Tishk International University
Faculty of Applied Science
Information Technology Department

Introduction to JavaScript

Web Programming

Lecture 2

Fall 2025

Course Code: IT349

Grade 3

Islam Abdulazeez
islam.abdulaziz@tiu.edu.iq

October 7, 2025

Outlines

- Introduction to JavaScript
- JavaScript Basics
- Variables and Operators
- Control Statements
- Functions and Alerts
- DOM Manipulation

Learning Outcomes

- At the end of today's session, you will be able to:

  - ✓ **Explain the role of JavaScript in web development.**
  - ✓ **Use variables, operators, and control statements in JavaScript.**
  - ✓ **Differentiate between internal and external JavaScript code.**
  - ✓ **Create a basic web page using HTML and JavaScript.**

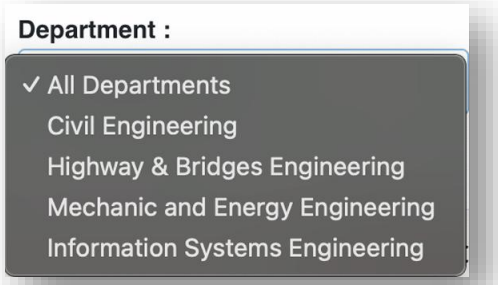
What is JavaScript?

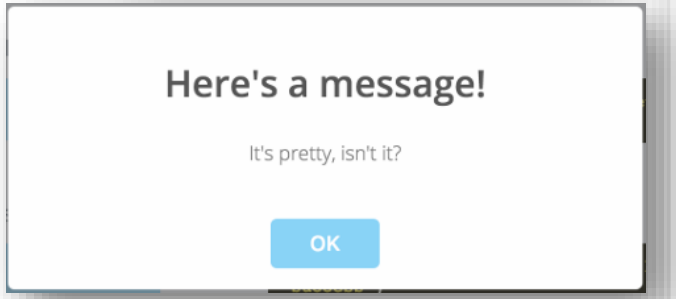
- ✓ JavaScript is a high-level, interpreted programming language that enables interactive web pages.
- ✓ It is one of the core technologies of the World Wide Web, alongside HTML and CSS.

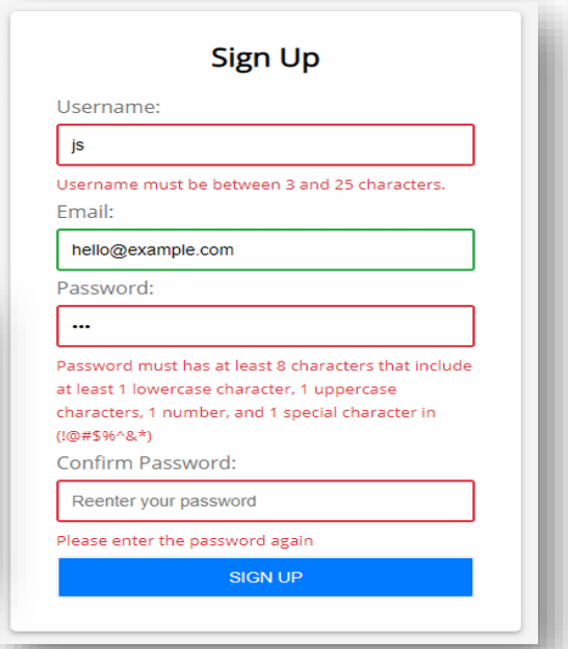
Why JavaScript?

