Web Design

JavaScript Basic Introduction

Third Stage/Semester 1

Lecture

6

2021-22

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Outlines

- What is JavaScript? .

- What can JavaScript do?

- Adding JavaScript in HTML.

- JavaScript Data Types, Variables and Display Information.

- JavaScript Popup Boxes.

What is JavaScript?

JavaScript is a client side scripting language used to make web pages interactive and it is designed for performing dynamic tasks.

What can a JavaScript do?

- Add interactivity to the website

  JavaScript can be set to execute when something happens, like when a page has finished

  loading or when a user clicks on a button.

- Change page contents dynamically

  JavaScript read and change the content of an HTML elements and it can also change HTML

  Styles (CSS) as well.

Where to Insert JavaScript

1. Head Section: JavaScripts will be executed when function is **called**.

2. Body Section: JavaScripts will be executed while the page **loads** or it will be executed while **calling** the function .

3. External JavaScript file: it will be executed when we want to run the same JavaScript on several pages and is saved in (file extension .js.)

Head Section

Example1: Head section

```
<html><head>
  <script type="text/javascript">
        function message()
            {
        alert(" This alert box was called with the onclick event ");
                }
  </script>
</head>
<body>
        <h1>JavaScript in Head Section</h1>
    <input type="button" onclick="message()" value="Click Me">
</body></html>
```

Body Section

Example2: Body section

```html
<html><head></head>
 <body>
         <h1>JavaScript in Body Section</h1>
     <script type="text/javascript">
     document.write("This message will be executed while the
                         page loads.");
     </script>
 </body>
</html>
```

External JavaScript file

Example3: External File

```html
<html><head>
</head><body>
 <p>
    The actual script is saved in an external script file called "External.js".
   </p>
<script src="External.js">
</script>
</body></html>
```

External.js:

```
document.write("This is the actual script");
```

JavaScript Data Types, Variables and Display Information

- **document.write** is used to display the output.

- Java Script code located inside <script> JavaScriptCode </script> element.

- **Example4:** <script>

    var x = 2244;

        document.write("<p>x = " + x + "</p>");

    var x = "JavaScript";

        document.write("<p>x = " + x + "</p>");

</script>

JavaScript Popup Boxes

- Alert box.

- Confirm box.

- Prompt box.

Alert Box

- **Alert** box is used to display data.

- It is mostly used to give a warning message to the users.

- **Example5: Alert box**

        `<head>`

                `<script>`

                        `alert(" welcome");`

                `</script>`

        `</head>`

Confirm Box

- **Confirm** box is often used if you want the user to verify or accept something.

- It displays a box with two buttons: OK and Cancel.

- If the user clicks "OK", the box returns true. If the user clicks "Cancel", the box returns false.

- **Example6: Confirm box**

  <head> <script>

  confirm(" Are you sure");

  </script> </head>

Prompt Box

- **Prompt** box is often used if you want get user input. Thus it enable you to interact with the user.

- It displays a box with two buttons: OK and Cancel.

- If the user clicks "OK" the box returns the input value. If the user clicks "Cancel" the box returns null.

- **Example7: Prompt box**

```
<head> <script>

        prompt(" what is your name  ", " enter name ") ;

</script> </head>
```

Alert, Confirm & Prompt Example

Example8: Alert, Confirm & Prompt box

```
<head><script>

userage = confirm("  is your age less than 20 ");

username = prompt(" your name", "enter name");

 alert( "  welcome " + username );

 document.write( "<b>  welcome : </b>" + username + "<br>" );

document.write( "<b>  your age is less than 20   : </b>" + userage + "<br>" );

 </script></head>
```

Function

- A function is a reusable code-block that will be executed by an event, or when the function is called.

- To keep the browser from executing a script when the page loads, you can put your script into a function.

