

## DOM Events

Events are signals that something has occurred. (user inputs / actions)

index.html > html > body > button

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta http-equiv="X-UA-Compatible" content="IE=edge" />
6     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
7     <title>JS</title>
8     <link rel="stylesheet" href="style.css" />
9   </head>
10  <body>
11    <button>click me</button>
12    <script src="app" menu
13  </body>
14 </html>
15
```

menu  
menu:c  
menu:context  
menu:t

```
<title>JS</title>
<link rel="stylesheet" href="style.css" />
</head>
<body>
  <button onclick="console.log('button was clicked')">click me</button>
  <script src="app.js"></script>
</body>
</html>
```

```
<body>
  <button
    | onclick="console.log('button was clicked'); console.log('apna college'); "
  >
    | click me
  </button>
  <script src="app.js"></script>
</body>
</html>
```

```
<body>
  <button onclick="console.log('photo was liked'); ">like this photo</button>
  <script src="app.js"></script>
</body>
</html>
```

# DOM Events

**onclick** (when an element is clicked)

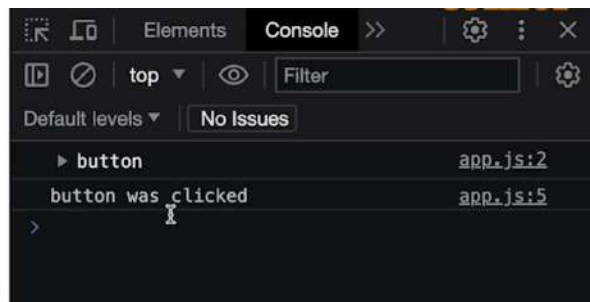
**onmouseenter** (when mouse enters an element)

```
let btn = document.querySelector("button");  
console.dir(btn);
```

```
btn.onclick = function () {  
  console.log("button was clicked");  
};
```

click me!

snehagupta7385@gmail.com





JS app.js >  sayHello

```
1  let btn = document.querySelector("button");
2  console.dir(btn);
3
4  // btn.onclick = function () {
5  //    alert("button was clicked");
6  // };
7  💡
8  function sayHello() {
9    alert("Hello!");
10 }
11
12 btn.onclick = sayHello;
13
```



JS app.js >  onmouseenter

```
1  let btns = document.querySelectorAll("button");
2
3  for (btn of btns) {
4      btn.onclick = sayHello;
5      btn.onmouseenter = function () {
6          console.log("you entered a button")
7      }
8      console.dir(btn);
9  }
10
11 function sayHello() {
12     alert("Hello!");
13 }
14
```

like me! like me 2! like me 3! like me 4!

Elements Console >> ⚙️ ⋮ ✕

📄 🔍 top 👁 Filter ⚙️

Default levels ▾ No Issues

▶ button

▶ button

▶ button

▶ button

you entered a button

> ⌵

app.js:8  
app.js:8  
app.js:8  
app.js:8  
app.js:6

# Event Listener

## **addEventListener**

*element.addEventListener( event, callback )*

```
btn.addEventListener("click", function () {  
  console.log("button clicked");  
});
```

JS app.js > ...

```
1  let btns = document.querySelectorAll("button");
2
3  for (btn of btns) {
4      // btn.onclick = sayHello;
5      // btn.onclick = sayName;
6
7      btn.addEventListener("click", sayHello);
8      btn.addEventListener("click", sayName);
9  }
10
11  function sayHello() {
12      alert("Hello!");
13  }
14
15  function sayName() {
16      alert("Apna College");
17  }
18
```



sayName

function


```
let btns = document.querySelectorAll("button");


for (btn of btns) {
  // btn.onclick = sayHello;
  // btn.onclick = sayName;
  // btn.addEventListener("click", sayHello);
  // btn.addEventListener("click", sayName);
  btn.addEventListener("dblclick", function () {
    console.log("you double clicked me");
  });
}
```

```
function sayHello() {
  alert("Hello!");
}
```

```
function sayName() {
  alert("Apna College");
}
```

like me! like me 2! like me 3! like me 4!

ElementsConsole >

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Default levels ▾No Issues

you double clicked me

>



---

## Generate a random color

Generate Color

This is your new color

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>JS</title>
    <link rel="stylesheet" href="style.css" />
  </head>
  <body>
    <h3>Generate a random color</h3>
    <button>Generate Color</button>
    <div>This is your new color</div>
    <script src="app.js"></script>
  </body>
</html>
```

