

PRAKTIKUM 3

CLIENT SIDE SCRIPTING: JAVASCRIPT

1. Tujuan Praktikum

Setelah mengikuti praktikum ini mahasiswa diharapkan dapat melakukan client-side scripting pada halaman web menggunakan JavaScript.

2. Tools

Tools yang dibutuhkan untuk melakukan praktikum ini adalah web browser dan text editor (Notepad++).

3. Langkah-Langkah Praktikum

3.1. JavaScript Basic

Menuliskan teks 'Hello world' ke layar menggunakan document.write().

01_basic.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>Belajar Javascript</title>
5
6 </head>
7
8 <body>
9
10 <h1>Javascript</h1>
11 <script>
12     document.write("Hello world!!!");
13 </script>
14 </body>
15 </html>
```

Kode javascript dituliskan di antara tag <script>...</script> dan dapat dimasukkan di dalam tag <head> atau <body>. Kode JavaScript dapat pula ditulis secara eksternal.

Contoh penulisan JavaScript di dalam tag <head>.

02_basic.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>Belajar Javascript</title>
5 <script>
6 function myFunction() {
7     document.getElementById("paragraf").innerHTML = "Hypertext Markup Language";
8 }
9 </script>
10 </head>
11
12 <body>
13
14 <p id="paragraf">HTML</p>
15 <button type="button" onclick="myFunction()">Show Abbr</button>
16
17 </body>
18 </html>
```

Contoh penulisan kode JavaScript secara eksternal:

myScript.js

```
1 function myFunction() {  
2     document.getElementById("paragraf").innerHTML  
3     = "Hypertext Markup Language";  
4 }
```

03_basic.html

```
1 <!DOCTYPE html>  
2 <html>  
3 <head>  
4     <title>Belajar Javascript</title>  
5     <script src="js/myScript.js"></script>  
6 </head>  
7  
8 <body>  
9     <p id="paragraf">HTML</p>  
10    <button type="button" onclick="myFunction()">Show Abbr</button>  
11 </body>  
12 </html>
```

Kondisional: statement if-else

04_basic.html

```
1 <!DOCTYPE html>  
2 <html>  
3 <head>  
4     <title>Belajar Javascript</title>  
5 </head>  
6  
7 <body>  
8     <h1>Javascript</h1>  
9  
10    <script>  
11        var page = "Home";  
12  
13        if(page == "Home"){  
14            document.write("You selected Home");  
15        }else if(page == "About"){  
16            document.write("You selected About");  
17        }else if(page == "News"){  
18            document.write("You selected News");  
19        }else if(page == "Login"){  
20            document.write("You selected Login");  
21        }else if(page == "Links"){  
22            document.write("You selected Links");  
23        }  
24    </script>  
25 </body>  
26 </html>
```

Ubahlah statement if-else pada contoh sebelumnya menggunakan switch-case seperti berikut. Lalu simpan dengan nama 05_basic.html.

05_basic.html

```
10 <script>
11 var page = "Home";
12
13 switch (page)
14 {
15     case "Home":
16         document.write("You selected Home")
17         break
18     case "About":
19         document.write("You selected About")
20         break
21     case "News":
22         document.write("You selected News")
23         break
24     case "Login":
25         document.write("You selected Login")
26         break
27     case "Links":
28         document.write("You selected Links")
29         break
30 }
31 </script>
```

Perulangan: statement while

06_basic.js

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4     <title>Belajar Javascript</title>
5 </head>
6
7 <body>
8     <h1>Looping: while</h1>
9
10 <script>
11     counter=0;
12     while (counter < 5){
13         document.write("Counter: " + counter + "<br />");
14         counter++;
15     }
16 </script>
17 </script>
18 </body>
19 </html>
```

Perulangan: statement do-while

07_basic.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4     <title>Belajar Javascript</title>
5 </head>
6
7 <body>
8     <h1>Looping: do-while</h1>
9
10 <script>
11     counter=0;
12     do{
13         document.write("Counter: " + counter + "<br />");
14         counter++;
15     }
16     while(counter < 5);
17 </script>
18 </script>
19 </body>
20 </html>
```

