Exp Introduction to JavaScript, Form Validation, Event Handling

Objectives: To familiarize students with basic syntax of JavaScript, form validation and event handling.

Tools: Dreamweaver, Browser (Internet Explorer, Google Chrome or Firefox)

Procedure: Prompting the user to input her name and displaying user's name as part of the dialog box message. Also applying JavaScript validation on HTML form by providing required information.

JavaScript is a computer language specially designed to work with Internet Browsers. It lets you create small programs called scripts and embed them inside HTML pages to provide interactive content on your web pages. JavaScript is an interpreted language. This means that the script in not compiled before it is executed. We simply write a few lines of code inside an HTML page, save the page, and open the page in your web browser to test how it looks. JavaScript is an object-based scripting language. This means that it views everything as an object. The browser is an object. A window is an object. A button in a window is an object. Every object has properties. And we can use JavaScript to manipulate these properties. JavaScript supports event- driven programming. An event is an action that occurs when the user does something such as click a button or move the pointer over a graphic image.

JavaScript tags are embedded in HTML pages using **<script>...</script>** tags. The text inside script tags does not appears in the browser window—except for older browser that do not understand JavaScript. The tags can be placed within either the haead or body section of an HTML page. JavaScript tags can be referenced as an external .js file. JavaScript can also be placed with the HTML tags.

To use a variable in your script, that variable must first be declared by using *"var"* keyword as demonstrated below:

Variable names can consist only of uppercase and lowercase letters, the underscore character, and the numbers 0 through 9 and is case sensitive too. Variable names cannot contain spaces and cannot be used as reserved words. Scope of variable can be as local (that is explicitly declared using the “var” statement insides a function.) or global (any variable defined outside of a function).

For displaying output in a web browser, the following syntax is used:

document.write(“String”);

Functions – a function is a collection of statements that perform a given task. Most functions are defined in the head section of the HTML page because we will always know where our functions are

and second reason is that the head section always executes first, ensuring that functions are available when needed later in script. Function can be called by its name and ending with a semicolon as *FunctionName();*. Syntax for a function is shown here:

```
function FunctionName (arguments)
        {
                Statements;
        }
```