# style.css >  div

```
1  body {
2    text-align: center;
3  }
4
5  div {
6    height: 100px;
7    width: 500px;
8    border: 1px solid  black;
9    margin: auto;
10 }
11
```

 **auto**

op.js /  btn.addEventListener( click ) callback

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

```
btn.addEventListener("click", function () {  
  console.log("generate random color");  
});
```



```
function getRandomColor() {  
  let red = Math.floor(Math.random() * 255);  
  let green = Math.floor(Math.random() * 255);  
  let blue = Math.floor(Math.random() * 255);  
  
  let color = `(${red}, ${green}, ${blue})`;  
  return color;  
}
```

```
> getRandomColor();
```

```
< '(219, 44, 67)'
```

```
> getRandomColor();
```


```
< '(153, 245, 31)'
```

```
> getRandomColor();
```

```
< '(44, 93, 44)'
```

```
> getRandomColor();
```

```
< '(18, 230, 74)'
```

JS app.js >  btn.addEventListener("click") callback

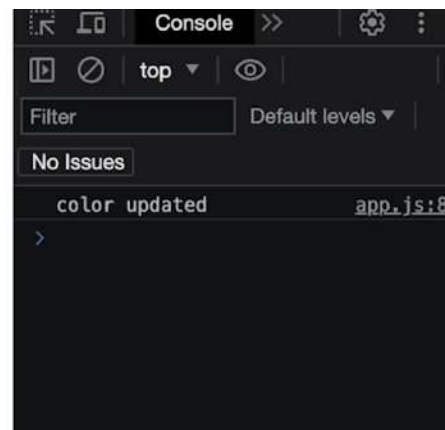
```
1  let btn = document.querySelector("button");
2
3  btn.addEventListener("click", function () {
4      let h3 = document.querySelector("h3");
5      let randomColor = getRandomColor();
6      h3.innerText = randomColor;
7
8      console.log("color updated");
9  });
10
11 function getRandomColor() {
12     let red = Math.floor(Math.random() * 255);
13     let green = Math.floor(Math.random() * 255);
14     let blue = Math.floor(Math.random() * 255);
15
16     let color = `rgb(${red}, ${green}, ${blue})`;
17     return color;
18 }
19
```

**rgb(78, 69, 176)**

Generate Color


This is your new color

ehagupta7385@gmail.com





JS app.js > ...

```
1  let btn = document.querySelector("button");
2  
3  btn.addEventListener('click', function () {
4      let h3 = document.querySelector("h3");
5      let randomColor = getRandomColor();
6      h3.innerText = randomColor;
7
8      let div = document.querySelector("div");
9      div.style.backgroundColor = randomColor;
10
11     console.log("color updated");
12 });
13
14 function getRandomColor() {
15     let red = Math.floor(Math.random() * 255);
16     let green = Math.floor(Math.random() * 255);
17     let blue = Math.floor(Math.random() * 255);
18
19     let color = `rgb(${red}, ${green}, ${blue})`;
20     return color;
21 }
22
```

```
8 <link rel="stylesheet" href="style.css" />
9
10 </head>
11 <body>
12   <p>This is a paragraph.</p>
13   <script src="app.js"></script>
14 </body>
15 </html>
```

JS app.js >  p.addEventListener("click") callback

```
1 let p = document.querySelector("p");
```

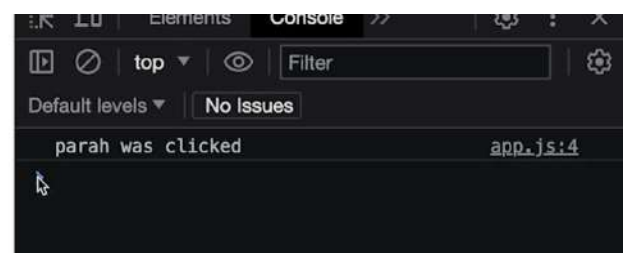
```
2
```

```
3 p.addEventListener("click", function() {
```

```
4   console.log("parah was clicked");
```

```
5   });
```

