**JavaScript Introduction**

JavaScript is a high-level, dynamic, untyped, and interpreted programming language. It is widely used for creating interactive and dynamic web pages. As a core technology of the World Wide Web, alongside HTML and CSS, JavaScript enables developers to implement complex features on web pages, such as animated graphics, interactive forms, and real-time content updates.

**Use of JavaScript**

JavaScript has numerous applications, including:

* **Web Development**: Enhancing user interfaces and user experiences.
* **Server-Side Development**: Using frameworks like Node.js to handle server-side logic.
* **Game Development**: Creating browser-based games using HTML5 and JavaScript.
* **Mobile App Development**: Using frameworks like React Native or Ionic.
* **Web Applications**: Building single-page applications (SPAs) that offer a seamless experience.

**Ways to Include JavaScript**

There are three primary ways to include JavaScript in a web page:

1. **Inline JavaScript**: Directly within HTML tags.

Example:-

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

1. **Internal JavaScript**: Inside <script> tags within the HTML document.

Example:-

<script>

function greet() {

alert('Hello World!');

}

</script>

1. **External JavaScript**: By linking to an external .js file.

Example:-

<script src="script.js"></script>

**Basic Events in JavaScript**

Events are actions that occur in the browser, which JavaScript can respond to. Common events include:

* **Click**: Triggered when an element is clicked.
* **Mouseover**: Triggered when the mouse pointer is over an element.
* **Keypress**: Triggered when a key is pressed on the keyboard.

Example:-

document.getElementById("myButton").addEventListener("click", function() {

alert("Button clicked!");

});

**Basic Validation with JavaScript**

Form validation is essential to ensure that users provide the correct information. Here’s a simple

Example:-

<form id="myForm" onsubmit="return validateForm()">

<input type="text" id="name" required>

<input type="submit">

</form>

<script>

function validateForm() {

let name = document.getElementById("name").value;

if (name === "") {

alert("Name must be filled out");

return false;

}

return true;

}

</script>