Perulangan: statement for

08_basic.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Belajar Javascript</title>
5 </head>
6
7 <body>
8   <h1>Looping: for</h1>
9
10  <script>
11    var counter;
12    for(counter=1;counter<5;counter++){
13      document.write("Counter: " + counter + "<br />");
14    }
15  </script>
16 </body>
17 </html>
```

Array numerik

09_basic.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Belajar Javascript</title>
5 </head>
6
7 <body>
8   <h1>Array</h1>
9
10  <script>
11    var myArray = [];
12    myArray[0] = 5;
13    myArray[1] = 10;
14    myArray[2] = 15;
15
16    //dekalarasi array menggunakan keyword array()
17    var myArray2 = Array("red","yellow","green");
18
19    //looping numeric array
20    var i;
21    for(i=0;i<myArray2.length;i++){
22      document.write("Array " + i + " : " + myArray2[i] + "<br />");
23    }
24  </script>
25 </body>
26 </html>
```

Array asosiatif

10_basic.html

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title>Belajar Javascript</title>
5  </head>
6
7  <body>
8    <h1>Array Asosiatif</h1>
9
10   <script>
11     //array asosiatif
12     var myArray3 = {
13       "html": "Hypertext Markup Language",
14       "xml": "Extensible Markup Language",
15       "css": "Cascading Style Sheet"
16     };
17
18     //looping numeric array
19     for(x in myArray3){
20       document.write("Array " + x + " : " + myArray3[x] + "<br />");
21     }
22   </script>
23 </body>
24 </html>
```

Fungsi

11_basic.html

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title>Belajar Javascript</title>
5  </head>
6
7  <body>
8    <h1>Fungsi</h1>
9
10   <script>
11     var myArray = [];
12     myArray[0] = 5;
13     myArray[1] = 10;
14     myArray[2] = 15;
15
16     document.write("Jumlah seluruh elemen array adalah " + sumArray(myArray));
17
18     function sumArray(x) {
19       var sum = 0;
20       for(i=0; i<x.length; i++){
21         sum = sum + x[i];
22       }
23       return sum;
24     }
25   </script>
26 </body>
27 </html>
```

3.2. Document Object Model (DOM)

DOM memungkinkan kita untuk mengakses elemen-elemen HTML yang ada di dalam sebuah halaman web. Di dalam DOM dokumen web direpresentasikan sebagai tree yang tersusun atas

sejumlah objek (elemen) yang saling berhubungan. Setiap elemen memiliki method dan property.

3.2.1. Menemukan elemen HTML

Mengakses elemen HTML menggunakan fungsi getElementById(element).

01_dom.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>Belajar Javascript</title>
5 </head>
6
7 <body>
8 <h2>Akses elemen menggunakan getElementById</h2>
9 <p id="content">Belajar Document Object Model</p>
10 <p id="demo"></p>
11
12 <script>
13     var x = document.getElementById("content");
14     document.getElementById("demo").innerHTML = "Isi teks : " + x.innerHTML;
15 </script>
16
17 </body>
18 </html>
```

Mengakses elemen HTML menggunakan fungsi getElementsByTagName(tag).

02_dom.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>Belajar Javascript</title>
5 </head>
6
7 <body>
8 <h2>Akses elemen menggunakan getElementsByTagName</h2>
9 <p>Belajar JavaScript</p>
10 <p>Belajar Document Object Model</p>
11 <p id="demo"></p>
12
13 <script>
14     var x = document.getElementsByTagName("p");
15     document.getElementById("demo").innerHTML = "Isi teks[0] : " + x[0].innerHTML + "<br />" + "Isi
16     teks[1]: " + x[1].innerHTML;
17 </script>
18
19 </body>
20 </html>
```

Mengakses elemen HTML menggunakan fungsi `getElementsByClassName(class)`.

