Getting to know HTML5

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HTML Review

• Entire page is in `<html></html>` tags.
• HTML blocks contain `<head></head>` and `<body></body>` tags.
• Head blocks may contain `<title></title>`, `<meta></meta>`, and `<script></script>` tags.
• Body blocks contain content for the page:
  – Paragraphs: `<p></p>`
  – Headers: `<h1></h1>`
  – Images: `<img></img>`
  – Anchors (links): `<a></a>`
  – Scripts: `<script></script>`
  – Breaks: `<br>`
  – ...
Head First Lounge (HTML4)

<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
<html>
<head>
  <title>Head First Lounge</title>
  <meta http-equiv="content-type" content="text/html; charset=UTF-8">
</head>
<body>
  <h1>Welcome to Head First Lounge</h1>
  <p>
    <img src="drinks.gif" alt="Drinks">
  </p>
  <p>
    Join us any evening for refreshing elixirs, conversation and maybe a game or two of Tap Tap Revolution. Wireless access is always provided; BYOWS (Bring Your Own Web Server).
  </p>
</body>
</html>
<!doctype html>
<html>
<head>
<title>Head First Lounge</title>
<meta charset="utf-8">
</head>
<body>
<h1>Welcome to Head First Lounge</h1>
<p>
<img src="drinks.gif" alt="Drinks">
</p>
<p>
Join us any evening for refreshing elixirs, conversation and maybe a game or two of Tap Tap Revolution. Wireless access is always provided; BYOWS (Bring Your Own Web Server).
</p>
</body>
</html>
Hello World

<!doctype html>
<html lang="en">
<head>
  <title>Hello World!</title>
  <meta charset="utf-8">
  <script>
    alert("Hello World!");
  </script>
</head>
<body>
</body>
</html>
Hello World

<!doctype html>
<html lang="en">
<head>
    <title>Hello World!</title>
    <meta charset="utf-8">
    <script>
        alert("Hello World!");
    </script>
</head>
<body>
</body>
</html>
Alert Statements

• `alert("Hello World!");`
  – Opens a message box containing the literal text “Hello World!”
Hello World

<!doctype html>
<html lang="en">
<head>
    <title>Hello World!</title>
    <meta charset="utf-8">
    <script>
        alert("Hello World!");
    </script>
</head>
<body>
</body>
</html>
Hello World (again)

<!doctype html>
<html lang="en">
<head>
  <title>Hello World!</title>
  <meta charset="utf-8">
  <script>
    document.write("Hello World!");
  </script>
</head>
<body>
</body>
</html>
Hello World (again)

<!doctype html>
<html lang="en">
<head>
  <title>Hello World!</title>
  <meta charset="utf-8">
  <script>
    document.write("Hello World!");
  </script>
</head>
<body>
</body>
</html>
Writing to the page

- document.write("Hello World!");
  - Writes the literal text “Hello World!” to the page.
Hello World (again)

<!doctype html>
<html lang="en">
<head>
    <title>Hello World!</title>
    <meta charset="utf-8">
    <script>
        document.write("Hello World!");
    </script>
</head>
<body>
</body>
</html>
<!doctype html>
<html lang="en">
<head>
    <title>Dog</title>
    <meta charset="utf-8">
</head>
<body>
<p id="soundslike"></p>
<script>
    var walksLike = "duck";
    var soundsLike = document.getElementById("soundslike");
    if (walksLike == "dog") {
        soundsLike.innerHTML = "Woof! Woof!";
    }
    else if (walksLike == "duck") {
        soundsLike.innerHTML = "Quack, Quack";
    }
    else {
        soundsLike.innerHTML = "Silence";
    }
</script>
</body>
</html>
<!doctype html>
<html lang="en">
<head>
    <title>Dog</title>
    <meta charset="utf-8">
</head>
<body>
<p id="soundslike"></p>
<script>
    var walksLike = "duck";
    var soundsLike = document.getElementById("soundslike");
    if (walksLike == "dog") {
        soundsLike.innerHTML = "Woof! Woof!";
    }
    else if (walksLike == "duck") {
        soundsLike.innerHTML = "Quack, Quack";
    }
    else {
        soundsLike.innerHTML = "Silence";
    }
</script>
</body>
</html>
Variables

• `var walksLike = "duck";`  
  – Sets the variable `walksLike` to the literal text “duck”.

