Javascript & AJAX Tutorial

Eclipse JSDT & First JavaScript page

- JavaScript Development Tool plugin (JSDT) for Eclipse

- Cài đặt JSDT cho Eclipse:
  - Menu Help/Eclipse Marketplace
  - Search: JSDT
  - Eclipse Web Developer Tools 3.16
  - Install

- New JavaScript Project…

- New File…

- JavaScript
  - Object *document*
  - www.w3schools.com/jsref/dom_obj_document.asp
  - Method *getElementById()*

```html
<html>
<body>

<h2>My First JavaScript Page</h2>

   <button type="button"
      onclick="document.getElementById('demo').innerHTML = Date()">
      Click me to display Date and Time.
   </button>


<p id="demo"></p>

</body>
</html>
```

My First JavaScript Page

Click me to display Date and Time.

Wed Apr 22 2020 10:54:43 GMT+0700 (SE Asia Standard Time)

Change HTML Attribute Values

- Button
  - Event
  - Onclick
  - www.w3schools.com/jsref/event_onclick.asp
- DOM Events
  - www.w3schools.com/jsref/dom_obj_event.asp


```
<html>
<body>
  <h2>What Can JavaScript Do?</h2>

  <p>JavaScript can change HTML attribute values.</p>

  <p>In this case JavaScript changes the value of the src (source)
attribute of an image.</p>

  <button
    onclick="document.getElementById('myImage').src='pic_bulbon.gif'">
    Turn on the light
  </button>

  <img id="myImage" src="pic_bulboff.gif" style="width:100px">

  <button
    onclick="document.getElementById('myImage').src='pic_bulboff.gif'">
    Turn off the light
  </button>

</body>
</html>
```

Change more in HTML DOM

- Change CSS:
  - document.getElementById("demo").style.fontSize = "35px";
- Show & hide HTML element:
  - document.getElementById("demo").style.display = "none";
  - document.getElementById("demo").style.display = "block";
- More:
  - New DOM element
  - . . .

```html
<html>
<body>

  <h2>What Can JavaScript Do?</h2>

  <p>JavaScript can show hidden HTML elements.</p>

  <p id="demo" style="display:none">
    Hello JavaScript!
  </p>

  <button type="button"
onclick="document.getElementById('demo').style.display='block'">Click Me!
  </button>

</body>
</html>
```

Script organization
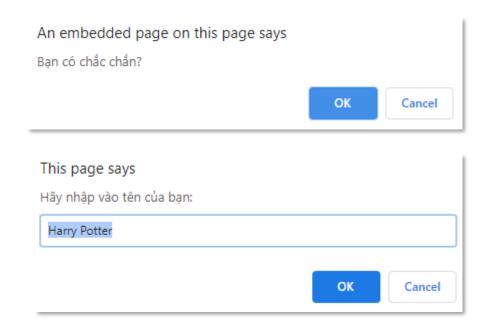
- The <script> Tag
  - Intjected script code in <BODY>
  - Function in <HEAD>
  - External js file: <script src="myScript.js"></script>

- Create new DOM element

```html
<html>
<body>
  <h2>JavaScript in Body</h2>
  <p id="demo"></p>
  <script>
    document.getElementById("demo").innerHTML
      = "My First JavaScript";
  </script>
</body>
</html>
```

```html
<html>
<head>
  <script>
    function myFunction() {
      var ele = document.createElement("p");
      ele.innerText = "New text just added";
      document.body.appendChild(ele);
    }
  </script>
</head>

<body>
  <h1>A Web Page</h1>
  <p id="demo">A Paragraph</p>
  <button type="button" onclick="myFunction()">Try it
  </button>
</body>
</html>
```

```html
<html>
<head>
  <script>
    function myFunction() {
      document.getElementById("demo").innerHTML
        = "Paragraph changed.";
    }
  </script>
</head>

<body>
  <h1>A Web Page</h1>
  <p id="demo">A Paragraph</p>
  <button type="button" onclick="myFunction()">Try it
  </button>
</body>
</html>
```

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Input & Output

- **Imput by message box**
  - Confirm box:
    ```
    var txt;
    if (confirm("Bạn có chắc chắn?")) {
      txt = "You pressed OK!";
    } else {
      txt = "You pressed Cancel!";
    }
    ```
  - Promp box to get data input
    ```
    var txt;
    var person = prompt("Hãy nhập vào tên của bạn:", "Harry Potter");
    if (person == null || person == "") {
        txt = "User cancelled the prompt.";
      } else {
        txt = "Hello " + person + "! How are you today?";
    }
    ```

An embedded page on this page says

Bạn có chắc chắn?

OK   Cancel

This page says

Hãy nhập vào tên của bạn:

Harry Potter

OK   Cancel

- **Output in HTML page**
  - Writing into an HTML element, using *innerHTML*
  - Writing into the HTML output using *document.write()*
  - Writing into an alert box, using *window.alert()*
- **Output in browser console**
  - using *console.log()*

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Coding Syntax

- Variables define & value assignment
- Operators: +, -, *, /
- Data types (dynamic detection): numbers, strings, objects
  - var length = 16;   // Number
  - var lastName = "Johnson";   // String
  - var x = {firstName:"John", lastName:"Doe"};   // Object
- Statements (các câu lệnh)
- Semicolons ;
- Code Blocks {...}
- Keywords: do while, for, function, return, if else, switch, var, try catch, v.v…
- Comments: //, /*…*/
- Object, fields & methods

Events

- **"things" that happen to HTML elements:**
    - An HTML web page has finished loading
    - An HTML input field was changed
    - An HTML button was clicked
    - V.v... : www.w3schools.com/jsref/dom_obj_event.asp

- **Event handler**
    - Syntax: <element event='some JavaScript'>
    - Example: <button onclick="document.getElementById('demo').innerHTML = Date()">
    - Note: both single quote (') and double quote (") are fine

- **Common HTML Events**
    - onchange: An HTML element has been changed
    - onclick: The user clicks an HTML element
    - onmouseover: The user moves the mouse over an HTML element
    - onmouseout: The user moves the mouse away from an HTML element
    - onkeydown: The user pushes a keyboard key
    - onload: The browser has finished loading the page

More on JavaScript

- String
- Array
- Object-oriented Programming
- Exception control
- JSON(!)
- Form & form event

```
<form name="myForm" action="/action_page.php" onsubmit="return validateForm()" method="post">
    Name: <input type="text" name="fname">
    <input type="submit" value="Submit">
</form>
```

- Working with HTMP page: by *Document* object

AJAX