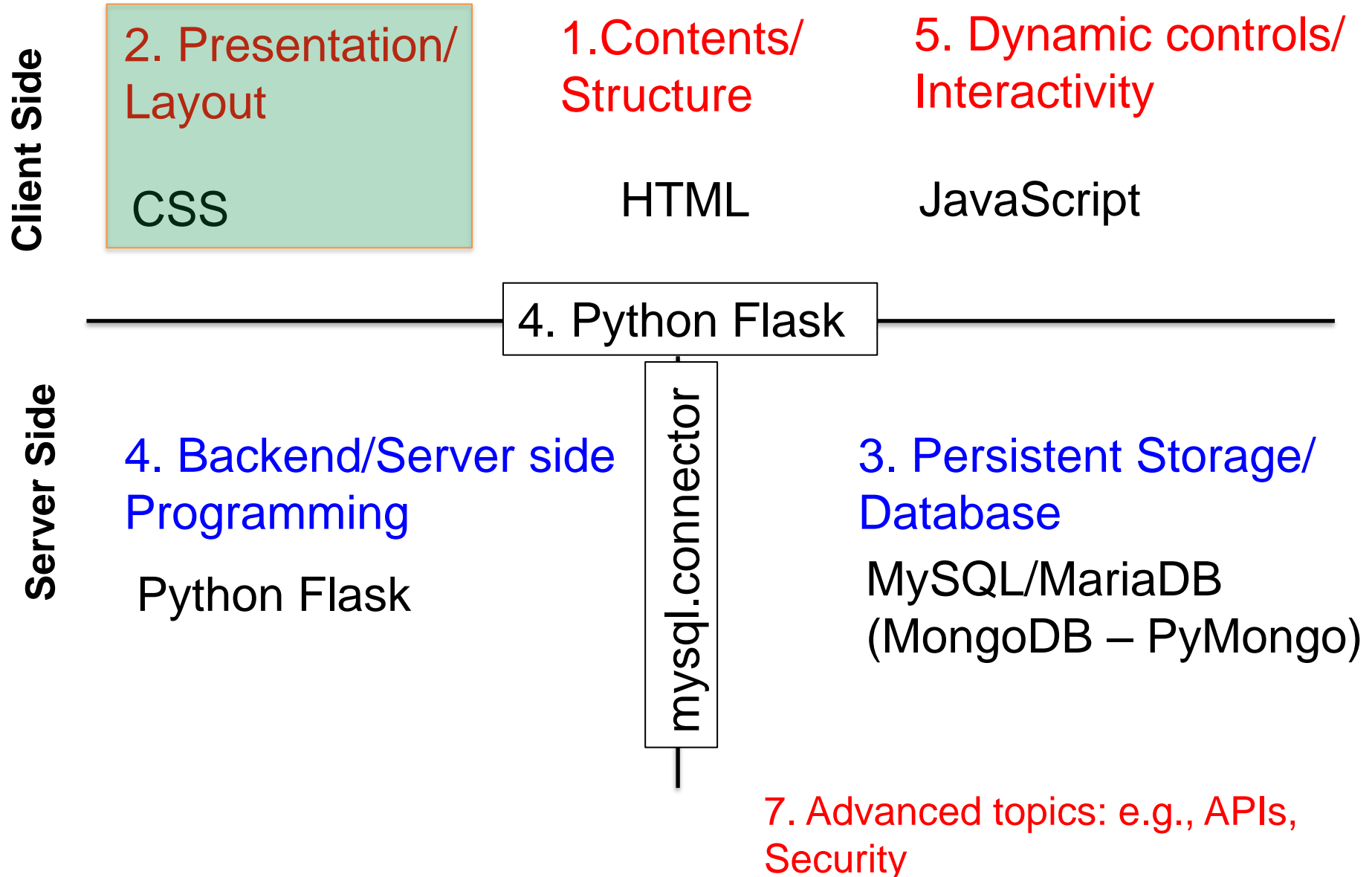


Cascading Style Sheets – CSS - continues

UFCFES-30-1

Overall Learning Map



What we covered so far...

CSS basics

Usage

Style rules

Layout

What we'll cover today...

CSS box model

A quick look at different other things you can do with
CSS3

CSS 3

- The latest standard
- CSS3 is backward compatible
- HTML5 and CSS3 is a perfect combination
- CSS3 is split into modules
 - Old specifications plus new modules
 - Selectors, Box model, Background and Borders, Text Effect, 2D/3D Transformation, Animation, User Interface, Multiple Column Layout, etc.

