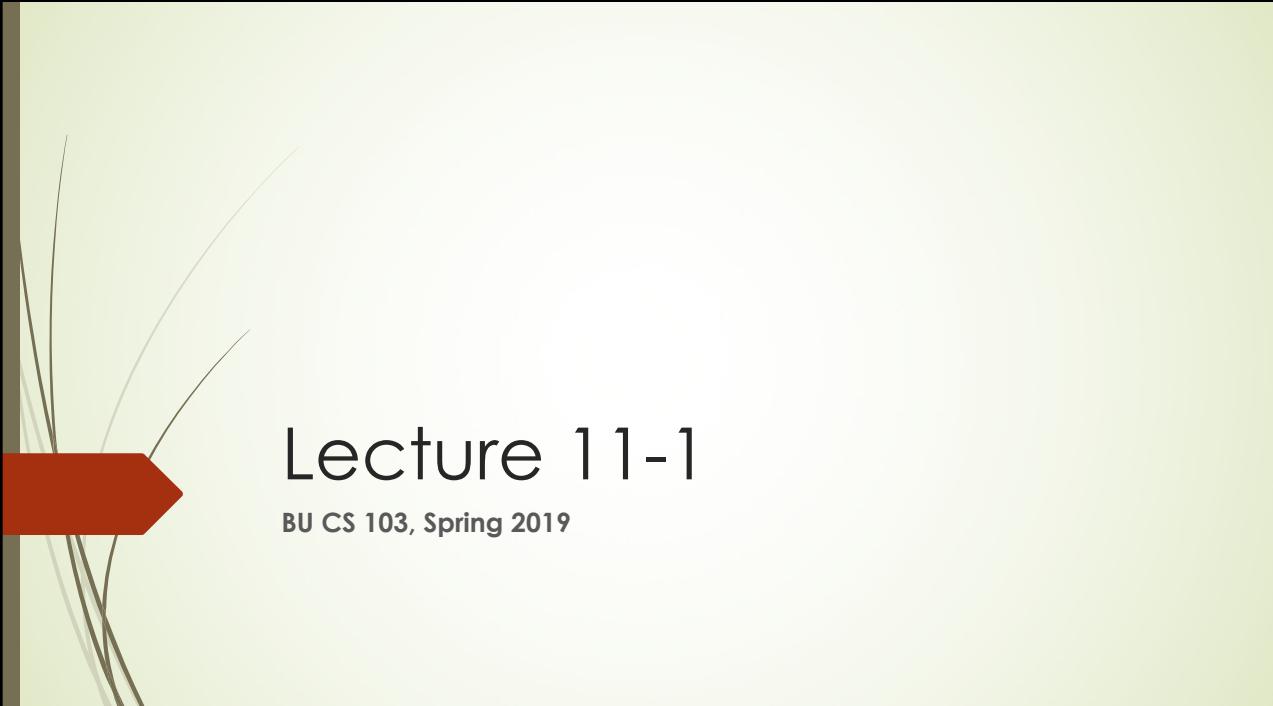


Introduction to Internet Technology and Web Programming

Computer Science 103
Boston University
Vahid Azadeh-Ranjbar

These notes are based on the lecture notes provided by [Professor Susan Worst](#).



Lecture 11-1

BU CS 103, Spring 2019

Assignments

❖ Deadlines

➤ HW 6 due Tuesday 4/16 at 6:00 pm

❖ Grades

➤ All of your assignment were graded.

Midterm Exam 2

➤ It will be held in our regular classroom.

➤ It will be 1 hour at 6:35 – 7:35 PM on Wednesday 4/10.



What will be Covered Today?

- ❖ JavaScript basics (part 3)



JavaScript Programming for the Web

Lets make a website for adults!!!

Lets do the fifth requirement:

1. This website should show a pop-up warning message about age.
2. Then, there has to be another pop-up message to ask user's age.
3. Based on the answer, another message will be asked to show that if the user is or is not allowed to enter the website.
4. Also, inside the document (the webpage), we would like to see a paragraph as following
 - A warning message asking to leave the page if user is less than 18
 - A welcome message if user is greater than or equal 18.
5. Also, if the user put anything except numbers greater than 0 and less than 150, ask the user to put an acceptable numerical answer.

Do something more than once

- ❖ It's often the case that we need to do a set of steps several times
- ❖ JavaScript provides us a way with a **loop**

The FOR loop

- ❖ When you know how many times to do something
- ❖ “Sum the numbers from 0 to 5, i.e. $0+1+2+3+4+5$ ”
- ❖ The loop uses a counting variable to count how many times we’ve done the loop

```
for (start point; end point; how to change count)
    for (count=0; count < 6; count += 1)
```

- ❖ This says ‘start at zero, and as long as count is less than 6, run the loop and add one to the count’

The FOR loop ...

set up a variable to hold result

```
let theSum = 0;
for (counter = 0; counter < 6; counter = counter+1) {
    theSum = theSum + counter;
}
```

this counts the number of times to do the loop

once we hit 6, exit the loop

Lets make a website for adults!!!

