DOM Manipulation

Question 1: What is the DOM (Document Object Model) in JavaScript? How does JavaScript interact with the DOM?

Answer 1:

**DOM (Document Object Model):**

The **DOM** is a programming interface for web documents. It represents the HTML structure of a webpage as a tree of objects, where each element is an object that can be manipulated.

**Interact with the DOM:**

JavaScript can **access**, **modify**, **add**, or **remove** HTML elements and their content using the DOM. This allows dynamic changes to the webpage without reloading it.

**Example:**

<p id="demo">Hello, World!</p>

<button onclick="changeText()">Click Me</button>

<script>

function changeText() {

document.getElementById("demo").innerText = "Text changed!";

}

</script>

**Explanations:**

* JavaScript uses the DOM to interact with HTML elements.
* You can **select**, **modify**, and **update** elements dynamically.

Question 2: Explain the methods getElementById(), getElementsByClassName(),and querySelector() used to select elements from the DOM.

Answer 2:

**Methods to Select DOM Elements in JavaScript:**

1. **getElementById():**

* Selects an element by its **ID**.
* Returns **one element**.
* **Example:**

let element = document.getElementById("myId");

1. **getElementsByClassName():**

* Selects elements by their **class name**.
* Returns a **live HTMLCollection** of elements.
* **Example:**

let elements = document.getElementsByClassName("myClass");

1. **querySelector():**

* Selects the **first element** that matches the CSS selector (ID, class, tag, etc.).
* Returns **one element**.
* **Example:**

let element = document.querySelector(".myClass"); // or #myId, p, etc.

### **Explanations:**

* **getElementById()**: Selects by ID.
* **getElementsByClassName()**: Selects by class name (returns multiple elements).
* **querySelector()**: Selects the first match using a CSS selector.