

## Training Report - Web Development Training

### Day 15: Introduction to JavaScript

**Date:** 26/6/24

**Summary of the Day:** On the fifteenth day of our web development training, we were introduced to JavaScript. JavaScript is a versatile and powerful programming language that allows developers to create interactive and dynamic web content. Today's session covered the basics of JavaScript, including its purpose, syntax, and how to include it in HTML documents.

#### Detailed Notes:

##### 1. What is JavaScript?

- JavaScript is a scripting language used to create and control dynamic website content.
- It is an essential technology alongside HTML and CSS.
- JavaScript can be used for client-side (in the browser) and server-side (with Node.js) development.

##### 2. Including JavaScript in HTML:

- **Inline JavaScript:**

```
<button onclick="alert('Hello, World!')">Click Me</button>
```

- **Internal JavaScript:**

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Internal JavaScript Example</title>
  <script>
    function showAlert() {
      alert('Hello, World!');
    }
  </script>
</head>
<body>
  <button onclick="showAlert()">Click Me</button>
</body>
</html>
```

- **External JavaScript:**

- Create a separate JavaScript file (e.g., script.js).
- Link the external JavaScript file in the HTML document.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>External JavaScript Example</title>
  <script src="script.js" defer></script>
</head>
<body>
  <button onclick="showAlert()">Click Me</button>
</body>
</html>
```

- script.js:

```
js
Copy code
function showAlert() {
  alert('Hello, World!');
}
```

### 3. Basic JavaScript Syntax:

- **Variables:**

```
var x = 5;           // ES5: function-scoped
let y = 10;          // ES6: block-scoped
const z = 15;        // ES6: block-scoped, constant
```

- **Data Types:**

- Strings, Numbers, Booleans, Arrays, Objects, etc.

```
let name = "John";
let age = 25;
let isStudent = true;
let hobbies = ["reading", "sports"];
let person = {
  firstName: "Jane",
  lastName: "Doe"
};
```

- **Operators:**

- Arithmetic: +, -, \*, /, %

- Assignment: =, +=, -=, \*=, /=
- Comparison: ==, ===, !=, !==, <, >, <=, >=
- Logical: &&, ||, !

- **Functions:**

```
function greet(name) {
  return "Hello, " + name;
}
```

```
let greeting = greet("Alice");
console.log(greeting); // Output: Hello, Alice
```

- **Control Structures:**

- **Conditional Statements:**

```
if (age >= 18) {
  console.log("Adult");
} else {
  console.log("Minor");
}
```

- **Loops:**

```
for (let i = 0; i < 5; i++) {
  console.log(i);
}
```

```
let j = 0;
while (j < 5) {
  console.log(j);
  j++;
}
```

**Reflection:** Today's introduction to JavaScript was eye-opening. Understanding how JavaScript can be used to add interactivity and dynamic behavior to webpages is a critical step in becoming a proficient web developer. The practical examples and exercises helped solidify the basic concepts, and I am eager to explore more advanced JavaScript topics in the coming days.