Lets do the fifth requirement:

5. Also, if the user put anything except numbers greater than 0 and less than 150, ask the user to put an acceptable numerical answer.

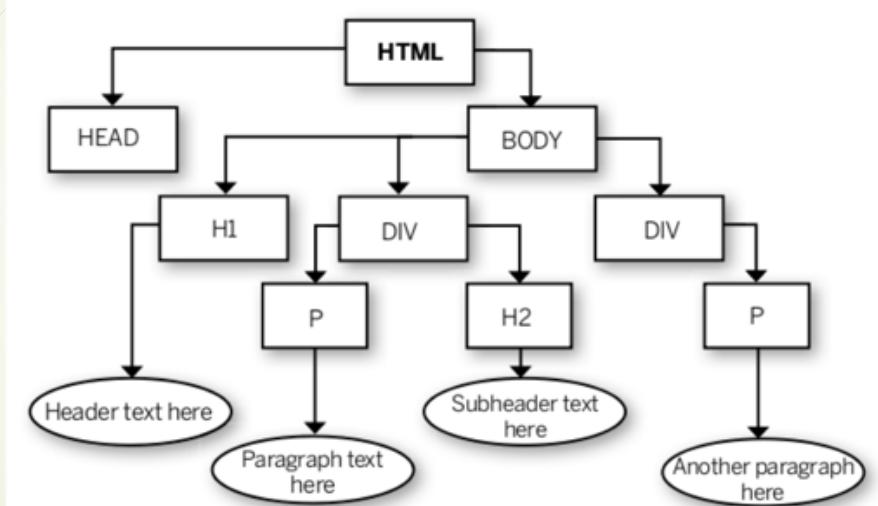
```
let n;  
for (n = 1; n < 10; n+=1) {  
  
    if (isNaN(age)){  
        ....  
    }  
    else{  
        ....  
        break;  
    }  
}
```

Lets do some external JS coding

- We can transfer all of the JS coding to a separate .js file.
- Then pull it to you html file by using a script tag:

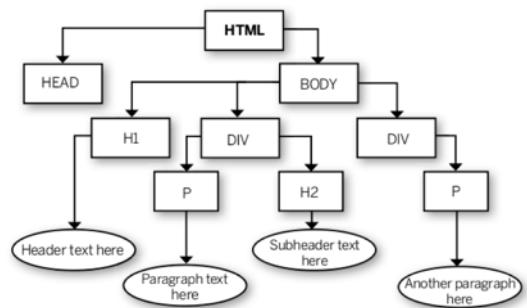
```
<script src="The-address-of-JS-code"> </script>
```

HTML DOM (Document Object Model)



The DOM Objects

- ❖ document – the root of the page
 - ✓ Everything belongs to “document”
- ❖ element – a node in the tree
- ❖ attribute – like src or alt for an img element

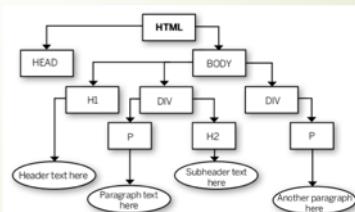


Functions

- ❖ We saw that we can use **isNaN()** to find out if variable age is a number or not a number.
- ❖ **isNaN()** is called a function.
- ❖ You also have seen functions **time()** and **date()** in PHP.

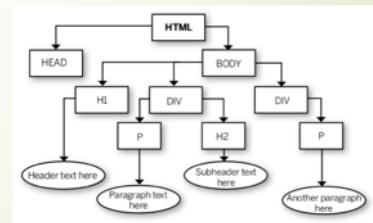
Functions to select DOM Objects

- ❖ There are several Functions to select HTML elements:
 - **getElementById(id)**
 - **setAttribute(attribute, value)**
 - **removeAttribute(attribute)**



Combining the DOM objects and the functions by using a dot notation:

- `document.getElementById(id)`
- `element.setAttribute(attribute, value)`
- `element.removeAttribute(attribute)`
- `document.write("Hello World");`
- `document.getElementById("main").innerHTML= "Hello World";`



Events in JavaScript

❖ **onclick**

- User clicks on an HTML element

❖ **onmouseover**

- User moves the mouse over an HTML element

Events can be added to elements as attributes

How they work!

- ❖ Any element can react to an event.
- ❖ You need to add the event to the tag and include what you want to happen

```
<div onclick = "message()"> Clicking on this Div will invoke a JS function </div>
```

Event

What you want to do (apply function "message")

Functions()

- ❖ We saw that we can use **isNaN**(age) to find out if variable age is a number or not a number.
- ❖ **isNaN()** is called a function.
- ❖ You also have seen functions **time()** and **date()** in PHP.
- ❖ We can also write our own functions in JS.