03_dom.html

```
2 <html>
3 <head>
4   <title>Belajar Javascript</title>
5 </head>
6
7 <body>
8   <p class="content">Belajar JavaScript</p>
9   <p class="content">Belajar Document Object Model</p>
10
11   <h2>Akses elemen menggunakan getElementByClassName</h2>
12   <p id="demoClass"></p>
13   <h2>Akses elemen menggunakan getElementByClassName</h2>
14   <p id="demoSelector"></p>
15
16 <script>
17   var x = document.getElementsByClassName("content");
18   document.getElementById("demoClass").innerHTML = "Isi teks[0] : " + x[0].innerHTML + "<br />" + "Isi
19   teks[1] : " + x[1].innerHTML;
20
21   var y = document.querySelectorAll("p.content");
22   document.getElementById("demoSelector").innerHTML = "Isi teks[0] : " + y[0].innerHTML + "<br />" +
23   "Isi teks[1] : " + y[1].innerHTML;
24 </script>
25 </body>
26 </html>
```

3.2.2. Mengubah elemen HTML

04_dom.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Belajar Javascript</title>
5 </head>
6 <script>
7   function myFunction01() {
8     document.getElementsByTagName("h2")[0].innerHTML = "Document Object Model";
9   }
10  function myFunction02() {
11    document.getElementById("logo").src = "images/html_logo.png";
12  }
13  function myFunction03() {
14    document.getElementsByTagName("h2")[0].setAttribute("class","judul");
15    document.getElementById("logo").setAttribute("width",200);
16    document.getElementById("logo").setAttribute("height",200);
17  }
18  function myFunction04() {
19    document.getElementsByClassName("judul")[0].style.color = "red";
20  }
21 </script>
22
23 <body>
24   <h2>Hypertext Markup Language</h2>
25   
26
27   <button id="btn01" type="button" onclick="myFunction01()">Ubah inner HTML</button>
28   <button id="btn02" type="button" onclick="myFunction02()">Ubah nilai atribut image</button>
29   <button id="btn03" type="button" onclick="myFunction03()">Set nilai atribut baru</button>
30   <button id="btn01" type="button" onclick="myFunction04()">Ubah style elemen</button>
31 </body>
32 </html>
```

Mengubah visibility elemen HTML menggunakan property style.visibility.

05_dom.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Belajar Javascript</title>
5 </script>
6 <script>
7   function hideImage() {
8     document.getElementById("imgLogo").style.visibility = "hidden";
9   }
10  function showImage() {
11    document.getElementById("imgLogo").style.visibility = "visible";
12  }
13 </script>
14 </head>
15 <body>
16   <h2>Hypertext Markup Language</h2>
17   
18   <br />
19   <button id="btn01" type="button" onclick="hideImage()">Hide Image</button>
20   <button id="btn02" type="button" onclick="showImage()">Show Image</button>
21 </body>
22 </html>
```

3.2.3. Menambah atau menghapus elemen HTML

Menambah elemen HTML dengan method createElement() dan menghapus child dari sebuah element dengan method removeChild().

06_dom.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Belajar Javascript</title>
5 </head>
6
7 <body>
8   <p>Klik button "Create New Element" untuk membuat elemen BUTTON baru</p>
9   <button onclick="myFunction01()">Create New Element</button>
10
11   <ul id="myList">
12     <li>HTML</li>
13     <li>CSS</li>
14     <li>JavaScript</li>
15   </ul>
16   <p>Klik button "Remove Child Element" untuk menghapus child element list</p>
17   <button onclick="myFunction02()">Remove Child Element</button>
18
19 <script>
20   function myFunction01() {
21     var btn = document.createElement("BUTTON");
22     var t = document.createTextNode("CLICK ME");
23     btn.appendChild(t);
24     document.body.appendChild(btn);
25   }
26   function myFunction02() {
27     var list = document.getElementById("myList");
28     list.removeChild(list.childNodes[1]);
29   }
30 </script>
31
32 </body>
33 </html>
```


3.2.4. Menambahkan event handler pada elemen HTML

07_dom.html

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title>Belajar Javascript</title>
5  </head>
6
7  <body>
8    <p>Adding Event Handler</p>
9    <button id="btn01" type="button">Click Me</button>
10   <p id="demo"></p>
11
12  <script>
13    document.getElementById("btn01").onclick = function(){
14      document.getElementById("demo").innerHTML = "Sukses";
15    }
16  </script>
17
18  </body>
19  </html>
```