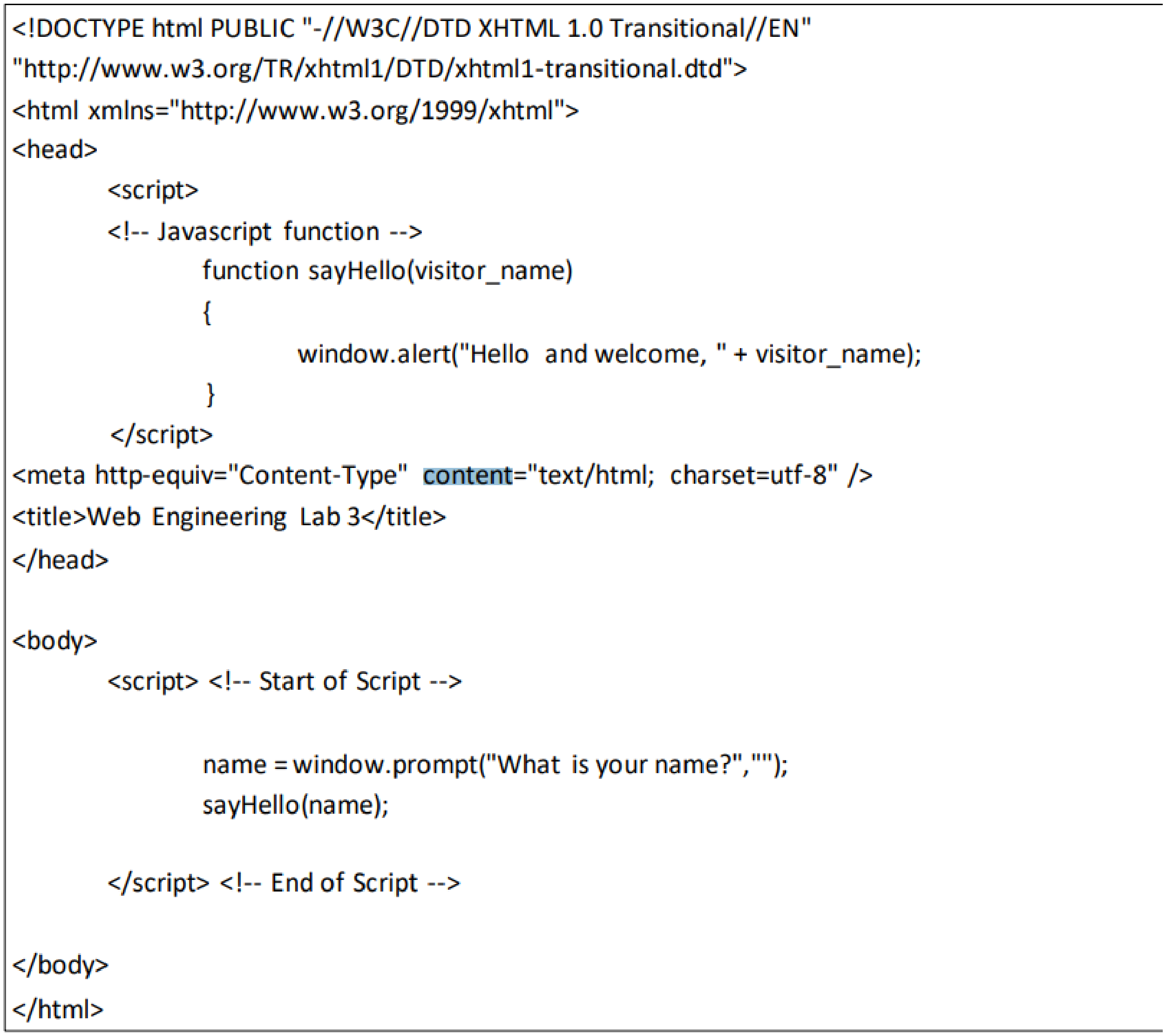
New keyword is used to create an Array object named **Auto** that will contain 2 entries. The rest of the statements assign string values to the array. Array contents can be display via loops.

Form validation – browser created a form object for every form element defined by <FORM> tags. We can assign a name to each element using the optional NAME = “” attribute for each element, or can use the forms [] array, which contains an index listing of every form element on the page beginning with a value of index of 0. Each form contains its own elements [] array that contains an aentry for each form elements on that particular form. For example, the fourth form element on a form called myForm can be reference as myForm.elements [3].

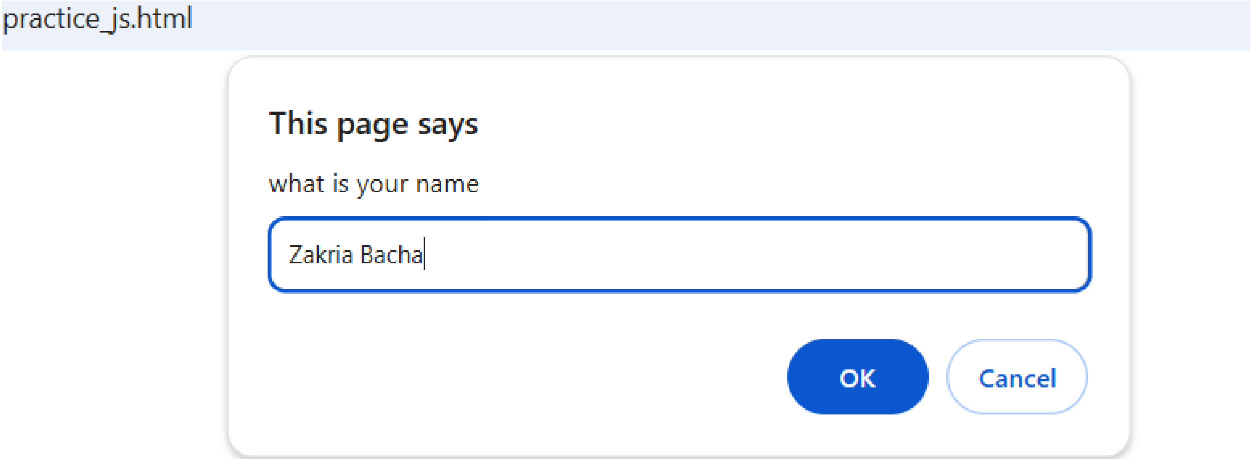
The real benefit of using JavaScript with your forms is to perform validation of use input. Validation allows you to ensure that the user has filled in all required fields and that valid data has been entered in those fields. When the use makes a mistake, you can display alert messages explaining the error and asking the user to correct the problem before submitting the form again.