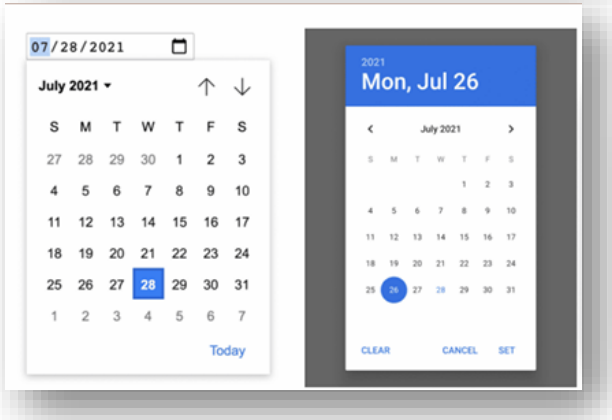
Applications of JavaScript

- Client-side validation
- Dynamic drop-down menus
- Displaying date and time
- Displaying pop-up windows and dialog boxes
- Displaying clocks





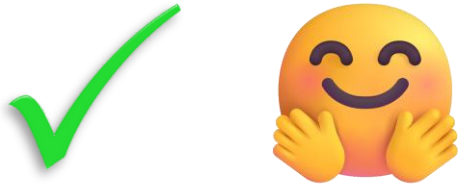




JavaScript Structure

```
<script type="text/javascript">
    Statements ..
</script>
```

```
<script>
    Statements ..
</script>
```



Printing Text

```
<script>
    document.write("Hello world!")
</script>
```

Places to Put JavaScript Code

1. Between the body tag of html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <script>
        document.write("TIU");
    </script>
</body>
</html>
```

Places to Put JavaScript Code

2. Between the head tag of html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
    <script>
        document.write("TIU");
    </script>
</head>
<body>

</body>
</html>
```

Places to Put JavaScript Code

3. In .js file (external javaScript)

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
    <script src="filename.js"></script>
</head>
<body>

</body>
</html>
```

filename.js

```js
document.write('TIU');
```

Comment Types

Single Line Comment

```
<script>
    // It's a single line comment
    document.write('TIU');
</script>
```

Multiline Comment

```
<script>
    /* It's a multiline comment
       It will not be displayed */
    document.write('TIU');
</script>
```

Variables

//Code	//Output
<script> var dep = "IT" var age = 21 var gpa = 3.2 document.write(dep) document.write(age) document.write(gpa) </script>	IT213.2

//Code	//Output
<script> var dep = "IT" var age = 21 var gpa = 3.2 document.write(dep + " ") document.write(age + " ") document.write(gpa + " ") </script>	IT 21 3.2

Variables (var & let)

```
<script>
    var x = 10;
    if (true) {
    // same variable, overwritten
    var x = 20;
}
document.write(x); // 20
</script>
```

```
<script>
let y = 10;
if (true) {
  let y = 20;  // different variable
  document.write(y);  // 20
}
document.write(y);  // 10
<script>
```

Variables and Rules of Naming

- ✓ First character must be a letter or an underscore (_)
- ✓ The rest of the variable can be any letter, number, or underscore
- ✓ Variable names are case sensitive (age, Age, AGE would all be different variable names)
- ✓ You cannot use JavaScript reserved words for variable names

```
Ex)  var var = 10; // Since var is used to declare a variable, you can't use var as a variable name
```

Valid and Invalid Variable Names

Valid ✓

_myVar	abcd2025
_var	test_10
name1	num
thisisalongvariablename	myString
a	

Invalid ✗

1test	/* Starts with a number
test 1	there is a space in the name
t$est	non alphanumeric character
var	reserved word */

Arithmetic Operators

```
<script>

var x =15;
let y = 20;
const z = 25;

var result = x + (y / z);
document.write(result);  // 15.8

</script>
```

“Short hand” assignment operators

Assignment	Same as:	
`a += b;`	`a = a + b;`	Addition
`a -= b;`	`a = a - b;`	Subtraction
`a *= b;`	`a = a * b;`	Multiplication
`a /= b;`	`a = a / b;`	Division
`a %= b;`	`a = a % b;`	Modulus
`a++;`	`a = a + 1;`	Self Addition
`a--;`	`a = a -1;`	Self subtraction

String variables

```
<script>

    var x = "Hello ";
    var y = "World";
    var z = x + y;
    document.write(z); //       "Hello World"

    var length = z.length;
    document.write("<br> length = " + length); // length = 11

</script>
```

Arrays

```
<script>

var names = ["Azad", "Sana", "Ahmad", "Vana"];

document.write(names[0]);
document.write("<br>");
document.write(names[1]);

var size = names.length; //  4

document.write(size);