• `var soundsLike = document.getElementById("soundslike");`  
  – Sets the variable `soundsLike` to the element in the page with ID “soundslike”.
Some JavaScript

```html
<!doctype html>
<html lang="en">
<head>
  <title>Dog</title>
  <meta charset="utf-8">
</head>
<body>
<p id="soundslike"></p>
<script>
  var walksLike = "duck";
  var soundsLike = document.getElementById("soundslike");
  if (walksLike == "dog") {
    soundsLike.innerHTML = "Woof! Woof!";
  }
  else if (walksLike == "duck") {
    soundsLike.innerHTML = "Quack, Quack";
  }
  else {
    soundsLike.innerHTML = "Silence";
  }
</script>
</body>
</html>
```
Conditionals

• if (walksLike == "dog") {
    soundsLike.innerHTML = "Woof! Woof!";
}
  – If the variable walksLike is equal to the literal text “dog”, set the inner HTML of the soundsLike element to the literal text “Woof! Woof!”.

• else if (walksLike == "duck") {
    soundsLike.innerHTML = "Quack, Quack";
}
  – If the variable walksLike was not equal to the literal text “dog” but is equal to the literal text “duck”, set the inner HTML of the soundsLike element to the literal text “Quack, Quack”.

• else {
    soundsLike.innerHTML = "Silence";
}
  – If the variable walksLike was not equal to the literal text “dog” or the literal text “duck”, set the inner HTML of the soundsLike element to “Silence”.
Some JavaScript

```html
<!doctype html>
<html lang="en">
<head>
  <title>Dog</title>
  <meta charset="utf-8">
</head>
<body>
  <p id="soundslike"></p>
  
  <script>
    var walksLike = "duck";
    var soundsLike = document.getElementById("soundslike");
    if (walksLike == "dog") {
      soundsLike.innerHTML = "Woof! Woof!";
    }
    else if (walksLike == "duck") {
      soundsLike.innerHTML = "Quack, Quack";
    }
    else {
      soundsLike.innerHTML = "Silence";
    }
  </script>
</body>
</html>
```
Random Numbers

• Useful functions:
  – Math.random()
    • Returns a pseudorandom real number between 0.0 (inclusive) and 1.0 (exclusive)
    • For example:
      – alert(Math.random())
  – Math.floor(number)
    • Returns the specified number rounded down to the nearest integer (i.e., whole number)
    • For example:
      – alert(Math.floor(10.5))
  – Use these together to create pseudorandom integers:
    • For example, print an integer between 0 (inclusive) and 9 (inclusive)
      – alert(Math.floor(Math.random()*10) )
Random Example

• `alert(Math.floor(Math.random()*10 + 1))`
Random Example

• `alert(Math.floor(Math.random()*10 + 1))`
  – This will print a random number between 1 (inclusive) and 10 (inclusive).
More JavaScript

