

## Q1. What are JavaScript events? Explain the role of event listeners.

**Ans:** JavaScript events are actions or occurrences that happen in the browser and can be detected by JavaScript. These events allow web pages to respond to user interactions and browser activities.

Common Examples of Events:

- Clicking a button (click)
- Submitting a form (submit)
- Loading a page (load)
- Typing in an input field (keydown)
- Moving the mouse (mouseover)

Role of Event Listeners

An event listener is a method that waits for a specific event to occur on an element and then executes a function in response.

Event listeners make web pages interactive and dynamic.

Syntax of Event Listener:

```
element.addEventListener("event", function);
```

Example:

```
<button id="btn">Click Me</button>
```

```
<script>
```

```
let button = document.getElementById("btn");
```

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

```
    alert("Button clicked!");
```

```
});
```

```
</script>
```

Explanation:

- The event listener waits for a click event on the button.
- When the button is clicked, the function runs and shows an alert.

## Advantages of Event Listeners

- Allows multiple events on the same element.
- Keeps JavaScript code separate from HTML.
- Provides better control and flexibility than inline event handling.

## Q2. How does the `addEventListener()` method work in JavaScript? Provide an example.

**Ans:** The `addEventListener()` method is used to attach an event handler to an HTML element. It waits for a specific event (such as a click, key press, or mouse movement) and then runs a function when that event occurs.

### How `addEventListener()` Works

1. Select an HTML element.
2. Specify the event type (without `on`, e.g., `"click"`).
3. Provide a callback function that executes when the event happens.

### Syntax:

```
element.addEventListener("event", callbackFunction);
```

### Example:

```
<button id="btn">Click Me</button>
```

```
<script>
```

```
let button = document.getElementById("btn");
```

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

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

```
});
```

```
</script>
```

### Explanation:

- The button is selected using `getElementById()`.
- The event type is `"click"`.
- When the button is clicked, the function runs and displays an alert.