3.3. Form Validation

Validasi form login sederhana

01_form_validation.html

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title>Form Login</title>
5  <script>
6    function validateForm() {
7      var x = document.forms["formLogin"]["fusername"].value;
8      var y = document.forms["formLogin"]["fpassword"].value;
9      if (x == "" || y == "") {
10        alert("Username and password harus diisi!");
11        return false;
12      }
13    }
14  </script>
15  </head>
16
17  <body>
18    <h2>Login</h2>
19    <form name="formLogin" action="process.php" onsubmit="return validateForm()" method="post">
20      Name: <input type="text" name="fusername" /><br />
21      Password: <input type="password" name="fpassword" />
22      <input type="submit" value="Submit">
23    </form>
24  </body>
25  </html>
```

Menggunakan method checkValidity() dan property validationMessage.

02_form_validation.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Form Login</title>
5 </script>
6 function validateForm() {
7   var x = document.forms["formLogin"]["fusername"];
8   var y = document.forms["formLogin"]["fpassword"];
9   if (x.checkValidity() == false || y.checkValidity() == false) {
10    document.getElementById("errUsername").innerHTML = x.validationMessage;
11    document.getElementById("errPassword").innerHTML = y.validationMessage;
12    return false;
13  }
14 }
15 </script>
16 </head>
17
18 <body>
19   <h2>Login</h2>
20   <form name="formLogin" action="process.php" method="post">
21     Name: <input type="email" name="fusername" required="required" maxlength="30" />
22     <span id="errUsername"></span><br />
23     Password: <input type="password" name="fpassword" required="required" maxlength="30" />
24     <span id="errPassword"></span><br />
25     <input type="button" value="Submit" onclick="validateForm()" />
26   </form>
27 </body>
```

Validasi form dengan JavaScript

03_form_validation.html

```
1 <!DOCTYPE HTML>
2 <html>
3 <head>
4   <title>Validasi Form dengan JavaScript</title>
5 </script>
6 function validateForm() {
7   if(document.forms["formRegistration"]["name"].value == ""){
8     alert("Please fill your name.");
9     document.forms["formRegistration"]["name"].focus();
10    return false;
11  }
12
13   if(document.forms["formRegistration"]["gender"].value == ""){
14     alert("Please select your gender.");
15     return false;
16  }
17
18   if(document.forms["formRegistration"]["height"].value == ""){
19     alert("Please fill your height.");
20     document.forms["formRegistration"]["height"].focus();
21     return false;
22   } else if(isNaN(document.forms["formRegistration"]["height"].value)){
23     alert("Height must be numeric");
24     document.forms["formRegistration"]["height"].value = "";
25     document.forms["formRegistration"]["height"].focus();
26     return false;
27   }
28 }
```

```

28
29
30     if(document.forms["formRegistration"]["address"].value == ""){
31         alert("Please fill your address.");
32         document.forms["formRegistration"]["address"].focus();
33         return false;
34     }
35
36     if(document.forms["formRegistration"]["city"].value == ""){
37         alert("Please select your city.");
38         document.forms["formRegistration"]["city"].focus();
39         return false;
40     }
41
42     if(document.forms["formRegistration"]["email"].value == ""){
43         alert("Please fill your email.");
44         document.forms["formRegistration"]["email"].focus();
45         return false;
46     }
47
48     var hobby = document.forms["formRegistration"]["hobby[]"];
49     if(hobby[0].checked == false && hobby[1].checked == false && hobby[2].checked == false && hobby[3].checked ==
50         false){
51         alert("Please select at least one hobby.");
52         return false;
53     }
54
55     if(document.forms["formRegistration"]["captcha_input"].value != document.forms["formRegistration"]
56         ["captcha_text"].value){
57         alert("Please type Captcha correctly.");
58         return true;
59     }
60
61     function get_city(){
62         var province = document.forms["formRegistration"]["province"].value;
63         if(province == "West Java"){
64             document.getElementById("city").innerHTML =
65                 '<option value="Bandung">Bandung</option>' +
66                 '<option value="Kuningan">Kuningan</option>' +
67                 '<option value="Indramayu">Indramayu</option>';
68         }
69         if(province == "Central Java"){
70             document.getElementById("city").innerHTML =
71                 '<option value="Semarang">Semarang</option>' +
72                 '<option value="Ungaran">Ungaran</option>' +
73                 '<option value="Solo">Solo</option>';
74         }
75         if(province == "East Java"){
76             document.getElementById("city").innerHTML =
77                 '<option value="Surabaya">Surabaya</option>' +
78                 '<option value="Sidoarjo">Sidoarjo</option>' +
79                 '<option value="Malang">Malang</option>';
80         }
81     }
82
83     //Generates the captcha function
84     function generateCaptcha(){
85         var a = Math.ceil(Math.random() * 9) + '';
86         var b = Math.ceil(Math.random() * 9) + '';
87         var c = Math.ceil(Math.random() * 9) + '';
88         var d = Math.ceil(Math.random() * 9) + '';
89         var e = Math.ceil(Math.random() * 9) + '';
90         var code = a + b + c + d + e;
91         document.forms["formRegistration"]["captcha_text"].value = code;
92     }
93
94     function removeSpaces(string){
95         return string.split(' ').join('');
96     }
97
98     </script>
99     </head>
100
101     <body onload="generateCaptcha()" >
102     <h2>User Input</h2>
103     <form id="formRegistration" method="GET" autocomplete="on" action="" onsubmit="return validateForm()" >
104     <table>
105     <tr>
106         <td>Name</td>
107         <td>:</td>
108         <td><input type="text" name="name" size="30" /></td>
109     </tr>