Functions()

with this name
Create a function
`function addTwoNumbers (value1, value2) {
 return value1 + value2;
}`
that takes two values
and returns the sum of them

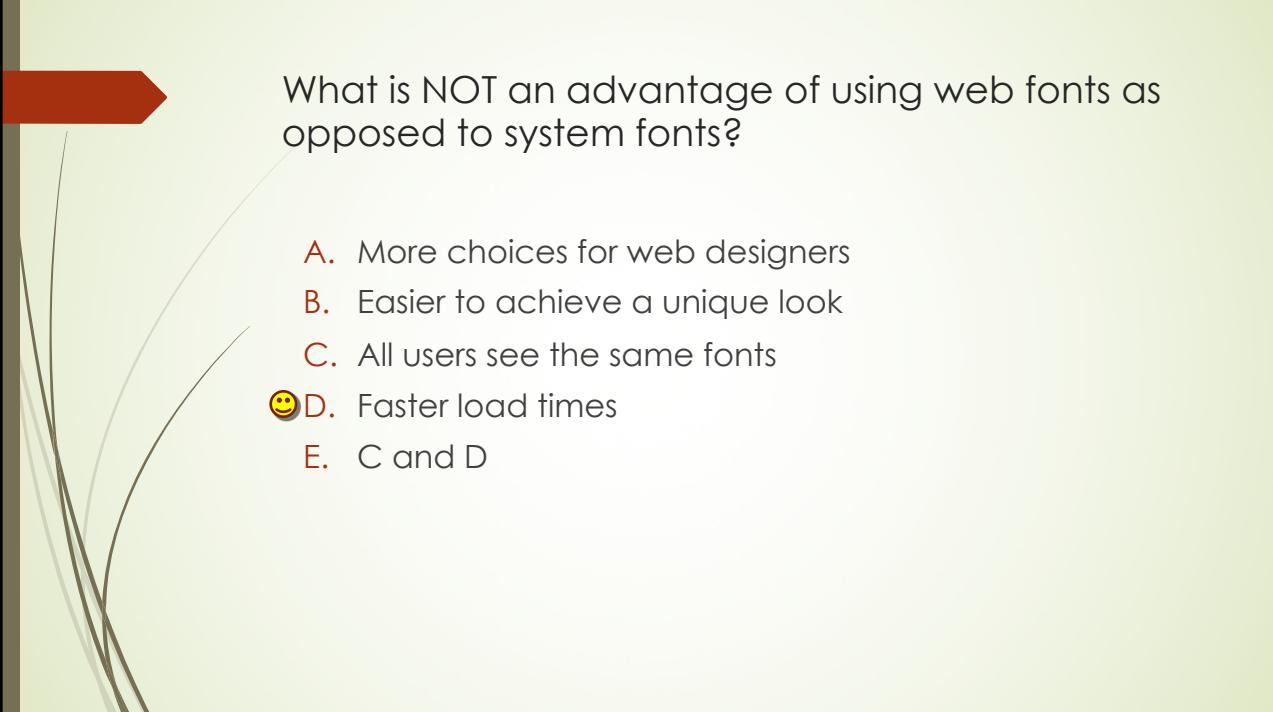
Functions()

```
let a = 42;  
let b = 16;  
let c;  
  
c = a + b ;  
c = add(a, b);  
  
function add(a, b) {  
    return a + b;  
}
```

Time to experience!