</script>
```

Arrays can mix datatypes

```
var car = ["Saab", "Volvo", "BMW" ];    // Array of Strings

var nums = [ 1, 2, 3, 4, 5 ];           // Array of Numbers

var data = ["EECS1012", 780, "Fall", 2018 ];  // Mix types
```

Control Statements (if Statement)

```
<script>

    let age = 18;

    if (age < 18) {
        document.write("Minor");
    } else if (age == 18) {
        document.write("Just became an adult");
    } else {
        document.write("Adult");
    }


</script>
```

Control Statements (switch)

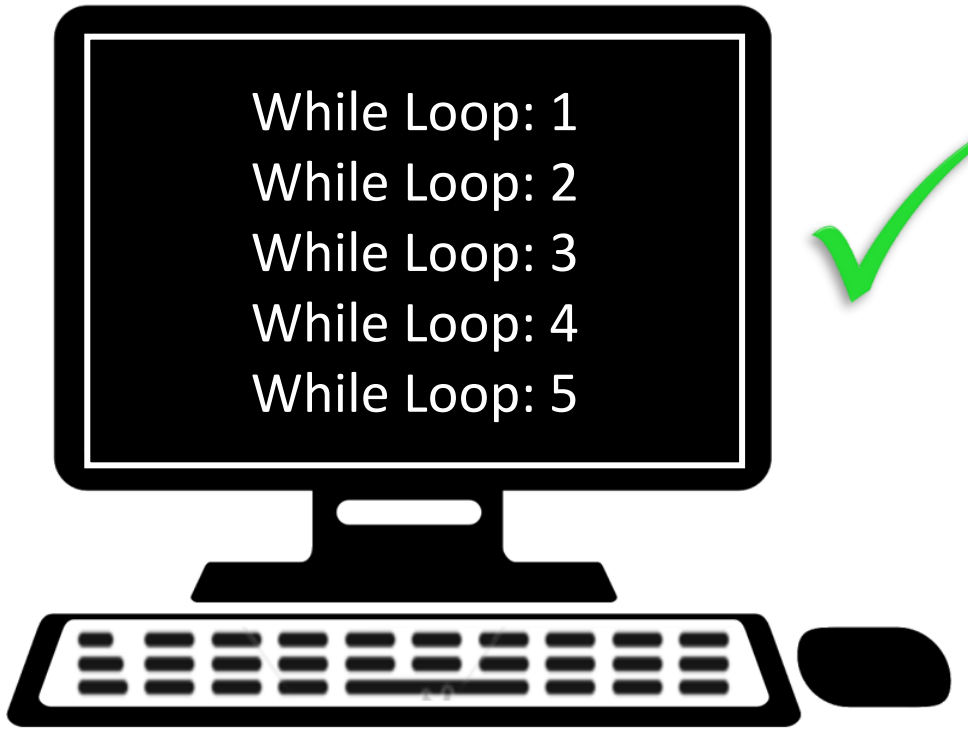
```
<script>

var grade = 'AA';

switch (grade) {
    case 'AA':
        document.write("Excellent");
        break;
    case 'BB':
        document.write("Good");
        break;
    default:
        document.write("Needs Improvement");
}

</script>
```

Control Statements (for-loop)

```
<script>
    // First loop: Iterates 5 times and prints "Iteration" followed by the current value of 'i'
    for (let i = 0; i < 5; i++) {
        document.write("Iteration " + i);
    }

    var name = "Tishk International University";

    // Adding a line break
    document.write("<br>");

    // Second loop: Iterates through each character in the 'name' string and prints it on a new line
    for (let i = 0; i < name.length; i++) {
        document.write(name[i] + "<br>");
    }

    document.write("<br>");

    // Declaring an array 'myArray' with different fruit names
    var myArray = ["Apple", "Banana", "Orange", "Mango", "Pineapple"];

