Pemrograman Web

Sirojul Munir | rojulman@nurulfikri.ac.id

JavaScript

Sirojul Munir | rojulman@nurulfikri.ac.id

What is JavaScript ?

- JavaScript is the programming language of HTML and the Web
- HTML , CSS & JavaScript
  - HTML to define the content of web pages,
  - CSS to specify the layout of web pages and
  - **JavaScript to program the behaviour of web page**
- Technically, it has no relation with Java programming language

Writing JavaScript : Embedded JavaScript

- Script Javascript didefinisikan dalam file web dalam header dokumen atau dalam body dookumen

```
<!DOCTYPE html>
<html>
<head>
   <title>JavaScript</title>
<script type="text/javascript">
   alert("Hello world satu !");
</script>
</head>
<body>
<script type="text/javascript">
   alert("Hello world dua !");
</script>
</body>
</html>
```

Writing JavaScript : External JavaScript

- Script Javascript didefinisikan dalam file web dalam header dokumen
- File JavaScript Tersimpan dalam direktori src/js, ektensi .js

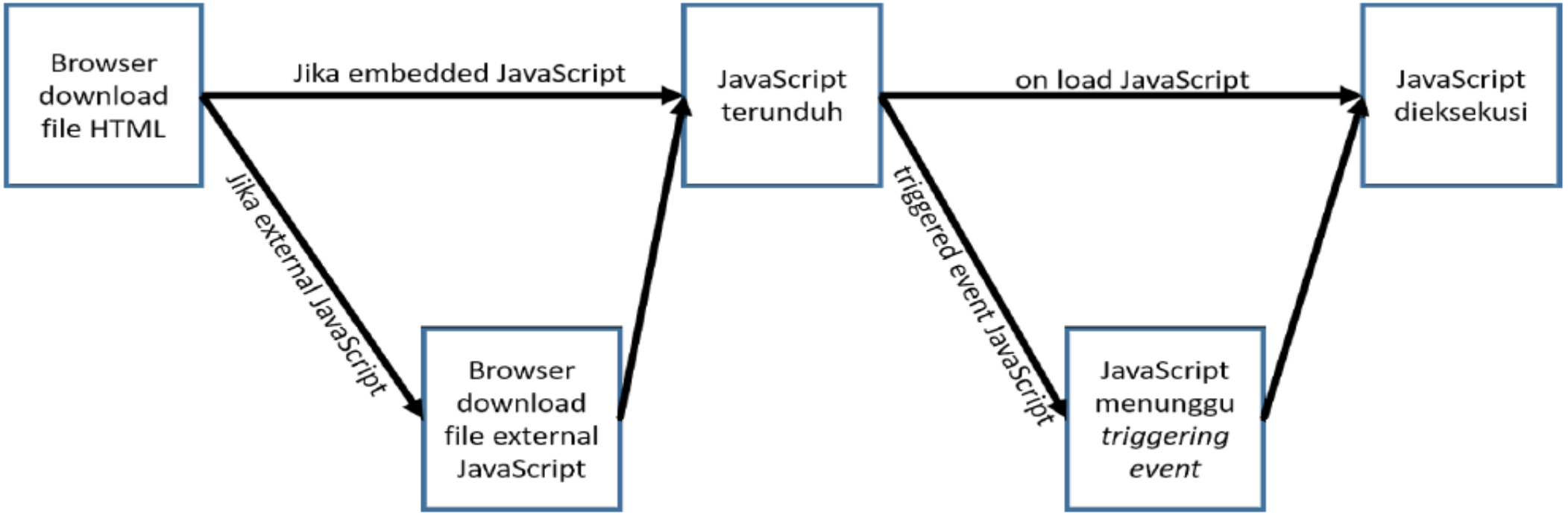
```
<!DOCTYPE html>
<html>
<head>
    <title>JavaScript</title>
<script language="javascript"
    src="/src/js/basic.js">
</script>
</head>
<body>

</body>
</html>
```

```
/praktikum04/
        | --- index.html
        | --- src/
            |--- css/
                | --- mystyle.css
            |--- js/
                | --- basic.js
```