Example source

- Examples on next slides are from w3schools.com
- Note: There are several new properties introduced in CSS3 that you should check at the link below in your self-study time.

<https://www.tutorialrepublic.com/css-tutorial/css3-border.php>

- **BOOKMARK THIS:** For a complete CSS properties reference: - <http://www.w3schools.com/cssref/>

We need CSS for...

- A. Processing form requests
- B. Adding games on websites
- C. Preparing consistent front end layout and design
- D. Preparing stylesheets for backend web application design

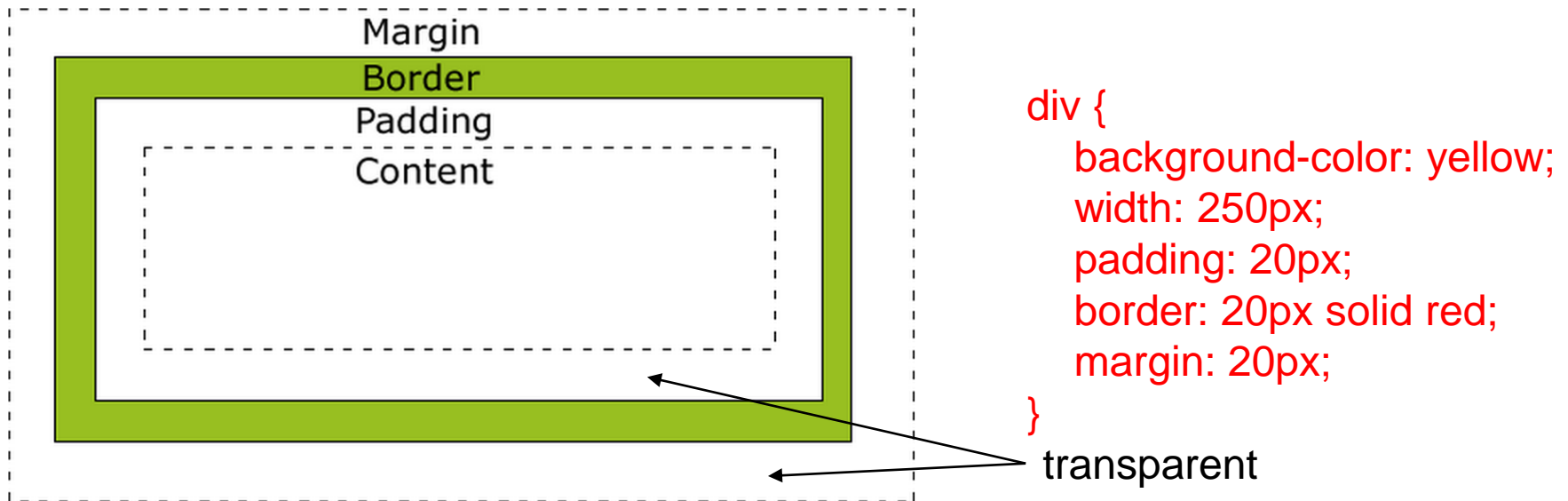
Which CSS usage style has higher precedence when used in a web page?

- A. Internal style
- B. External style
- C. Inline style
- D. High priority style

CSS Box Model

padding: top, right, bottom, left

- MUST READ** http://www.w3schools.com/css/css_boxmodel.asp



Total element width = width + left padding + right padding + left border + right border + left margin + right margin

Total element height = height + top padding + bottom padding + top border + bottom border + top margin + bottom margin

https://www.w3schools.com/cssref/pr_margin.asp

Box Model - Example

http://www.w3schools.com/css/css_boxmodel.asp

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
  div {
```

```
    background-color: yellow;
```

```
    width: 250px;
```

```
    padding: 20px;
```

```
    border: 20px solid red;
```

```
    margin: 20px;
```

```
  }
```

```
</style>
```

```
</head>
```

```
<body>
```

```
  <div>A quick brown fox jumps over the lazy dog. A quick brown fox jumps  
  over the lazy dog. A quick brown fox jumps over the lazy dog. A quick brown  
  fox jumps over the lazy dog. </div>
```

