T.C. İSTANBUL KÜLTÜR ÜNİVERSİTESİ

COM5005 – WEB PROGRAMMING

LAB 04 – Introduction to Javascript

After completing this Lab, you will be able to

- What is JavaScript
- Testing JavaScript
- How to Define a Variable in Javascript?
- JavaScript Popup Boxes
- JavaScript Arithmetic Operators.
- Using JavaScript “IF… ELSE”
- Using JavaScript “FOR” Loop

PROCEDURE 1 – What is JavaScript ?

JavaScript is a programming language used to make web pages interactive. What brings life to a page are interactive elements and animation that impress the user. If you've used a search box on your homepage, checked a live football game score on a news site, or watched a video, you're probably running JavaScript through it.

- With the HTML5 standard definition, **javascript** codes are written only between **<script>…</script>** tags.
- You can use the <script></script> object you will create for a JavaScript code in the **<head>** section or the **<body>** section.

```
<html>

<script language="JavaScript">
    /* commands...*/
</script>

</html>
```

NOTE: Using it in the BODY element will increase the page load speed.

- In addition, javascript commands can be kept in an external file and linked to desired web pages. The extension of external javascript files is .js. To provide the link, the following html line is added to the head of the web page.

```
<html>

<script src="filename.js" language="JavaScript">
    /* commands...*/
</script>

</html>
```

PROCEDURE 2 – Testing JavaScript

JavaScript has no printing or output capabilities. JavaScript is only used to manipulate objects contained in the HTML Document.

We use JavaScript's **getElementById(id)** to access HTML objects. id is an id property that defines the HTML object. innerHTML is the content of the defined object.

Let's change the content of an HTML object:

Step 1 - Let's write HTML code with a simple paragraph.

```
<html>
<body>

<h1>My Web Page</h1>

<p id="money">This is the first paragraph.</p>

</body>
</html>
```

** Execute the code and review the results.

Step 2 – Now we can modify the HTML by applying **document.getElementById("money")** between the <script> tags.

```
<html>
<body>

<h1>My Web Page</h1>

<p id="money">This is the first paragraph.</p>

<script>
   document.getElementById("money").innerHTML = "The paragraph has changed!";
</script>

</body>
</html>
```

HTML elements with money id have been changed.

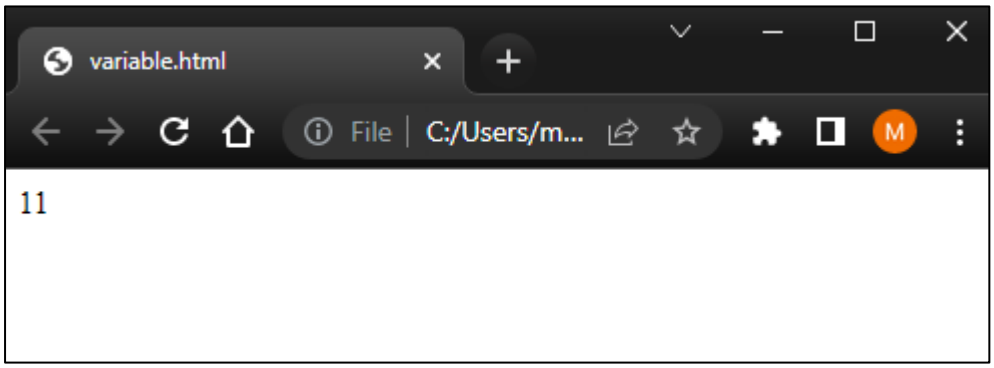
PROCEDURE 3 – How To Define a Variable in Javascript?

Variables in JavaScript are declared with the var keyword. Variables are defined with the var statement for all data types.

Note: The variable must be defined before it can be used.

```
<html>
<body>

<div id="result"></div>

<script>

   // We set the value of a to 5.
   var a = 5;

   // We set the value of b to 6.
   var b = 6;

   /*
        If we add the variables a and b, we get 5 + 6 = 11.
        Let's put this in a paragraph.
   */
   var c = a + b;
   document.getElementById("result").innerHTML = c;

</script>

</body>
</html>
```

** Execute the code and review the results.



JavaScript variable declaration rules:

- Variable names can contain letters, numbers, underscores, and dollar signs.
- Variable names can begin with a letter, underscore, or dollar sign.
- Variable names are CASE-sensitive. (a and A are different variables)
- No spaces are left between variable names.
- JavaScript keywords cannot be used as variable names. (var, debugger, if, while…etc)
- Turkish characters can be used in variable names. However, its use is not recommended.

