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

What is the DOM

The **DOM (Document Object Model)** is a **tree-like representation** of an HTML/XML document. It allows JavaScript to:

- Access, modify, add, or delete HTML elements.

- Change styles, attributes, and content dynamically.

- Respond to user events (clicks, key presses).

**How JavaScript Interacts with the DOM**

1. Select Elements (e.g., `getElementById`).

2. Modify Elements (e.g., `textContent`, `style.color`).

3. Add/Remove Elements (e.g., `appendChild`, `remove`).

4. Attach Event Listeners (e.g., `addEventListener`).

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

**1. `getElementById()`**

- Selects a single element by its `id` attribute.

- Returns: The element (or `null` if not found).

**Syntax:**

Javascript:

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

**2. `getElementsByClassName()`**

- Selects multiple elements by their `class` name.

- Returns: A live `HTMLCollection` (array-like object).

**Syntax:**

Javascript:

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

**3. `querySelector()`**

- Selects the first matching element using a CSS-style selector.

- Returns: The element (or `null`).

**Syntax:**

Javascript:

const element = document.querySelector("div.myClass");