JavaScript Events – an event occurs within the confines of the browser. Events include such activities as mouse clicks, mouse movement, pressing keyboard keys, the opening and closing of windows and frames and the resizing of windows. Each event is associate d with a specific object. When an event occurs for a given object, its event handler (a trap that recognizes the occurrence of a particular type of event) executes. For example, the click event occurs whenever a user clicks on a button, document, check box, link, radio option, reset button, or submit button.

JavaScript Animations - means number of DOM elements (<img/>, <div> or otherwise) are moved around the page according to some sort of pattern determined by a logical equation or function. JavaScript animations needed when we need significant control over animations like dynamically track a touch position, or an animation that we need to pause, stop or slow-down or if we are interested in making buttons light up or making browser pages come alive with movements. To achieve the effect of animation, elements must be moved at a given interval or frame rate; from a programming perspective, the simplest way to do this is to set up an animation loop with a delay.



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
        <script>
        <!-- Javascript function -->
                function sayHello(visitor_name)
                {
                        window.alert("Hello and welcome, " + visitor_name);
                }
        </script>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Web Engineering Lab 3</title>
</head>

<body>
        <script> <!-- Start of Script -->

                name = window.prompt("What is your name?","");
                sayHello(name);

        </script> <!-- End of Script -->

</body>
</html>
```

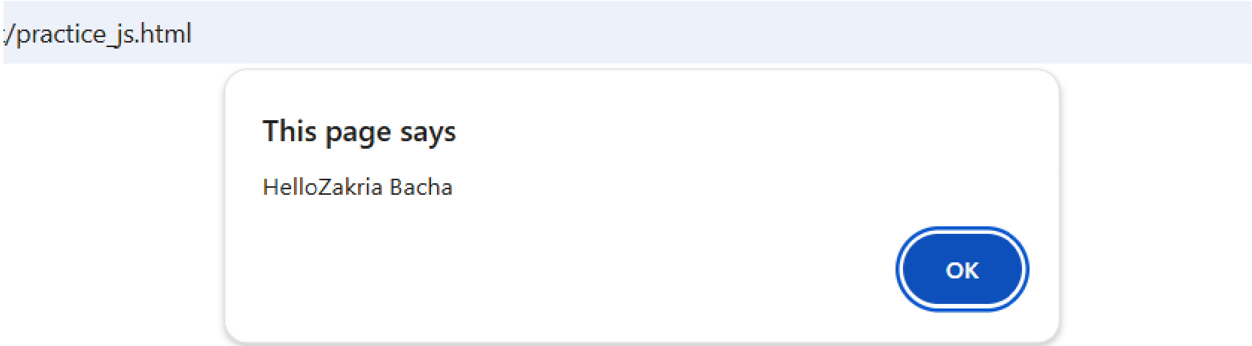


practice_js.html

This page says

what is your name

Zakria Bacha



:/practice_js.html

This page says

HelloZakria Bacha

```
<script>
        name = prompt("what is your name");
        sayHello(name);
```

Form validation:

```
</script>
    function validation()
    {
      if(document.getElementById("name").value==")
      {

        alert("Please enter your name");
        return false;
      }
      else if(document.getElementById("email").value==")
      {
        alert("please enter your email");
        return false;
      }

      else if(document.getElementById("add").value==")
      {
        alert("please enter your add");
        return false;
      }

      else if(document.getElementById("pass").value==")
      {
        alert("please enter your pass");
```

