Question 1: What are JavaScript events? Explain the role of event listeners.

**🔹 JavaScript Events**

* **JavaScript events** are actions or occurrences that happen in the browser, often triggered by the user or the browser itself. These events allow developers to make web pages interactive.

**✅ Common Examples of Events:**

| **Event Type** | **Description** |
| --- | --- |
| click | When a user clicks on an element |
| mouseover | When a user hovers over an element |
| keydown | When a key is pressed on the keyboard |
| submit | When a form is submitted |
| load | When a page or image has fully loaded |

**🔹 Role of Event Listeners**

* An **event listener** is a method that **waits for a specific event** to happen on a particular element, and then **executes a function** (called a handler or callback) when that event occurs.

**✅ Syntax:**

element.addEventListener("event", function);

**✅ Example:**

*<button id="myBtn">Click Me</button>*

*<script>*

*let button = document.getElementById("myBtn");*

*button.addEventListener("click", function() {*

*alert("Button was clicked!");*

*});*

*</script>*

In this example:

* "click" is the event type.
* The function inside addEventListener is called when the button is clicked.

**✅ Other Event Listener Options:**

*element.removeEventListener("event", function); // Removes a previously attached listener*

Question 2: How does the addEventListener() method work in JavaScript? Provide an example.

**🔹 How addEventListener() Works in JavaScript**

The addEventListener() method in JavaScript is used to **attach an event handler** to an HTML element. It **listens for a specific event** (like click, mouseover, keydown, etc.), and when that event occurs, it runs the **specified callback function**.

**✅ Syntax:**

element.addEventListener(eventType, callbackFunction, useCapture);

**✅ Simple Example:**

*<button id="myBtn">Click Me</button>*

*<script>*

*// Get the button element*

*let btn = document.getElementById("myBtn");*

*// Add event listener for 'click' event*

*btn.addEventListener("click", function () {*

*alert("Button clicked!");*

*});*

*</script>*

**What happens?**

* When the button is clicked, the function inside addEventListener runs.
* It shows an alert message: **"Button clicked!"**

**✅ Example with a Named Function:**

*function sayHello() {*

*console.log("Hello from the button!");*

*}*

*btn.addEventListener("click", sayHello);*