```
</body>
```

```
</html>
```

A quick brown fox jumps over the lazy dog. A quick brown fox jumps over the lazy dog. A quick brown fox jumps over the lazy dog. A quick brown fox jumps over the lazy dog.

Box-sizing property

- Check **box-sizing** property: tells the browser what the sizing properties (width and height) should include.
- **content-box** (default)- The w/h properties (and min/max properties) includes only the content. Border, padding, or margin are not included
- **border-box** - The w/h properties (and min/max properties) includes content, padding and border, but not the margin

Example:

```
* {  
    box-sizing: border-box;  
}
```

- **Example here:** http://www.w3schools.com/cssref/css3_pr_box-sizing.asp

div { width: 320px; padding: 10px; border: 5px solid
gray; margin: 0; }

What will be total width of <div> on a web page?

- A. 350 px
- B. 330 px
- C. 335 px
- D. None of the above

Some new features

- **** works exactly like **<div>**, but **** applies a style to the enclosed text (rather than enclosed tags):
- **div breaks up text span doesn't**
Will `you help?`
- Here 'you' have style s1 applied to it

`<p>Web Programming eyes.</p>`

CSS3 - Borders

- In CSS3 you can create, Rounded borders, shadowed boxes, image as border - http://www.w3schools.com/css/css3_borders.asp
- Always check browser support
- Main border properties
 - **border-radius** (for rounded corners)
 - `border-radius: 1-4 length|% / 1-4 length|%|initial|inherit;`

Testing Rounding border

```
— div {
  border: 2px solid;
  border-radius: 25px;
}
```

One, two, three or four values
You can specify value for each corner
starting from top-left – see above link

In Main body of HTML code

```
<div>
<p> Testing Rounding border </p>
</div>
```

CSS3 - Borders

Rounded corners!

1. Four values - border-radius: 15px 50px 30px 5px:



2. Three values - border-radius: 15px 50px 30px:



3. Two values - border-radius: 15px 50px:



Source:

http://www.w3schools.com/css/css3_borders.asp

CSS3 - Borders

- box-shadow (adds shadow to a box)
- box-shadow: none|h-shadow v-shadow blur spread color |inset|initial|inherit;

```
div {
  width: 200px;
  height: 100px;
  background-color: cyan;
  box-shadow: 10px 10px 5px #888888;
}
```

Do check browser support e.g.
colour value is optional but needed
for safari

In Main body of HTML code

```
<div> </div>
```



CSS3 – Background

- CSS3 introduces new properties to control background element
- background: bg-color bg-image position/bg-size bg-repeat bg-origin bg-clip bg-attachment initial|inherit;

- Main properties are:

- background-size (to define size of background image)
- background-size: auto|length|cover|contain|initial|inherit;
- background-repeat: repeat|repeat-x|repeat-y|no-repeat|initial|inherit;



- div {
 - background: url(UWEcrest.jpeg);
 - background-size: 80px 60px; /* 100% 100% for relative width & height size of image to parent element*/
 - background-repeat: no-repeat;
- In html body use <div> A quick brown fox </div>

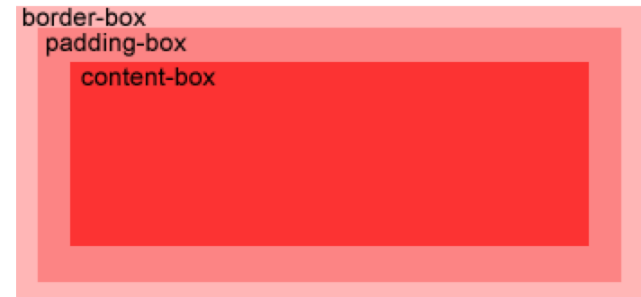
Check background-size: contain|cover

CSS3 – Background

- **background-origin** (positioning area of bg images)
 - border-box, padding-box, content-box
- **background-origin: padding-box|border-box|content-box|initial|inherit;**

```

div {
    background: url(img.gif);
    background-repeat: no-repeat;
    background-size: 100% 100%;
    background-origin: content-box;
}
  
```



- Using two background images

```

body {
    background: url(img_tree.gif), url(img_flwr.gif);
    background-size: 100% 100%;
    background-repeat: no-repeat;
}
  
```

See Example at:

http://www.w3schools.com/css/css3_backgrounds.asp

CSS3 – Text Effects

- http://www.w3schools.com/css/css3_text_effects.asp
- *text-shadow: h-shadow v-shadow blur-radius color/none/initial/inherit;*
- CSS3 introduces several new text features through properties
 - text-shadow, word-wrap, word-break, text-wrap, text-overflow, text-justify, text-outline, text-emphasis, text-align-last, punctuation-trim etc.
- **Check browser support (e.g. IE9 and earlier ver)**
- **Text Shadow Effect – example**