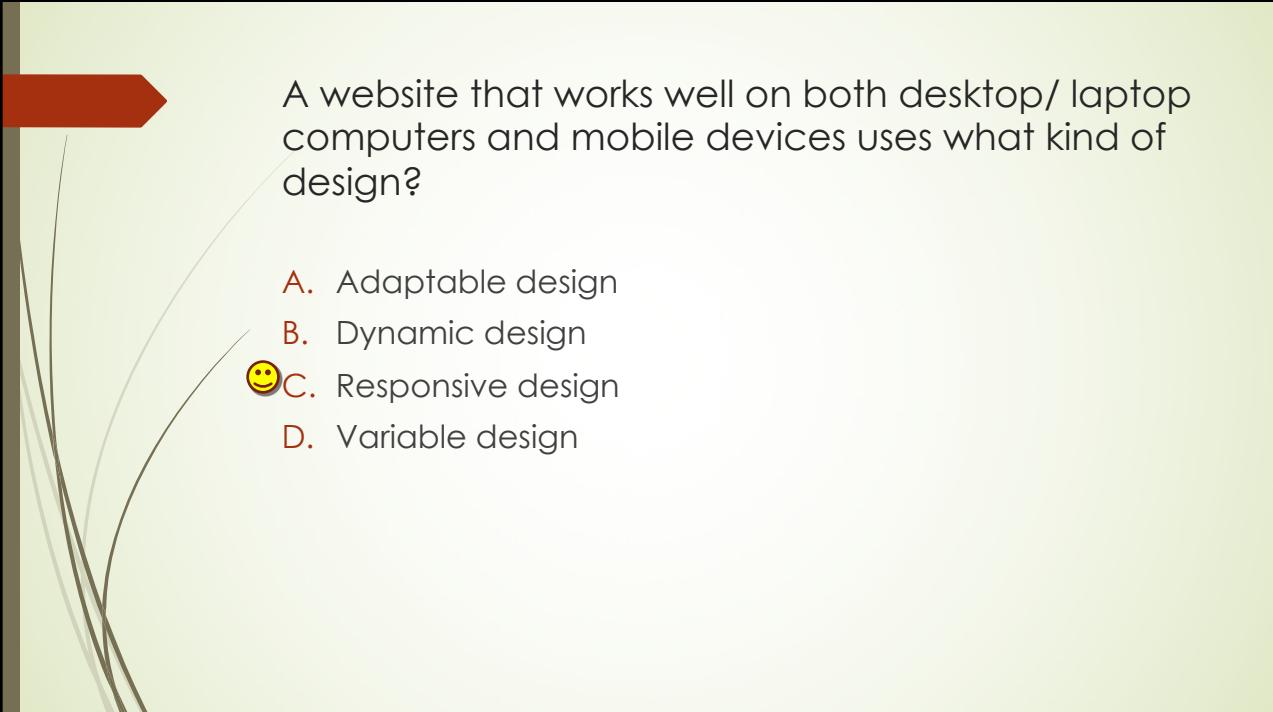
- ❖ To experience JS events, we will use some CodePen pages of Prof. Colleen Van Lent
 - Display Date: <https://codepen.io/ColleenEMc/pen/bVLwaN>
 - Modify the DOM: <https://codepen.io/ColleenEMc/pen/vNdXKz>
 - Changing the Style: <https://codepen.io/ColleenEMc/pen/BoYLYB>
- ❖ They are placed under Lecture 11-1 on Blackboard.

Review for midterm exam 2



What is NOT an advantage of using web fonts as opposed to system fonts?

- A. More choices for web designers
- B. Easier to achieve a unique look
- C. All users see the same fonts
-  D. Faster load times
- E. C and D



A website that works well on both desktop/ laptop computers and mobile devices uses what kind of design?

- A. Adaptable design
- B. Dynamic design
-  C. Responsive design
- D. Variable design

If you specify the language of a page (using the lang attribute), you don't need to specify the character encoding (using a meta tag)

A. True

 B. False

To create a responsive design, specify the width of the page using...