JavaScript berjalan di browser

Embedded JavaScript	External File JavaScript

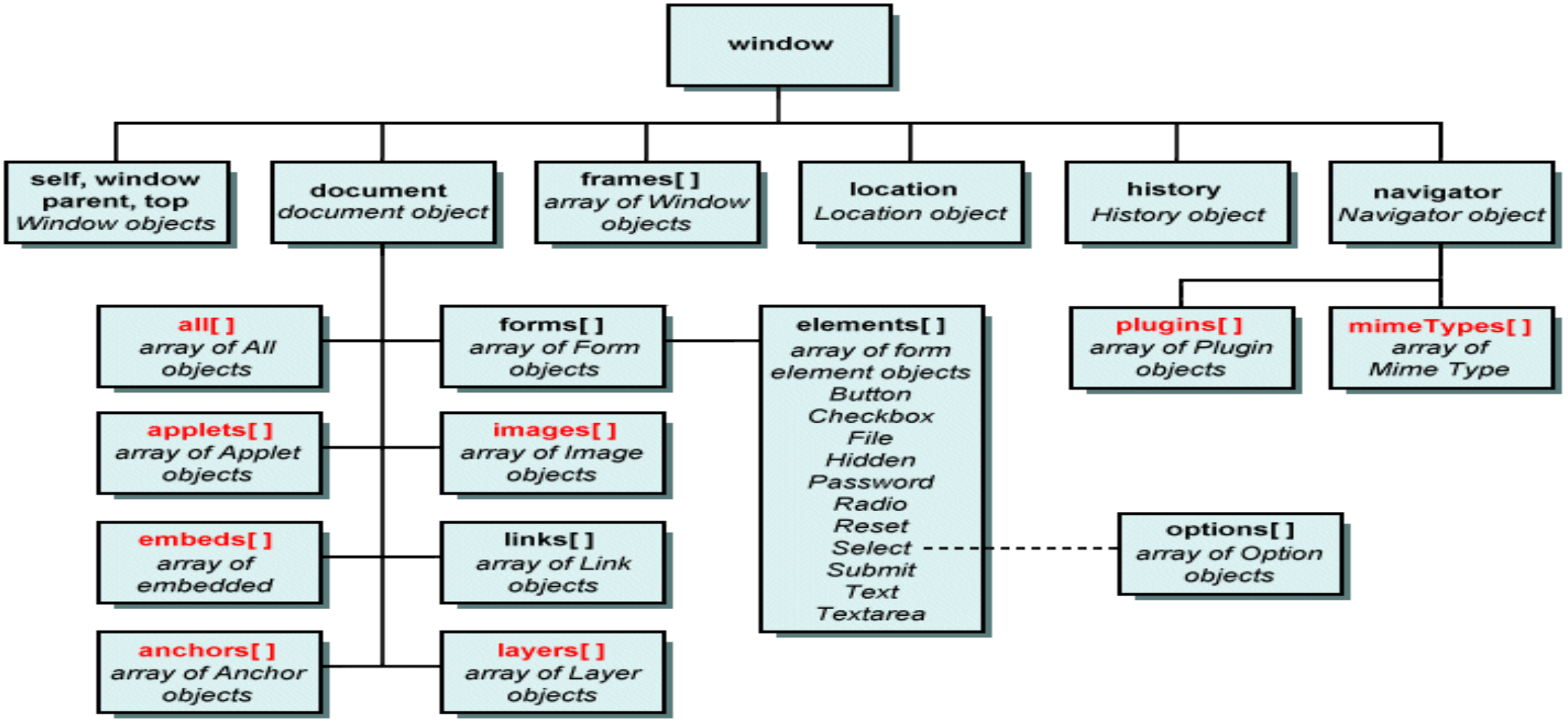
`<script type="text/JavaScript">`
`  alert("Hello World!");`
`</script>`
	`<script type="text/JavaScript" src="js/script.js">`
	`</script>`



DOM : Document Object Model

- Halaman web HTML adalah sebuah object document yang mempresentasikan dokumen HTML yang di load pada saat itu.
- Didalam dokumen HTML terdapat object-object lainnya seperti
  - Images
  - Forms : elemen array form
  - Links
  - Frame
  - Table
  - List
  - Elemen-elemen HTML lainnya

DOM – Document Object Model



JavaScript Display Output

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

Display output:

```
<!DOCTYPE html>
<html>
<head>
   <title>JavaScript</title>
<script type="text/javascript">
   alert("Hello world !");
   document.write("Selamat Belajar JS");
   let today = new Date();
   console.log("Tanggal Sekarang : " +  today);
</script>
</head>
<body>
    <div id="id1"></div>
   <script language="JavaScript">
    document.getElementById("").innerHTML="STT Terpadu NurulFikri";
   </script>
</body>
</html>
```