```
h1 {
  text-shadow: 5px 5px 5px #FF0000;
}
```

```
<h1>Web Programming</h1>
```

Web Programming

CSS3 - Transform

- Transformation → changing an element size, shape and position
 - move, scale, turn, spin, and stretch elements
 - 2D - http://www.w3schools.com/css/css3_2dtransforms.asp
 - 3D - http://www.w3schools.com/css/css3_3dtransforms.asp
- Always check browser support!
- CSS3 – 2D transform methods
 - rotate – rotates clockwise at a certain degree
 - scale – increases or decreases the size of element
 - translate -- moves from current position to new position
 - skew – turns element in a given angle
 - matrix – combines all of 2D transform methods into one

CSS3 - Transform

- Clock-wise (+ degree) or counter-clockwise (-ve degree)
- CSS3 2D Transform examples
- http://www.w3schools.com/css/css3_2dtransforms.asp
- An Example – Rotate method

```
div {
    width: 100px;
    height: 75px;
    background-color: cyan;
    border: 1px solid black;
}
```

```
div#div2 {
    -ms-transform: rotate(30deg); /* IE 9 */
    -webkit-transform: rotate(30deg); /* Chrome,
                                          Safari, Opera */
    transform: rotate(30deg); /* Standard syntax */
}
```

Hello. This is a
Simple div
element.

This is a div
(id div2)
element with
30deg rotation.

In HTML body

```
<div>Hello. This is a Simple div element.</div>
```

```
<div id="div2">This is a div (id div2) element with 30deg rotation.</div>
```

CSS3 - Transitions

- Did you create/use Powerpoint Transitions?
- CSS3 Transitions **let an element change from one style to another** – without using **Flash or other plug-in!**
- CSS3 transitions allows you to **change property values** smoothly (from one value to another), over a given **duration**.
- **READ:** http://www.w3schools.com/css/css3_transitions.asp
- **Always check browser support**
- Two things must be defined
 - **CSS property you want to add an effect to**
 - **The duration of the effect**
- You may use transition with transformation – check example at above link

CSS3 - Transitions

- Div hover example -

http://www.w3schools.com/css/css3_transitions.asp

```
div {
  width: 100px;
  height: 100px;
  background: red;
  -webkit-transition: width 2s; /* For Safari 3.1 to 6.0 */
  transition: width 2s, height 4s;
}
div:hover {
  width: 400px;
  height: 400px;
}
```



In HTML body

```
<div></div>
```

CSS3 - Animations

- CSS3 animations allows animation of **most HTML elements without using JavaScript or Flash!**
- Element can gradually **change from one style to another**
- You can specify as **many properties** and as **many times** as you want
- Read: http://www.w3schools.com/css/css3_animations.asp
- The **@keyframes rule** is where animations are created
- **Animation must be bound to a CSS selector**
- Two things must be defined
 - **Name of the animation**
 - **The duration of the animation**
- See animation examples at above URL

CSS3 - Animations

- An Animation example – changing Div bgcolour

```
div {
```

```
width: 100px;
```

```
height: 100px;
```

```
background: red;
```

```
-webkit-animation: myfirst 5s; /* Chrome, Safari, Opera */
```

```
animation: myfirst 5s;
```

```
}
```

```
/* Chrome, Safari, Opera */
```


```
@-webkit-keyframes myfirst {
```

```
from {background: red;}
```

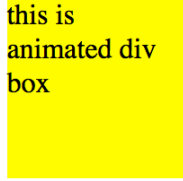
```
to {background: yellow;}
```

```
}
```


this is
animated div
box



this is
animated div
box



this is
animated div
box



```
/* Standard syntax */
```

```
@keyframes myfirst {
```

```
from {background: red;}
```

```
to {background: yellow;}
```

```
}
```

In HTML body

```
<div>this is animated div box</div>
```

CSS3 – Multiple Columns

- Have you seen any paper-based Newspaper?
- Laying out text in multiple columns
- **Always Check browser support!**
- Many properties
 - column-fill, column-count, column-gap, column-rule, column-rule-color, column-rule-style, column-rule-width, column-span, column-width, columns
- **Read more details and examples**
- http://www.w3schools.com/css/css3_multiple_columns.asp

CSS3 – Multiple Columns - Example