A. em

B. Pixels (px)

 C. Percent (%)

D. Points (pt)

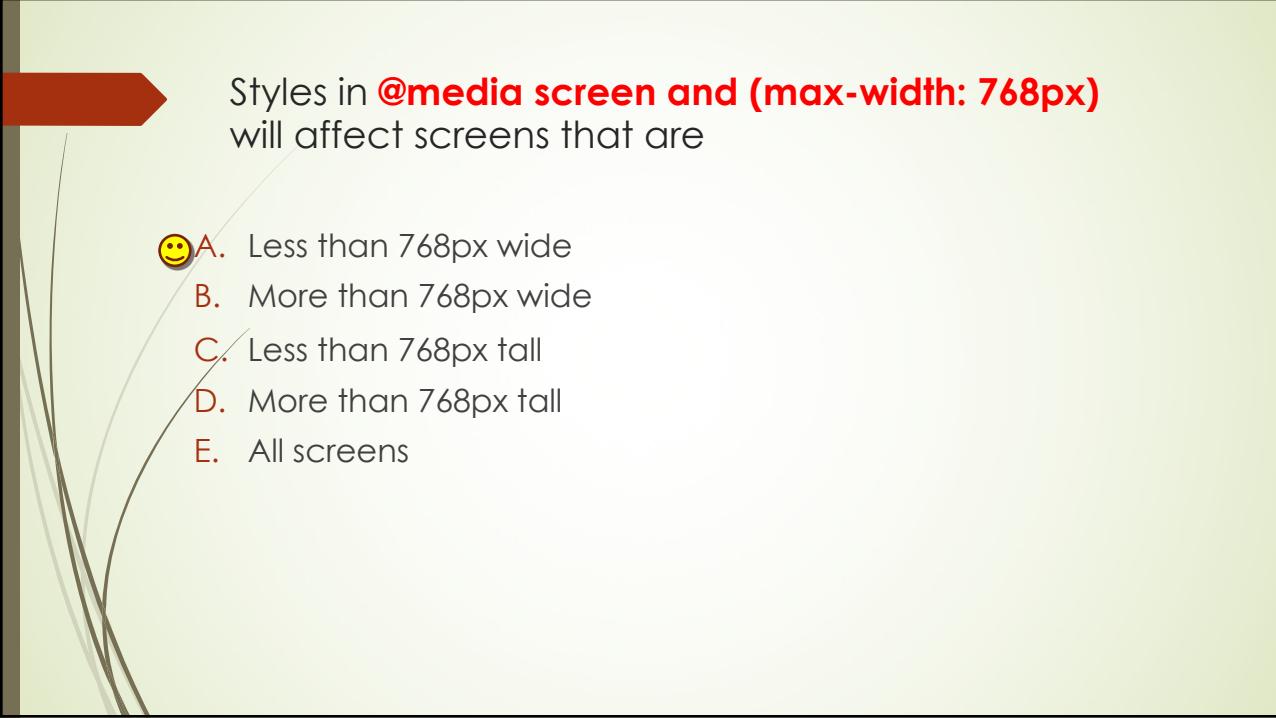
E. Doesn't matter

To make images responsive, use the following property on the img tag in CSS:

- A. Image-resize
- B. Image-width
-  C. Max-width
- D. Width

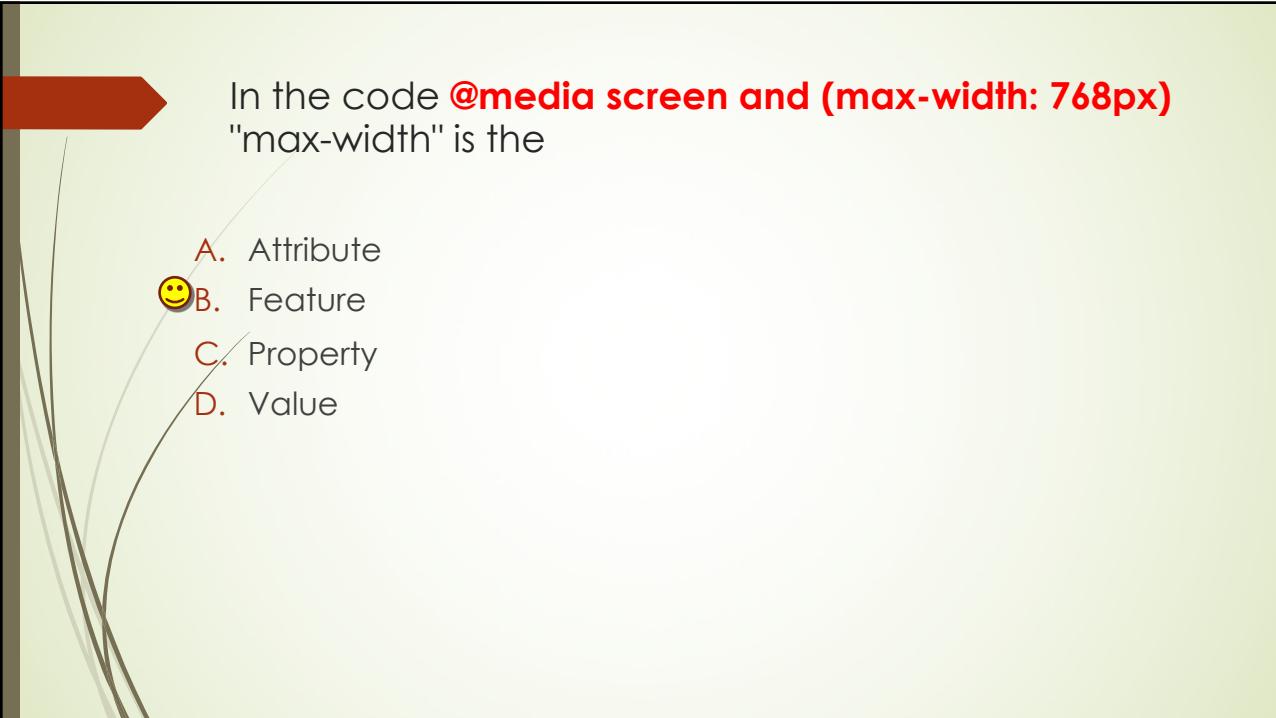
If the screen is 400 px wide, the image width is 300 px, and max-width is set to 100%, what width will be used for the image?