```
                return false;
            }
            else if(!document.getElementById("chk").checked)
            {
                alert("please agree with policy");
                return false;
            }
        }

    </script>

<h2>Sign Up Form (Java Script Validation)</h2>
    <form action="" method="post" onSubmit="return validation();" >
        <table>
            <tr>
                <td width="10%">Name:</td>
                <td width="90%"><input type="text" name="name" id="name" ></td>
            </tr>

            <tr>
                <td>Gender:</td>
                <td><input type="radio" name="gender" value="male" checked >Male <br>
                <input type="radio" name="gender" value="female" >Female </td>
            </tr>

            <tr>
```

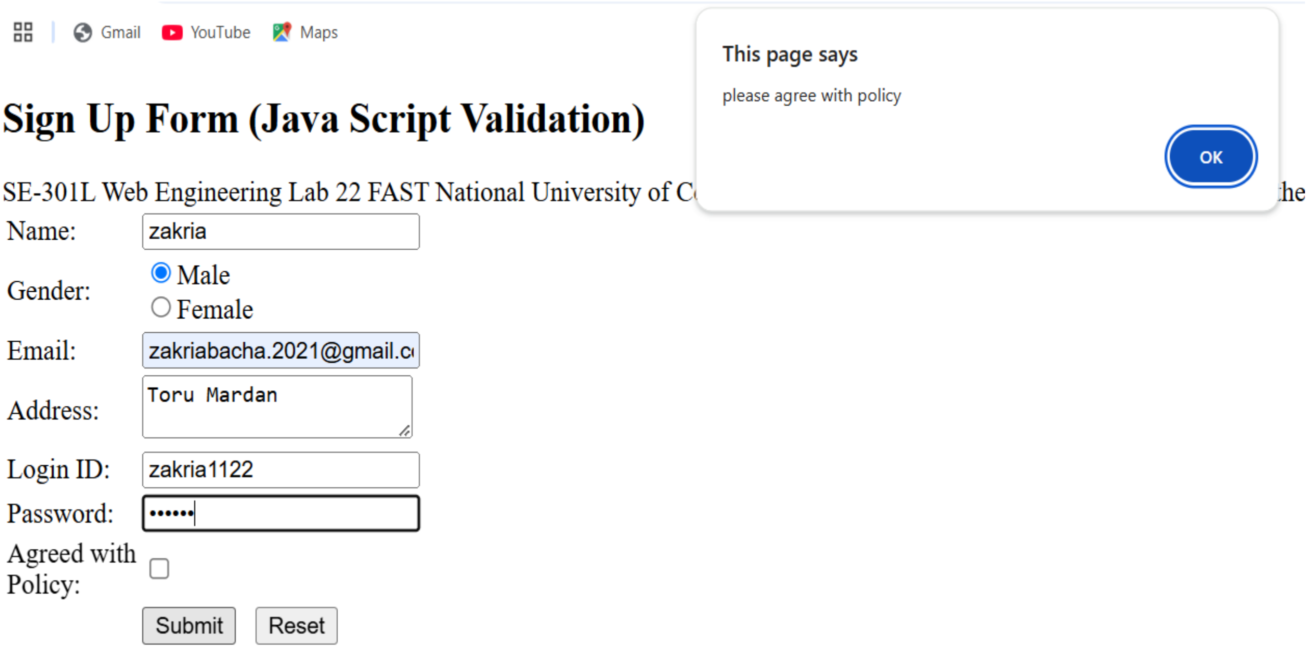
```
  <td>Email:</td>
  <td><input type="text" name="email" id="email" ></td>
</tr>
<tr>
```

Step 4: Open the Lab03a.html in web browser

Figure 11: Empty Sign up Form

