

## Q1. Explain the setTimeout() and setInterval() functions in JavaScript. How are they used for timing events?

**Ans:** In JavaScript, setTimeout() and setInterval() are timing functions used to execute code after a delay or repeatedly at fixed intervals. They are commonly used for animations, notifications, and automatic updates.

### 1. setTimeout()

- Executes a function only once after a specified delay.
- The delay is given in milliseconds (1000 ms = 1 second).

Syntax:

```
setTimeout(function, delay);
```

Example:

```
setTimeout(function () {  
    console.log("This message appears after 2 seconds");  
}, 2000);
```

Explanation:

The function runs once after a 2-second delay.

### 2. setInterval()

- Executes a function repeatedly at specified time intervals.
- Continues running until stopped.

Syntax:

```
setInterval(function, interval);
```

Example:

```
let count = 1;
```

```
let timer = setInterval(function () {  
    console.log(count);  
    count++;  
    if (count > 5) {  
        clearInterval(timer);  
    }  
}, 1000);
```

```
}  
}, 1000);
```

Explanation:

The function runs every 1 second and stops after printing 5 numbers.

Stopping Timers

- `clearTimeout()` stops a timeout.
- `clearInterval()` stops an interval.

Use in Timing Events

- `setTimeout()` → Delayed execution (pop-ups, alerts, animations).
- `setInterval()` → Repeated tasks (clocks, slideshows, live updates).

**Q2. Provide an example of how to use `setTimeout()` to delay an action by 2 seconds.**

**Ans:** `<!DOCTYPE html>`

```
<html>
```

```
<head>
```

```
    <title>setTimeout Example</title>
```

```
</head>
```

```
<body>
```

```
    <button onclick="showMessage()">Click Me</button>
```

```
    <script>
```

```
        function showMessage() {
```

```
            setTimeout(function () {
```

```
                alert("This message appears after 2 seconds");
```

```
            }, 2000); // 2000 milliseconds = 2 seconds
```

```
        }
```

```
    </script>
```

```
</body> </html>
```