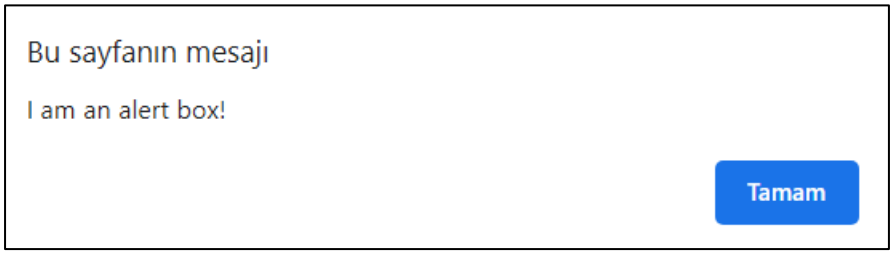
PROCEDURE 4 – JavaScript Popup Boxes

JavaScript has three kind of popup boxes: Alert box, Confirm box, and Prompt box.

Step 1 - **Alert Box.** An alert box is often used if you want to make sure information comes through to the user. When an alert box pops up, the user will have to click "OK" to proceed.. The **alert()** method can be written without the window prefix.

```
<html>
<body>
    <h2>JavaScript Alert</h2>

    <script>
        alert("I am an alert box!");
    </script>
</body>
</html>
```

** Execute the code and review the results.

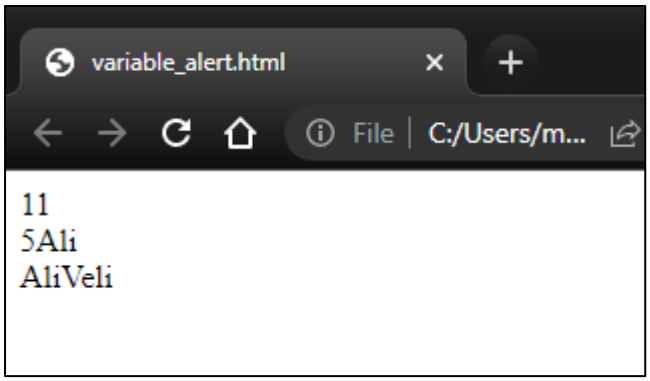


PROCEDURE 5 – JavaScript Arithmetic Operators.

Arithmetic operators process the numeric value according to the operator symbol and return a single value. The standard arithmetic operators are increment(+), decrement(-), multiplication(*), division(/).

```
<html>
<body>

<div id = "result1"></div>
<div id = "result2"></div>
<div id = "result3"></div>

<script>

   var a = 5;
   var b = 6;
   var c = "Ali";
   var d = "Veli";

   //Number + Number
   var x = a + b;
   //Number + String
   var y = a + c;
   //String + String
   var z = c + d;

   document.getElementById("result1").innerHTML = x;
   document.getElementById("result2").innerHTML = y;
   document.getElementById("result3").innerHTML = z;

</script>

</body>
</html>
```

** Execute the code and review the results.



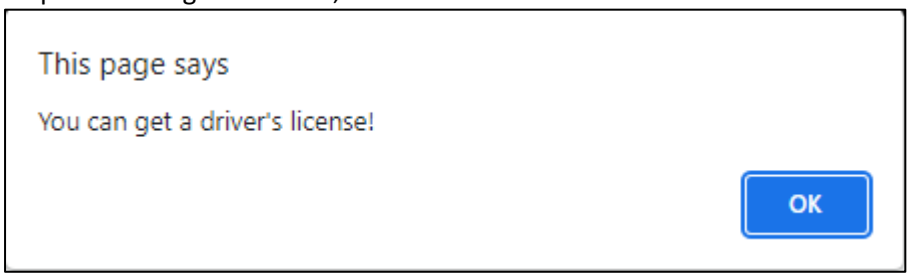
PROCEDURE 6 – Using JavaScript "IF… ELSE"

If the condition between the "if" parenthesis is true, the statement is executed. If the condition is not met, if there is an "else" part, the statement in this part is executed.

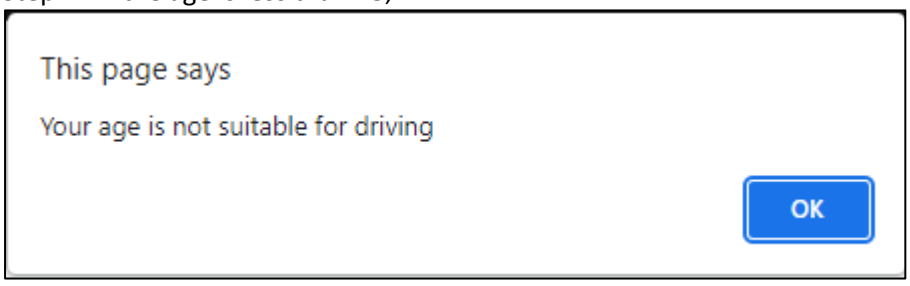
```
<html>
<body>

<script>

    var age = 10;

    if (age >= 18)
    {
        alert("You can get a driver's license!");
    }
    else
    {
        alert("Your age is not suitable for driving");
        alert(18-age+" years later, you can use the car.");
    }

</script>

</body>
</html>
```

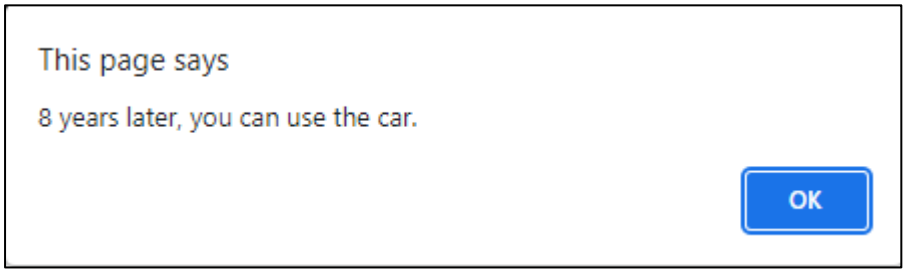
** Execute the code and review the results.

