10.DOM Manipulation

Q1. What is the DOM (Document Object Model) in JavaScript? How does JavaScript interact with the DOM?

The **DOM (Document Object Model)** is a structure that represents an HTML webpage as a tree of objects. Each part of the webpage like <p>, <h1>, <div>, images, buttons, etc., is treated as an object in this tree.

JavaScript uses the DOM to access, change, add, or delete elements from a webpage. This allows us to make webpages dynamic and interactive. For example, we can change text, update styles, hide or show elements, and more — all using JavaScript.

DOM is important in web development because it connects HTML with JavaScript and allows real-time changes on the webpage.

Q2. Explain the methods getElementById(), getElementsByClassName(), and querySelector() used to select elements from the DOM.

JavaScript provides different methods to select HTML elements from the DOM:

1.getElementById()

- Selects an element using its id.

Example:

document.getElementById("title");

2.getElementsByClassName()

- Selects multiple elements with the same class name.

Example:

document.getElementsByClassName("box");

4.querySelector()

- Selects the **first matching element** using CSS-style selectors like id, class, tag, etc.

Example:

document.querySelector(".container");