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>My First JavaScript</title>
    <meta charset="utf-8">
</head>
<body>
    <script>
        // substitute your favorite drink below
        var drink = "Energy Drink";
        var lyrics = "";
        var cans = 99;
        while (cans > 0) {
            lyrics = lyrics + cans + " cans of " + drink + " on the wall <br>
            lyrics = lyrics + cans + " cans of " + drink + "<br>
            lyrics = lyrics + "Take one down, pass it around, <br>
            if (cans > 1) {
                lyrics = lyrics + (cans-1) + " cans of " + drink + " on the wall <br>
            }
            else {
                lyrics = lyrics + "No more cans of " + drink + " on the wall <br>
            }
            cans = cans - 1;
        }
        document.write(lyrics);
    </script>
</body>
</html>
```
// substitute your favorite drink below
var drink = "Energy Drink";
var lyrics = "";
var cans = 99;
while (cans > 0) {
    lyrics = lyrics + cans + " cans of " + drink + " on the wall <br>";
    lyrics = lyrics + cans + " cans of " + drink + "<br>";
    lyrics = lyrics + "Take one down, pass it around, <br>"
    if (cans > 1) {
        lyrics = lyrics + (cans-1) + " cans of " + drink + " on the wall <br>";
    }
    else {
        lyrics = lyrics + "No more cans of " + drink + " on the wall <br>";
    }
    cans = cans - 1;
}
document.write(lyrics);
// substitute your favorite drink below
var drink = "Energy Drink";
var lyrics = "";
var cans = 99;
while (cans > 0) {
    lyrics = lyrics + cans + " cans of " + drink + " on the wall <br>";
    lyrics = lyrics + cans + " cans of " + drink + "<br>";
    lyrics = lyrics + "Take one down, pass it around, <br>";
    if (cans > 1) {
        lyrics = lyrics + (cans-1) + " cans of " + drink + " on the wall <br>";
    }
    else {
        lyrics = lyrics + "No more cans of " + drink + " on the wall <br>";
    }
    cans = cans - 1;
}
document.write(lyrics);
Iteration

• var cans = 99;
  while (cans > 0) {
    ...
    cans = cans - 1;
  }

  – Execute the code inside the braces (AKA curly brackets) as long as the variable cans is greater than 0.
// substitute your favorite drink below
var drink = "Energy Drink";
var lyrics = "";
var cans = 99;
while (cans > 0) {
    lyrics = lyrics + cans + " cans of " + drink + " on the wall <br>
    lyrics = lyrics + cans + " cans of " + drink + "<br>
    lyrics = lyrics + "Take one down, pass it around, <br>
    if (cans > 1) {
        lyrics = lyrics + (cans-1) + " cans of " + drink + " on the wall <br>
    }
    else {
        lyrics = lyrics + "No more cans of " + drink + " on the wall <br>
    }
    cans = cans - 1;
}
document.write(lyrics);
</script>
Concatenation

- `var drink = "Energy Drink";`
- `var lyrics = "";`
- `var cans = 99;`
- `lyrics = lyrics + cans + " cans of " + drink + " on the wall <br>";`
  - Set the variable lyrics to its current value plus the current value of the cans variable plus the literal text “ cans of” plus the value of the drink variable plus the literal text “ on the wall <br>”.


More JavaScript

```javascript
// substitute your favorite drink below
var drink = "Energy Drink";
var lyrics = "";
var cans = 99;
while (cans > 0) {
    lyrics = lyrics + cans + " cans of " + drink + " on the wall <br>";
    lyrics = lyrics + cans + " cans of " + drink + "<br>";
    lyrics = lyrics + "Take one down, pass it around, <br>";
    if (cans > 1) {
        lyrics = lyrics + (cans - 1) + " cans of " + drink + " on the wall <br>";
    }
    else {
        lyrics = lyrics + "No more cans of " + drink + " on the wall <br>";
    }
    cans = cans - 1;
}
document.write(lyrics);
</script>
```
More Conditions

• if (cans > 1) {
    lyrics = lyrics + (cans-1) + " cans of " + drink + " on the wall <br>";
}
  – Indicate that there are cans remaining.

• else {
    lyrics = lyrics + "No more cans of " + drink + " on the wall <br>";
}
  – Otherwise, indicate that there are no cans remaining.
More JavaScript

<script>
    // substitute your favorite drink below
    var drink = "Energy Drink";
    var lyrics = "";
    var cans = 99;
    while (cans > 0) {
        lyrics = lyrics + cans + " cans of " + drink + " on the wall <br>";
        lyrics = lyrics + cans + " cans of " + drink + "<br>";
        lyrics = lyrics + "Take one down, pass it around, <br>";
        if (cans > 1) {
            lyrics = lyrics + (cans - 1) + " cans of " + drink + " on the wall <br>";
        }
        else {
            lyrics = lyrics + "No more cans of " + drink + " on the wall <br>";
        }
        cans = cans - 1;
    }
    document.write(lyrics);
</script>
Document Writing

• `document.write(lyrics);`
  – Writes the current value of the lyrics variable directly to the page.
More JavaScript

<script>
// substitute your favorite drink below
var drink = "Energy Drink";
var lyrics = ";
var cans = 99;
while (cans > 0) {
    lyrics = lyrics + cans + " cans of ", drink + " on the wall <br>
    lyrics = lyrics + cans + " cans of " + drink + "<br>
    lyrics = lyrics + "Take one down, pass it around, <br>
    if (cans > 1) {
        lyrics = lyrics + (cans-1) + " cans of " + drink + " on the wall <br>
    }
    else {
        lyrics = lyrics + "No more cans of " + drink + " on the wall <br>
    }
    cans = cans + 1;
}
document.write(lyrics);
</script>