```
  <td>Address:</td>
  <td><textarea name="add" id="add" ></textarea></td>
</tr>
<tr>
  <td>Login ID:</td>
  <td><input type="text" name="login" id="login" ></td>
</tr>
<tr>
  <td>Password:</td>
  <td><input type="password" name="pass" id="pass" ></td>
</tr>
<tr>
  <td>Agreed with<br> Policy:</td>
  <td><input type="checkbox" name="agree" id="chk" ></td>
</tr>
<tr>
  <td></td>
 <td ><input type="submit" value="Submit">&nbsp;&nbsp;&nbsp;<input type="reset"
```

```
        value="Reset"></td>
      </tr>
      </table>
    </form>
```



This page says

please agree with policy

Sign Up Form (Java Script Validation)

SE-301L Web Engineering Lab 22 FAST National University of C he

Name:	zakria
Gender:	● Male ○ Female
Email:	zakriabacha.2021@gmail.c
Address:	Toru Mardan
Login ID:	zakria1122
Password:	••••••
Agreed with Policy:	□
	Submit Reset

Event in JavaScript:

```
<h3 id="heading">Introduction to JavaScript Events</h3>
    <!-- Single, and double click events -->
    <form>
      <input type="button" value="Click Me" onClick="events();">
      <input type="button" value="Double Click" id="btn_click" title="Heading
      text changed.">
    </form>
```

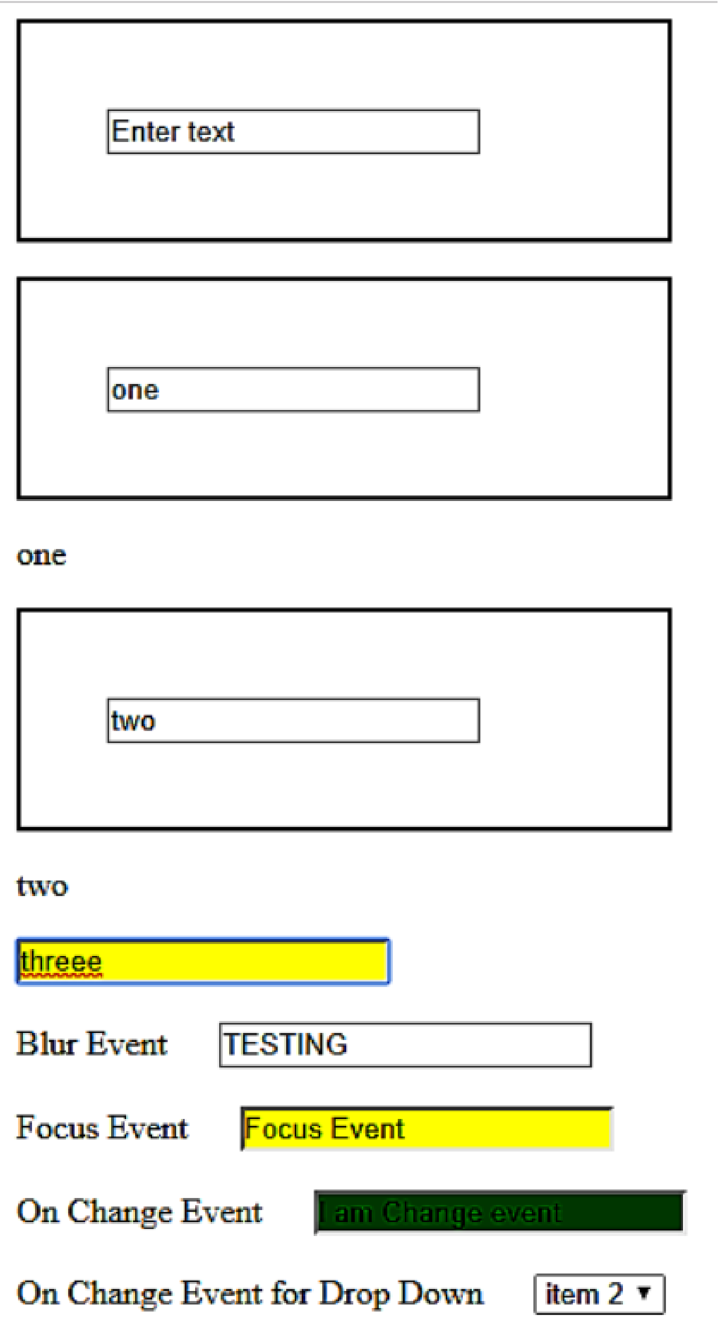
```
        <!-- Mouse events as onMouseOver and onMouseOut -->
        <p id="overMouse" onMouseOver="mouseOver();" onMouseOut="mouseOut();">I
        am mouse over and mouse out event.</p>