Step 1 - If the age is over 18;



Step 2 - If the age is less than 18;





PROCEDURE 7 – Using JavaScript "FOR" Loop

- As in all C-based programming languages, you can handle your continuous commands under a for loop. The use of this structure in JavaScript is the same.

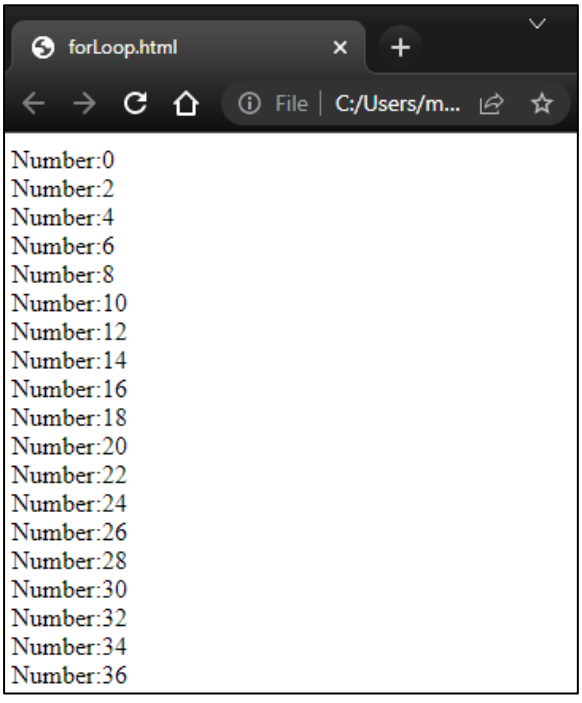
Apart from the for loop in JavaScript, there are also the following loops.

for – Used to execute a specified number of commands between blocks.
for/in – used to read properties of arrays or objects (same as foreach in other languages)
while – code between blocks is executed as long as the condition is true.
do/while – code between blocks is executed as long as the condition is true, at least once.

- Write a program that prints even numbers between 0-100.

```
<html>
<body>

<script>

    for( var i=0; i<=100; i++)
    {
        if(i%2==0)
        {
            document.write("Number:"+i+"<br/>");
        }
    }

</script>

</body>
</html>
```

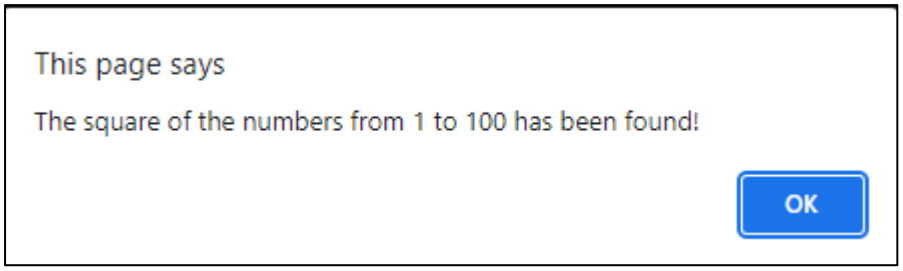
** Execute the code and review the results.

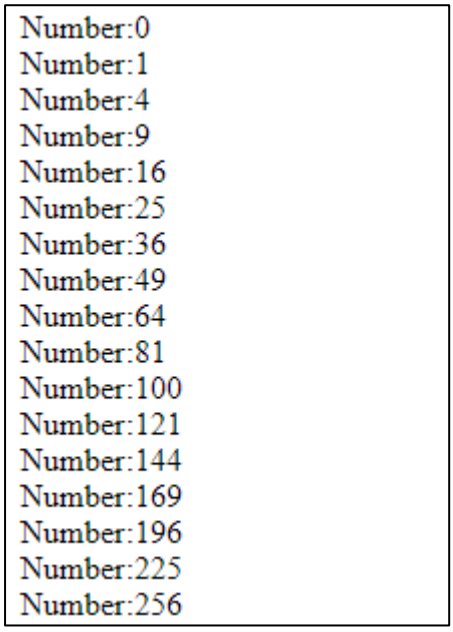


EXERCISE

- Define a variable **X and Y.**
- X represents the numbers from **0 to 100**, and Y represents the **square of X**.
- View all Y numbers. If Y=10000 it will give the following warning:
  "The square of the numbers from 1 to 100 has been found".

(**Note**: You have 5 minutes for this exercise. Your solutions should be individual. Those who have problems will be helped.)





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