    // Third loop: Iterates through each element of the 'myArray' array and prints it on a new line
    for (let i = 0; i < myArray.length; i++) {
        document.write(myArray[i] + "<br>");
    }
</script>
```

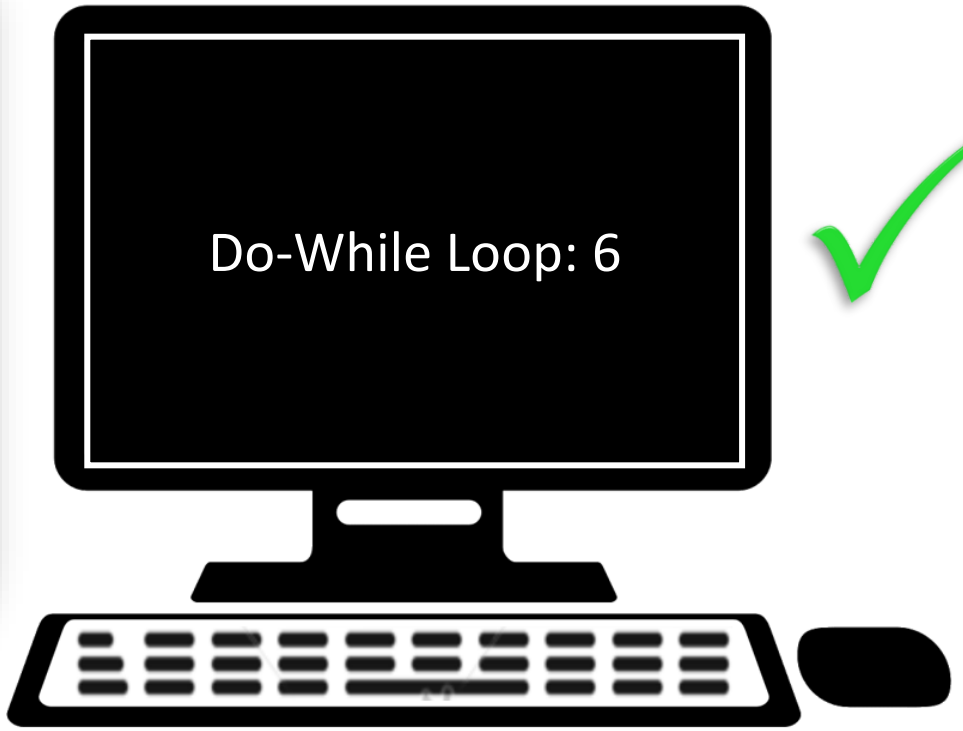
Control Statements (while-loop)

```
<script>

 let i = 1;
    while (i <= 5) {
      document.write("While Loop: " + i + "<br>");
      i++;
    }

</script>
```



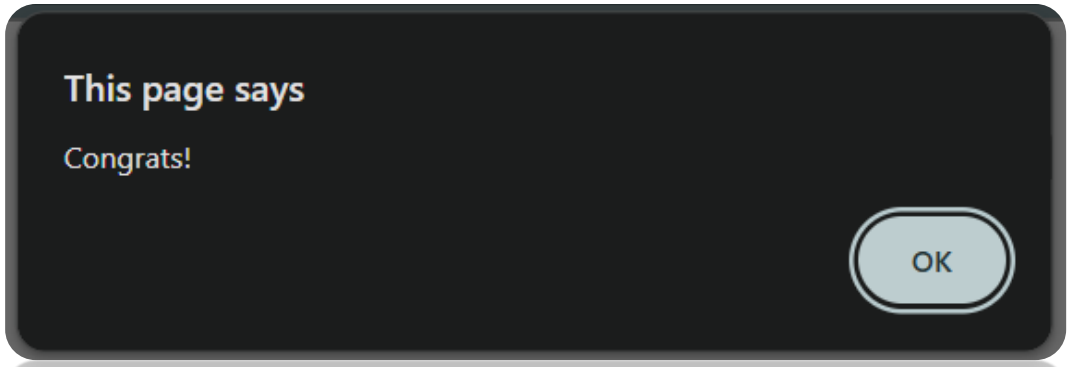
Control Statements (do-while)

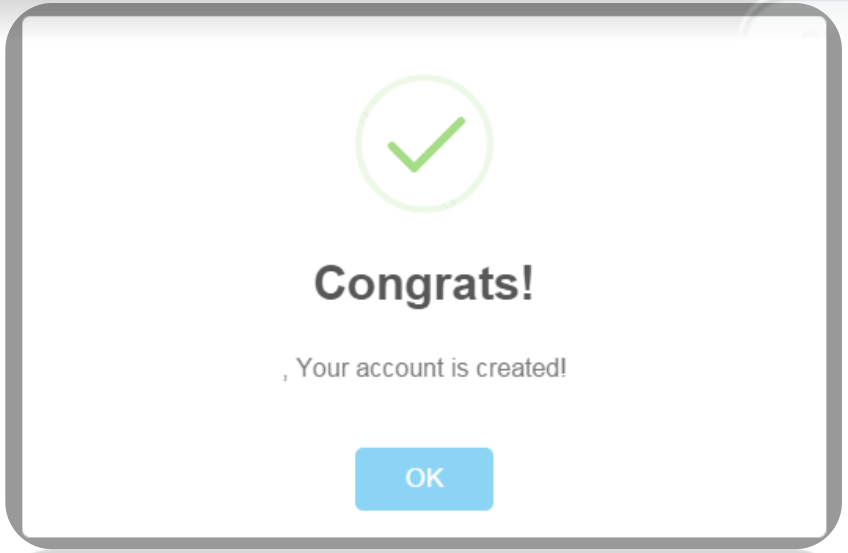
```
<script>