-  A. 300 px
- B. 350 px
- C. 400 px
- D. Impossible to tell – need more information



Styles in **@media screen and (max-width: 768px)** will affect screens that are

-  A. Less than 768px wide
- B. More than 768px wide
- C. Less than 768px tall
- D. More than 768px tall
- E. All screens



In the code **@media screen and (max-width: 768px)** "max-width" is the

- A. Attribute
-  B. Feature
- C. Property
- D. Value

In the code **@media screen and (max-width: 768px)**
"max-width" is the

@media screen and (max-width: 768px)

screen is the "**media type**" **max-width** is the "**feature**" and **768px** is the "**value**"

Where does the character encoding NOT need to be set in order to display correctly?

- A. HTML page meta tag
- B. Text editor
-  C. Web browser
- D. Web server (HTTP header)

You can tell that you are working on an XHTML file because the document type declaration is <!DOCTYPE XHTML>

- A. True
-  B. False

CSS Templates: XHTML

DOCTYPE declaration	Version of HTML
<!DOCTYPE html>	HTML 5
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">	XHTML 1.0 Strict
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">	XHTML 1.0 Transitional

The color #0000ff is

- A. Black
-  B. Blue
- C. Green
- D. Red
- E. White

The color rgb(0,0,0) is

-  A. Black
- B. Blue
- C. Green
- D. Red
- E. White

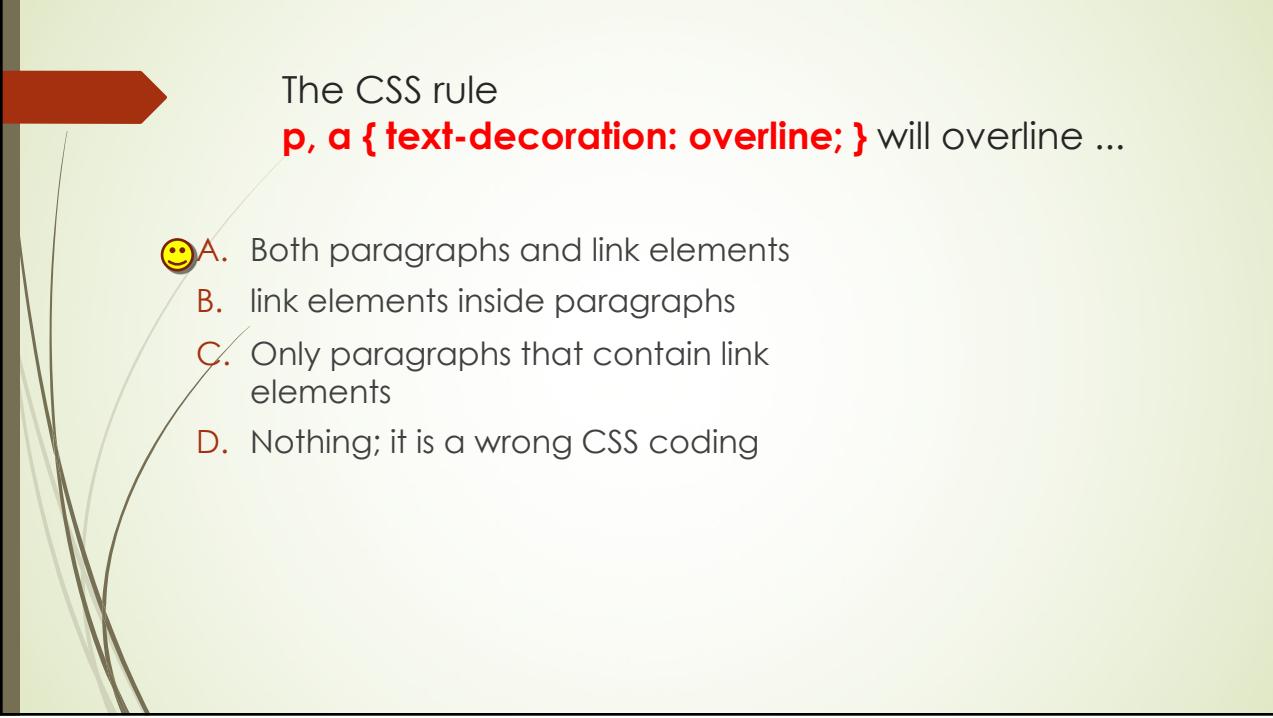
The color hsl(0,50%,50%) is

- A. Black
- B. Blue
- C. Green
-  D. Red
- E. White

The CSS rule

p a { text-decoration: overline; } will overline ...

