



جامعة المستقبل
AL MUSTAQBAL UNIVERSITY

Web Programming II

Lecture 3

JavaScript Variables and Data Types

By

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Lecture Objectives:

By the end of this lecture, you will learn:

- How to declare and use variables in JavaScript
- The difference between var, let, and const
- Different data types (primitive and non-primitive)
- How to check data types using typeof

What is a Variable?

Definition: A variable is a storage location in memory used to store data.

Example:

```
let name = "Ali";
```

```
let age = 25;
```

Declaring Variables in JavaScript

JavaScript provides three ways to declare variables:

- **var** (old way, avoid using it)
- **let** (recommended, value can be changed)
- **const** (constant, cannot be changed)

var vs. let vs. const

Keyword	Redeclaration	Reassignment	Scope
var	✓ Yes	✓ Yes	Global or Function Scope
let	✗ No	✓ Yes	Block Scope
const	✗ No	✗ No	Block Scope

Example:

```
let x = 10;
```

```
const y = 20;
```

```
y = 30; // ✗ Error! Cannot change a constant value
```

JavaScript Data Types

-  Two main types of data:

1. Primitive Data Types (Stores a single value)

2. Non-Primitive Data Types (Stores multiple values by reference)

Primitive Data Types

Type	Description	Example
<code>string</code>	Text values	<code>"Hello"</code>
<code>number</code>	Integers & floats	<code>42</code> , <code>3.14</code>
<code>boolean</code>	True/false values	<code>true</code> , <code>false</code>
<code>null</code>	Empty value	<code>null</code>
<code>undefined</code>	Variable not assigned	<code>undefined</code>
<code>symbol</code>	Unique identifier	<code>Symbol('id')</code>
<code>bigint</code>	Large numbers	<code>9007199254740991n</code>

Primitive Data Types

Example:

```
let message = "Hello"; // String
```

```
let age = 30; // Number
```

```
let isStudent = false; // Boolean
```

Non-Primitive Data Types

Type	Description	Example
object	Key-value pairs	<code>{ name: "Ali", age: 25 }</code>
array	List of values	<code>[1, 2, 3]</code>
function	Reusable block of code	<code>function sayHello() {}</code>

Example:

```
let person = { name: "Ali", age: 25 }; // Object
```

```
let numbers = [10, 20, 30]; // Array
```

```
function greet() { console.log("Hello!"); } // Function
```

Checking Data Types (typeof)

Use typeof to check variable types:

- `console.log(typeof "Hello");` `// "string"`
- `console.log(typeof 42);` `// "number"`
- `console.log(typeof true);` `// "boolean"`
- `console.log(typeof {});` `// "object"`
- `console.log(typeof []);` `// "object"`
- `console.log(typeof function(){});` `// "function"`

Why does typeof null return "object"?

Student Assignment

Task:

- Create an object that contains your personal information
- Use `typeof` to check its type

Any Questions?