let j = 6;
    do {
        document.write("Do-While Loop: " + j + "<br>");
        j++;
    } while (j <= 5);

</script>
```



JavaScript Alert

```
<script>

    alert("Congrats!");

</script>
```



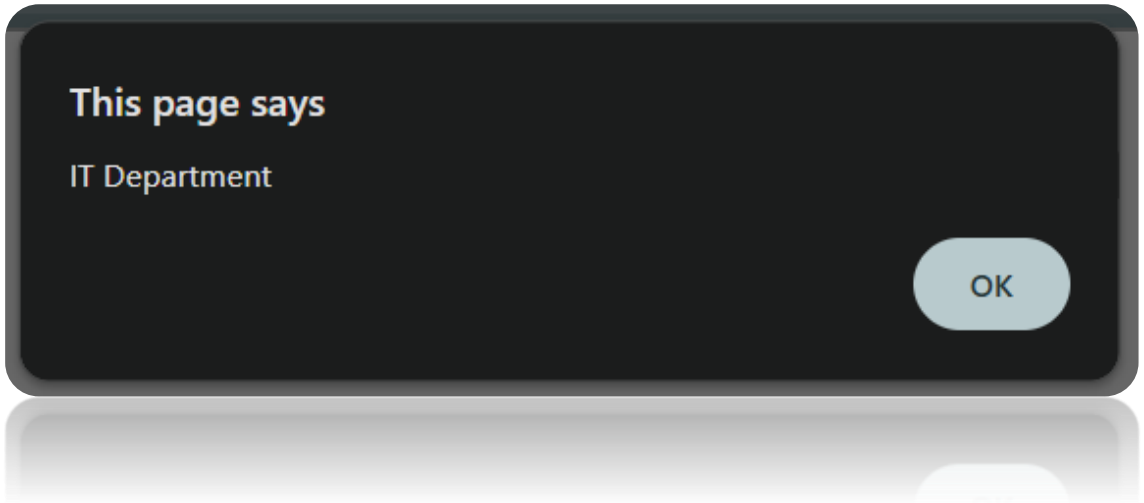


JavaScript Functions

```
<script>

    function myFunction() {
        document.write("Hello, World!");

    }
    myFunction();
</script>
```

JavaScript Functions

```
<script>

    function myFunction() {
        alert("IT Department");
    }
    myFunction();