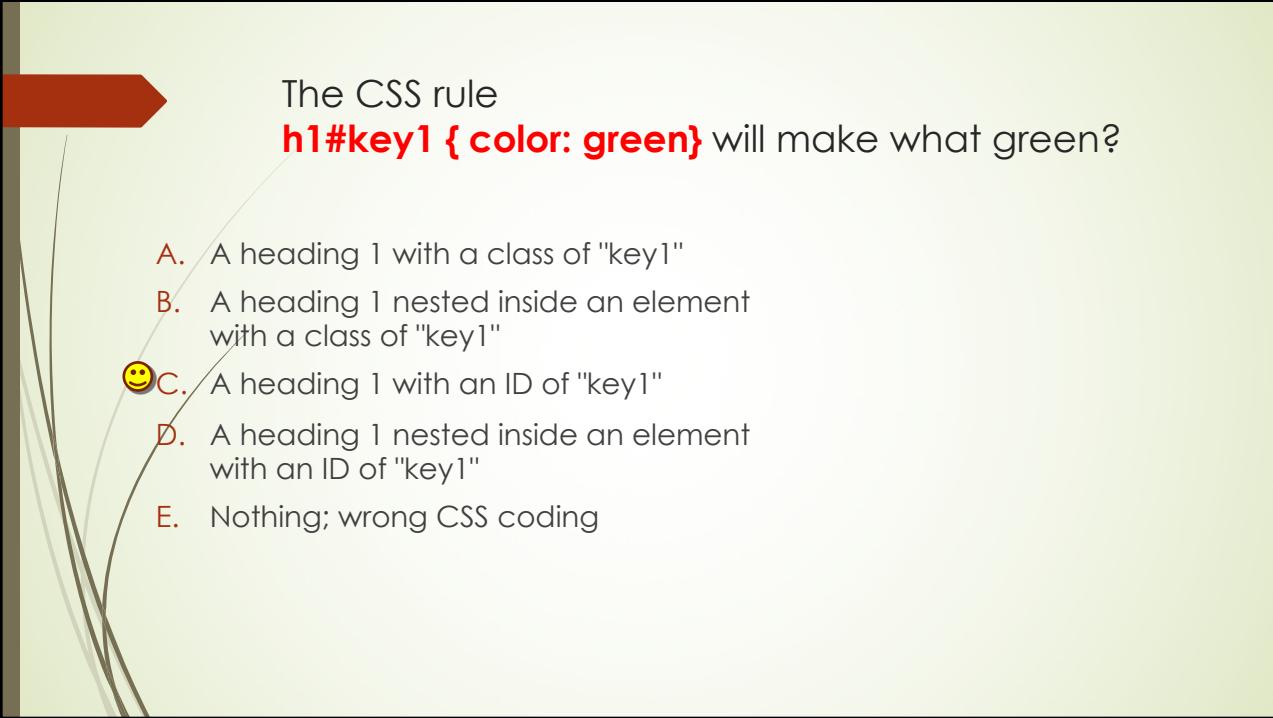
- A. Both paragraphs and link elements
-  B. link elements inside paragraphs
- C. Paragraphs that contain link elements
- D. Nothing; it is a wrong CSS coding



The CSS rule

p, a { text-decoration: overline; } will overline ...

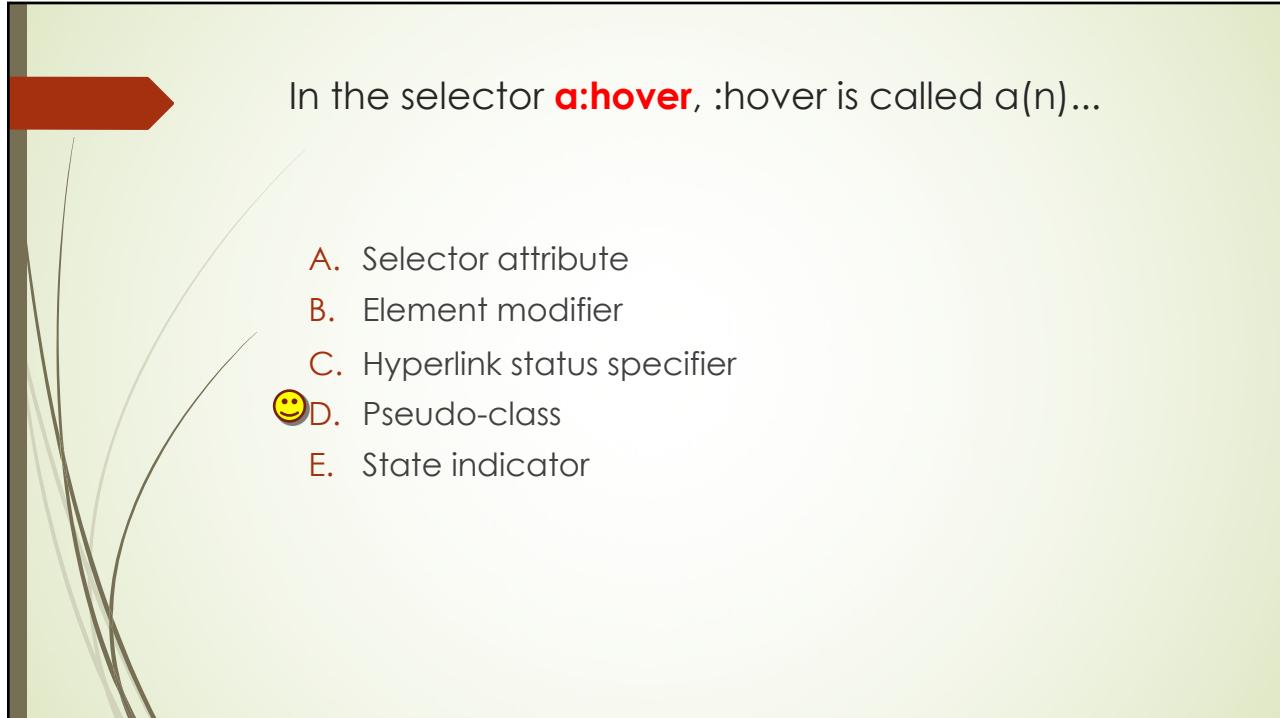
-  A. Both paragraphs and link elements
- B. link elements inside paragraphs
- C. Only paragraphs that contain link elements
- D. Nothing; it is a wrong CSS coding