```
<style>
.newspaper {
    -webkit-column-count: 3; /* Chrome, Safari, Opera */
    -moz-column-count: 3; /* Firefox */
    column-count: 3;

    -webkit-column-gap: 60px; /* Chrome, Safari, Opera */
    -moz-column-gap: 60px; /* Firefox */
    column-gap: 60px;

    -webkit-column-rule: 3px outset #ff00ff; /* Chrome, Safari, Opera
*/
    -moz-column-rule: 3px outset #ff00ff; /* Firefox */
    column-rule: 3px outset #ff00ff;
}
</style>
```

CSS3 – Multiple Columns - Example

```
<style>
```

```
.newspaper {
```

```
  -webkit-column-count: 3; /* Chrome  
  -moz-column-count: 3; /* Firefox  
  column-count: 3;
```

```
  -webkit-column-gap: 60px; /* Chrome  
  -moz-column-gap: 60px; /* Firefox  
  column-gap: 60px;
```

```
  -webkit-column-rule: 3px outset  
  /*
```

```
  -moz-column-rule: 3px outset #ff00ff;  
  column-rule: 3px outset #ff00ff;
```

```
}
```

```
</style>
```

In HTML body

```
<div class="newspaper">
```

```
1. A quick brown fox jumps over a lazy dog.  
2. A quick brown fox jumps over a lazy dog.  
3. A quick brown fox jumps over a lazy dog.  
4. A quick brown fox jumps over a lazy dog.  
5. A quick brown fox jumps over a lazy dog.  
6. A quick brown fox jumps over a lazy dog.  
7. A quick brown fox jumps over a lazy dog.  
8. A quick brown fox jumps over a lazy dog.  
9. A quick brown fox jumps over a lazy dog.  
10. A quick brown fox jumps over a lazy  
dog.
```

```
</div>
```

CSS3 – Multiple Columns - Example

1. A quick brown fox jumps over a lazy dog. 2. A quick brown fox jumps over a lazy dog. 3. A quick brown fox jumps over a lazy dog. 4. A quick brown fox jumps over

a lazy dog. 5. A quick brown fox jumps over a lazy dog. 6. A quick brown fox jumps over a lazy dog. 7. A quick brown fox jumps over a lazy dog. 8. A quick brown fox jumps over

a lazy dog. 9. A quick brown fox jumps over a lazy dog. 10. A quick brown fox jumps over a lazy dog.

```

-moz-column-gap: 60px; / Firefox
column-gap: 60px;

-webkit-column-rule: 3px outset #ff00ff;
*/
-moz-column-rule: 3px outset #ff00ff;
column-rule: 3px outset #ff00ff;
}
</style>

```

```

1. A quick brown fox jumps over a lazy dog.
5. A quick brown fox jumps over a lazy dog.
6. A quick brown fox jumps over a lazy dog.
7. A quick brown fox jumps over a lazy dog.
8. A quick brown fox jumps over a lazy dog.
9. A quick brown fox jumps over a lazy dog.
10. A quick brown fox jumps over a lazy
dog.
</div>

```

CSS3 – more things

- Read more: <https://www.tutorialrepublic.com/css-tutorial/>
- User Interface, Colors, Fonts, Images, Buttons, Pagination, Flexbox, Box sizing, Media queries
- **Read more on CSS units:**
 - **absolute** (cm, mm, in, pt, pc, px (is relevant to viewing device)) and
 - **relative** (em, ex, ch, rem, vw, vh, vmin, vmax, %)
- https://www.w3schools.com/cssref/css_units.asp

CSS3 – Responsive web design

- A website that **looks good on all devices**, especially, mobile devices.
- One option is to create own CSS from scratch
 - An example –
 - https://www.w3schools.com/css/css_rwd_intro.asp
- Another option is to use existing CSS framework like Bootstrap for creating responsive web design that look nice at any size, screen, laptop, tablet, or phone.
 - Bootstrap tutorial -
<http://www.w3schools.com/bootstrap/default.asp>

Summary

- CSS is very useful for **frontend** layout and design
- It allows to keep **separation between contents and presentation**
- Styles/Layout can be applied across website for **consistent look and feel**
- CSS style rules can be applied on HTML elements using **selectors** – element, #id, .class
- CSS can be used as **external, internal and inline**
- CSS3 provides many **new graphical features** which do not require JS or Flash for intuitive user interface
- CSS3 also supports **responsive web design** to load web sites on different devices and screen sizes
- Has **huge list of properties** and requires a lot of **practice**
- Next – Responsive Web Design