</script>
```



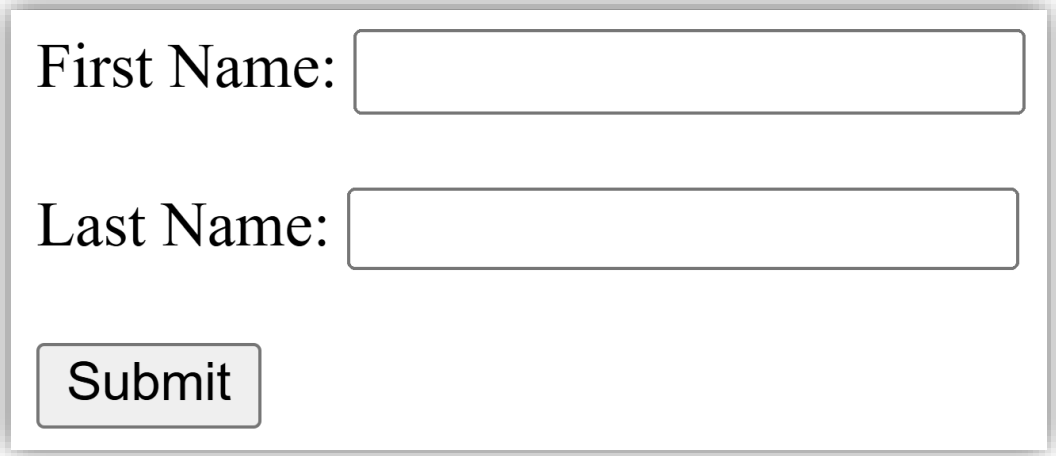
JavaScript Functions

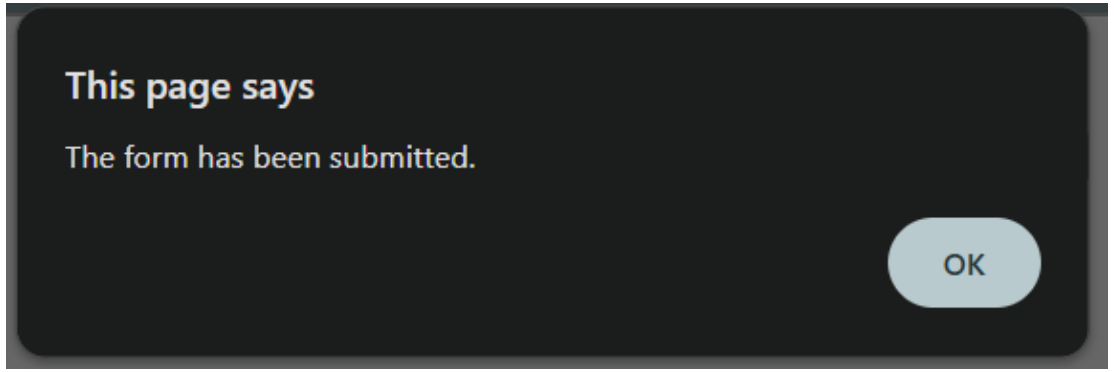
```
<script>

    function myFunction(a,b) {
        return a*b;
    }

    document.write(myFunction(2,3));

</script>
```

JavaScript Functions


```
<button onclick="myFunction()">Click Me</button>
```

JavaScript Functions






```
<form onsubmit="myFunction()">
```

Document Object Model (DOM)

- document.getElementById()

  This method is used to find (select) an HTML element by its ID.

- innerHTML

  This property is used to get or change the HTML content (text or HTML code) inside an element.

Document Object Model (DOM)

TIU

Click me

```
<h1 id="uni">Tishk International University</h1>

<button onclick="changeContent()">Click me</button>

    <script>

    function changeContent() {
        document.getElementById("uni").innerHTML = "TIU";
    }

</script>
```

Document Object Model (DOM)

- style.color

  This property is used to change the text color of an HTML element.

Lab Assesments and Next Lecture's Topic

Lab Assessments

- Lab Exercises
- Quiz 1 (JavaScript).

Next Lecture's Topic

- Introduction to PHP + Setup

References

- Tatroe, K., & MacIntyre, P. (2020). Programming PHP: Creating dynamic web pages (4th ed.). O'Reilly Media.
- Ullman, L. (2016). PHP for the web: Visual QuickStart guide (5th ed.). Peachpit Press.

Thank You!