JavaScript Statement - Comment

- JavaScript statements are separated by **semicolons**.
- JavaScript is Case Sensitive
- the first character of identifiers (name of variables, keywords, functions, and labels)) must be a letter, an underscore (_), or a dollar sign ($).
- To make comment, use **//this is comment**

  or **/* this is comment */**

Variable – Tipe Data

- How to create variable: just use **var | or use let (modern js)**
- Example: var variableName; let variableModern;
- **JavaScript Has Dynamic Types** which means the variable (data) types will change according to the variable value. The same variable can be used as different types
- Data type are: number, string, array, object, boolean, etc.

```
var length = 16;                               // Number
var lastName = "Johnson";                      // String
var cars = ["Saab", "Volvo", "BMW"];           // Array
var x = {firstName:"John", lastName:"Doe"};    // Object
```

JavaScript Array

- Array didefinisikan

```
var array-name = [item1, item2, ...];
```

```
var cars = ["Saab", "Volvo", "BMW"];
```

```
var points = [];
```

- Akses Data Array

```
var name = cars[0];
```

```
cars[0] = "Opel";
```

JavaScript Array

- You can have different objects in one array
- Array properties : length
- Array methods: sort()
- Adding array

```
var x = cars.length;
cars
var y = cars.sort();
```

```
var fruits = ["Banana", "Orange", "Apple", "Mango"];
fruits.push("Lemon");                 // adds a new element (Lemon) to fruits
```

```
var fruits = ["Banana", "Orange", "Apple", "Mango"];
fruits[fruits.length] = "Lemon";      // adds a new element (Lemon) to fruits
```

JavaScript Object

- How to create object

```
var person = {firstName:"John", lastName:"Doe", age:50, eyeColor:"blue"};
```

```
var person = {
    firstName:"John",
    lastName:"Doe",
    age:50,
    eyeColor:"blue"
};
```

```
var person = {
    firstName: "John",
    lastName : "Doe",
    id       : 5566,
    fullName : function() {
       return this.firstName + " " + this.lastName;
    }
};
```

JavaScript Object

- How to access object properties

```
objectName.propertyName
```

```
objectName["propertyName"]
```

- How to access object methods

```
objectName.methodName()
```

Operator Aritmatika

- Sama dengan Bahasa pemrograman lainnya

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus
++	Increment
--	Decrement

Operator	Example
=	x = y
+=	x += y
-=	x -= y
*=	x *= y
/=	x /= y
%=	x %= y

Operator Logika

JavaScript Comparison and Logical Operators

Operator	Description
==	equal to
===	equal value and equal type
!=	not equal
!==	not equal value or not equal type
>	greater than
<	less than
>=	greater than or equal to
<=	less than or equal to

JavaScript Function

- Function Syntax

```
function name(parameter1, parameter2, parameter3) {
    code to be executed
}
```

```
1. …
2. <script type="text/javascript">
3.    function salam()
4.    {
5.       alert("Assalamualaikum Saudaraku !");
6.    }
7.    function salamKenal(teman){
8.       alert("Apa kabar " + teman);
9.    }
10.  function jumlah(a,b){
11.     let c = a + b;
12.     return c;
13.  }
14.</script>
…
```

JavaScript Conditional & Loop

- If else

```
if (condition1) {
    block of code to be executed if condition1 is true
} else if (condition2) {
    block of code to be executed if the condition1 is false and condition2 is true
} else {
    block of code to be executed if the condition1 is false and condition2 is false
}
```

- Switch case

```
switch(expression) {
    case n:
        code block
        break;
    case n:
        code block
        break;
    default:
        default code block
}
```

JavaScript Conditional & Loop

- For Loop

```
for (statement 1; statement 2; statement 3) {
    code block to be executed
}
```

```
for (i = 0; i < 5; i++) {
    text += "The number is " + i + "<br>";
}
```

- For in loop

```
var person = {fname:"John", lname:"Doe", age:25};

var text = "";
var x;
for (x in person) {
    text += person[x];
}
```

JavaScript While Loop

- While loop

```
while (condition) {
    code block to be executed
}
```

```
while (i < 10) {
    text += "The number is " + i;
    i++;
}
```

- Do while loop

```
do {
    code block to be executed
}
while (condition);
```

```
do {
    text += "The number is " + i;
    i++;
}
while (i < 10);
```