```

```

106 </tr>
107 <tr>
108 <td>Gender</td>
109 <td>:</td>
110 <td>
111 <input type="radio" name="gender" value="male">Male <br />
112 <input type="radio" name="gender" value="female">Female
113 </td>
114 </tr>
115 <tr>
116 <td>Height</td>
117 <td>:</td>
118 <td><input type="text" name="height"></td>
119 </tr>
120 <tr>
121 <td>Address</td>
122 <td>:</td>
123 <td><textarea name="address" rows="5" cols="30"></textarea></td>
124 </tr>
125 <tr>
126 <td>Province</td>
127 <td>:</td>
128 <td><select name="province" onchange="get_city()">
129 <option value="">--Select a province--</option>
130 <option value="West Java">West Java</option>
131 <option value="Central Java">Central Java</option>
132 <option value="East Java">East Java</option>
133 </select>
134 </td>
135 </tr>
136 <tr>
137 <td>City</td>
138 <td>:</td>
139 <td><select name="city" id="city">
140 <option value="">--Select a city--</option>
141 </select>
142 </td>
143 </tr>
144 <tr>
145 <td>Email</td>
146 <td>:</td>
147 <td><input type="email" name="email" size="30"></td>
148 </tr>
149 <tr>
150 <td>Hobby</td>
151 <td>:</td>
152 <td>
153 <input type="checkbox" name="hobby[]" value="travelling">Travelling<br />
154 <input type="checkbox" name="hobby[]" value="reading">Reading<br />
155 <input type="checkbox" name="hobby[]" value="swimming">Swimming<br />
156 <input type="checkbox" name="hobby[]" value="painting">Painting<br />
157 </td>
158 </tr>
159 <tr>
160 <td>Captcha</td>
161 <td>:</td>
162 <td>
163 <input type="text" name="captcha_text" size="10" disabled>
164 <input type="text" name="captcha_input" size="10">
165 </td>
166 </tr>
167 <script>
168
169 </script>
170 <tr>
171 <td colspan="3"><br><input type="submit" name="submit" value="Submit">&nbsp;  
172 <input type="reset" name="reset" value="Reset"></td>
173 </tr>
174 </table>
175 </form>
176
177 </body>
178 </html>

```

Latihan:

1. Tambahkan validasi untuk nama menggunakan regular expression dengan ketentuan nama hanya boleh berisi karakter alphabet atau spasi. Tambahkan pula validasi min 3 karakter, maksimal 50 karakter.
2. Tambahkan validasi untuk email menggunakan regular expression untuk mengecek format email yang valid.

3. Tambahkan validasi untuk nama menggunakan regular expression dengan ketentuan nama hanya boleh berisi karakter alphabet, numerik, tanda baca (. , : - _). Tambahkan pula validasi min 3 karakter, maksimal 100 karakter.
4. Ubahlah teks captha menjadi penjumlahan matematika, misal : $2 + 8$.
5. Simpan file dengan nama 04_form_validation.html.