- **Example9: Function**

```
<html> <head>
      <script type="text/javascript">
            function myfunction()
                  {      alert("Hello");      }
      </script>
</head> <body>
<form>
<input type="button" onclick="myfunction()" value="Call function">
</form></body>
```

Arithmetic Operators

Operator	Description	Example	Result
+	Addition	x=y+2	x=7
-	Subtraction	x=y-2	x=3
*	Multiplication	x=y*2	x=10
/	Division	x=y/2	x=2.5
%	Modulus	x=y%2	x=1
++	Increment	x=++y	x=6
--	Decrement	x=--y	x=4

Comparison and Logical Operators

Operator	Description	Example
==	is equal to	x==8 is false
!=	is not equal	x!=8 is true
>	is greater than	x>8 is false
<	is less than	x<8 is true
>=	is greater than or equal to	x>=8 is false
<=	is less than or equal to	x<=8 is true

Conditional Statements

Example10: Conditional Statements

```html
<html><body>
    <script type="text/javascript">
            x=5, y=3;
        if (x=>y)
                document.write("the number of X="+x);
            else
                document.write("the number of Y="+y);
</script>
</body></html>
```

For loop

Example11: For Loop

```html
<html>
<body>
    <script type="text/javascript">
        for (i = 0; i <= 5; i++)
            {
                document.write("The number is " + i);
                document.write("<br />");
            }
</script>
</body>
</html>
```

What can a JavaScript do?

- Add interactivity to the website.

- JavaScript can change HTML content.

- JavaScript can change HTML attributes.

- JavaScript can change CSS style.

JavaScript Can Change HTML Contents

- **getElementById()** method is used to find an HTML element (with id="demo"**)**

- **innerHTML** uses to changes the element content "Hello JavaScript":

JavaScript Can Change HTML Contents

Example12: Changing HTML Contents

```
<html>
    <body>
    <p id="demo">JavaScript</p>


<script>

  document.getElementById("demo").innerHTML = "HelloWorld!";

</script>


    </body>
    </html>
```

Changing HTML attributes

Example13: Changing HTML Attributes

```
<html><body>

<img id="image" src="images/css_image.jpg" width="160" height="120">

<script>

function changeimage(){

document.getElementById("image").src = "images/html_image.jpg";

}

</script>

<input type="button" onclick="changeimage()" value="Click Me">

<p>The original image was CSS.jpg, but the script changed it to HTML.jpg</p>

</body></html>
```

JavaScript Can Change HTML Styles (CSS)

Example14: Changing CSS Style

<html><body>

       <p id="demo"> JavaScript can change HTML Style</p>

<script>

       document.getElementById("demo").style.fontSize = "25px";

       document.getElementById("demo").style.color = "red";

</script>

</body></html>

JavaScript Events

- Events are actions that can be detected by JavaScript.

- Examples of events
  - A mouse click
  - A web page or an image loading
  - Mousing over a hot spot on the web page
  - Selecting an input box in an HTML form
  - Submitting an HTML form

HTML events

HTML Events	Description
onload and onUnload	They are used when the user enters or leaves the page.
onClick	The user clicks an HTML element
onchange	An HTML element has been changed
onSubmit	It is used to validate ALL form fields before submitting it.
onmouseover	The user moves the mouse over an HTML element
onmouseout	The user moves the mouse away from an HTML element
onMouseOver and onMouseOut	They are often used to create "animated" buttons.

Onclick Event

Example15: Onclick Event

```html
<html><head>

  <script type="text/javascript">

        function message()

            {

        alert(" This alert box was called with the onclick event ");

              }

  </script>

</head>

<body>

    <input type="button" onclick="message()" value="Click Me">

</body></html>
```

Onmouseover Event

Example16: OnmouseOver Event

```html
<html><head>
  <script type="text/javascript">
        function message()
          {
                alert(" This alert box was called with the
                   onmuseover event ");
          }
  </script></head>
<body>
<input type="button" onmouseover="message()" value="Click Me">
</body></html>
```