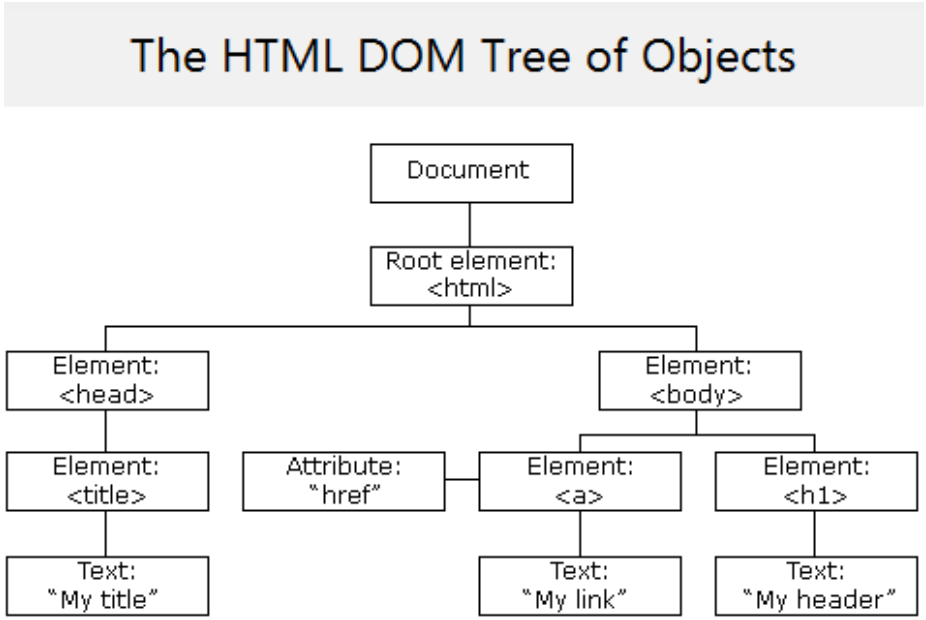
JavaSCript Event

Event Handlers	Deskripsi	Objek
onClick	Reaksi terhadap aksi meng-click-mouse pada suatu objek	checkboxes, links, radio buttons, reset buttons, dan submit buttons
onMouseOver	Reaksi jika suatu cursor atau mousepointer yang menunjuk ke suatu objek	links
onMouseOut	Reaksi jika suatu cursor atau mousepointer yang meninggalkan suatu objek	links
onLoad	Reaksi jika suatu objek selesai di-load.	images, windows
onUnload	Reaksi jika suatu dokumen ditutup/diakhiri.	windows
onAbort	Reaksi jika suatu objek diberhentikan dari proses loading	images
onChange	Reaksi jika suatu nilai(value) dari objek dimodifikasi	file uploads, select objects, text boxes, textarea
onSelect	Reaksi jika sutau teks dipilih dari objek text box atau textarea	text boxs, text areas
onError	Reaksi jika terjadi error JavaScript	images, windows
onReset	Reaksi jika suatu tombol reset dalam form ditekan	forms
onSubmit	Reaksi jika suatu tombol button dalam form ditekan	forms

```
<button onclick="displayDate()">The time is?</button>
```

HTML DOM

- Dengan HTML DOM , JavaSCript dapat mengakses dan mengubah semua elemen dalam dokumen HTML
- http://www.w3schools.com/jsref/default.asp



HTML DOM

- Finding element
  - Finding HTML elements by id
  - Finding HTML elements by tag name
  - Finding HTML elements by class name
  - Finding HTML elements by CSS selectors
  - Finding HTML elements by HTML object collections
- Changing element

Method	Description
document.getElementById()	Find an element by element id
document.getElementsByTagName()	Find elements by tag name
document.getElementsByClassName()	Find elements by class name

Method	Description
element.innerHTML=	Change the inner HTML of an element
element.attribute=	Change the attribute of an HTML element
element.setAttribute(*attribute,value*)	Change the attribute of an HTML element
element.style.*property*=	Change the style of an HTML element

HTML DOM

- Create element

Method	Description
document.createElement()	Create an HTML element
document.removeChild()	Remove an HTML element
document.appendChild()	Add an HTML element
document.replaceChild()	Replace an HTML element
document.write(*text*)	Write into the HTML output stream

- Changing style

```
document.getElementById(id).style.property=new style
```

Referensi

- This slide content is from http://www.w3schools.com/js
- Slide perkuliahan web UI