<!-- Keyboard event as onkeyup -->
<div id="demo_keyboard">
    <form>
        <input type="text" id="keyUpTextBox" placeholder="key up" onkeyup="keyupFunc();">
        <br>


    </form>
</div>
<p id="input_TextBox_data"></p>


<!-- Keyboard event as onkeydown -->
<div id="demo_keyboard_down">
    <form>
        <input type="text" id="keyDownTextBox" placeholder="key down"
onkeydown="keydownFunc();">
    </form>
</div>
<p id="input_TextBox_keyDown"></p>
```

```
    <input type="text" id="colortxtbox" onKeyDown="colorDown();" onKeyUp="colorUp();">
    <br><br>
    <form name="myform">
      Blur Event &emsp; <input type="text" id="blurEvent" onBlur="blur_Event();">
      <br /><br />

      Focus Event &emsp; <input type="text" id="focusEvent" onFocus="focus_Event();">
      <br /><br />
      On Change Event &emsp; <input type="text" id="onchangeEvent"
    onChange="onChangeEvent();">
      <br /><br />

      On Change Event for Drop Down &emsp; <select id="dropdown"
      onChange="dropDownChangeEvent();">
        <option>item 1</option>
        <option>item 2</option>
        <option>item 3</option>
      </select>

      <div>
       <p id="dropDownPara">I will change color and font size when you made changes in the
above
        drop down list.</p>
      </div>

      <input type="text" id="selectText" onSelect="selectTextEvent();">
    </form>

<!—Script for form validation 0 -- →


    <script>

      function events()
      {
        alert("I am clicked, event triggered");
      }

      // All event types
      let btn_click = document.getElementById("btn_click");
      let heading_txt = document.getElementById("heading");
      // Adding event handler

      btn_click.addEventListener("dblclick", ()=>{

          heading_txt.innerText = "I am changed";
        });



      function mouseOver() {
        document.getElementById("overMouse").style.color = "blue";
      }
```

```
            function mouseOut(){
                document.getElementById("overMouse").style.color = "yellow";
            }

            function keyupFunc() {
            let data = document.getElementById("keyUpTextBox").value;
            document.getElementById("input_TextBox_data").innerText = "KeyUp Input: " + data;
        }

        function keydownFunc() {
            let data = document.getElementById("keyDownTextBox").value;
            document.getElementById("input_TextBox_keyDown").innerText = "KeyDown Input: " + data;
        }

        // KeyDown event: change text color to red
        function colorDown() {
            document.getElementById("colortxtbox").style.color = "red";
        }

        // KeyUp event: change text color to green
        function colorUp() {
            document.getElementById("colortxtbox").style.color = "green";
        }
```

```
}

// Blur event: change background to lightgray
function blur_Event() {
    document.getElementById("blurEvent").style.backgroundColor = "lightgray";
}

// Focus event: change background to lightyellow
function focus_Event() {
    document.getElementById("focusEvent").style.backgroundColor = "lightyellow";
}

// Change event for text input
function onChangeEvent() {
    alert("Text input changed: " + document.getElementById("onchangeEvent").value);
}

// Change event for dropdown
function dropDownChangeEvent() {
    const para = document.getElementById("dropDownPara");
    para.style.color = "blue";
    para.style.fontSize = "20px";
}

// Select event
function selectTextEvent() {
    document.getElementById("selectTextarea").innerText = "You selected some text!";
}
```

```
    </script>
</body>
</html>
```



Enter text

one

one

two

two

threee

Blur Event TESTING

Focus Event Focus Event

On Change Event I am Change event

On Change Event for Drop Down item 2 ▼