The CSS rule

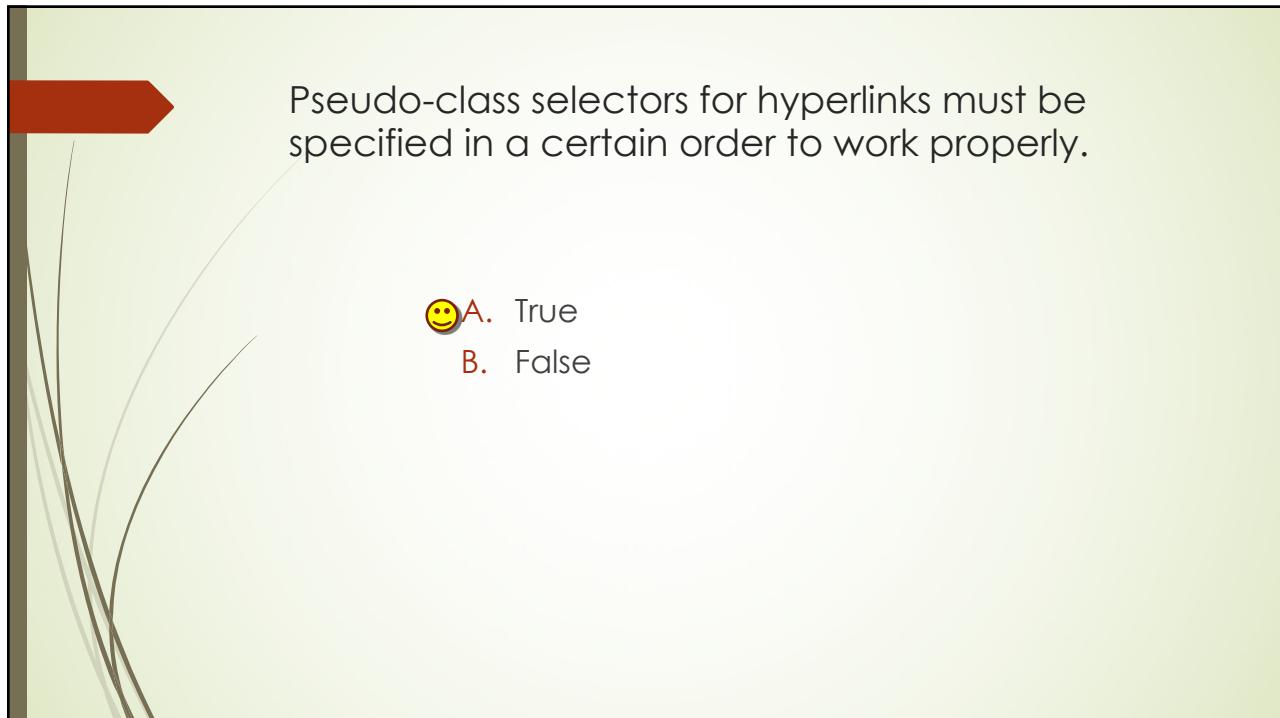
h1#key1 { color: green; } will make what green?

- A. A heading 1 with a class of "key1"
- B. A heading 1 nested inside an element with a class of "key1"
-  C. A heading 1 with an ID of "key1"
- D. A heading 1 nested inside an element with an ID of "key1"
- E. Nothing; wrong CSS coding



In the selector **a:hover**, :hover is called a(n)...

- A. Selector attribute
- B. Element modifier
- C. Hyperlink status specifier
-  D. Pseudo-class
- E. State indicator



Pseudo-class selectors for hyperlinks must be specified in a certain order to work properly.

-  A. True
- B. False