This is a paragraph.



```
<body>
  <p>This is a paragraph.</p>
  <div class="box">|</div>
  <script src="app.js"></script>
</body>
</html>
```

style.css /  .box

```
.box {  
  height: 100px;  
  width: 100px;  
  background-color:  pink;  
  border: 1px solid black  
}
```

```
let box = document.querySelector(".box");  
box.addEventListener("mouseenter", function () {  
  console.log("mouse inside box");  
});
```

## this in Event Listeners

When 'this' is used in a callback of event handler of something, it refers to that something.




```
<body>  
  <button>click me!</button>  
  <script src="app.js"></script>  
</body>  
</html>
```

```
document.addEventListener("click", function () {  
  console.log(this);  
});
```

```
<button>click me!</button>
```

```
<button>click me!</button>
```

```
btn.addEventListener("click", function () {  
  console.dir(this.innerText);  
  this.style.backgroundColor = "blue";  
});
```



click me!

```
<body>  
  <h1>Use of 'this' in Event Listeners</h1>  
  <h3>Let's demo it on element</h3>  
  <button>click me!</button>  
  <script src="app.js"></script>  
</body>
```

```
<p>This is a sample paragraph</p>  
<button>click me!</button>
```

```
let btn = document.querySelector("button");  
let p = document.querySelector("p");  
let h1 = document.querySelector("h1");  
let h3 = document.querySelector("h3");
```

```
btn.addEventListener("click", function () {  
    console.dir(this.innerText);  
    this.style.backgroundColor = "blue";  
});
```

```
p.addEventListener("click", function () {  
    console.dir(this.innerText);  
    this.style.backgroundColor = "blue";  
});
```

```
h1.addEventListener("click", function () {  
    console.dir(this.innerText);  
    this.style.backgroundColor = "blue";  
});
```

```
h3.addEventListener("click", function () {  
    console.dir(this.innerText);  
    this.style.backgroundColor = "blue";  
});
```





```
let btn = document.querySelector("button");
let p = document.querySelector("p");
let h1 = document.querySelector("h1");
let h3 = document.querySelector("h3");

function changeColor() {
  console.dir(this.innerText);
  this.style.backgroundColor = "blue";
}

btn.addEventListener("click", changeColor);
p.addEventListener("click", changeColor);
h1.addEventListener("click", changeColor);
h3.addEventListener("click", changeColor);
```

```
<body>  
  <button>click me!</button>  
  <script src="app.js"></script>  
</body>  
</html>
```

JS app.js > ...

```
1  let btn = document.querySelector("button");
2
3  // btn.addEventListener("click", function (event) {
4  //    console.log(event);
5  //    console.log("button clicked");
6  //     });
7
8  // btn.addEventListener("dblclick", function (event) {
9  //    console.log(event);
10 //    console.log("button clicked");
11 //    };
12
```

```
<body>  
  <input placeholder="type something" />  
  <button>click me!</button>  
  <script src="app.js"></script>  
</body>
```

```
JS app.js >  inp.addEventListener("keydown") callback
1   let inp = document.querySelector("input");
2
3   inp.addEventListener("keydown", function() {
4     console.log("key was pressed")
5   })
```

⌵ ⌵ Elements Console >>

⏮ ⏭ top ⏮ Filter

Default levels ▾ No Issues

2 key was pressed

>

JS app.js >  inp.addEventListener("keyup") callback

```
1  let inp = document.querySelector("input");
2
3  // inp.addEventListener("keydown", function () {
4  //    console.log("key was pressed");
5  // });
6
7  inp.addEventListener("keyup", function () {
8    console.log("key was released");
9  });
10
```

⌕ 📄 Elements

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Default levels ▾ No Issues

key was released

>



ab



```
Elements Console >>
top Filter
Default levels ▾ No Issues
KeyboardEvent {isTrusted: true, ...}
  e: 'Space', location: 0, ctrlKey: false, ...
    isTrusted: true
    altKey: false
    bubbles: true
    cancelBubble: false
    cancelable: true
    charCode: 0
    code: "Space"
    composed: true
    ctrlKey: false
    currentTarget: null
    defaultPrevented: false
    detail: 0
    eventPhase: 0
    isComposing: false
    key: " "
```

```
let inp = document.querySelector("input");

inp.addEventListener("keydown", function (event) {
  console.log(event.key);
  console.log(event.c);
  console.log("key was pressed");
});

// inp.addEventListener("keyup", function () {
//   console.log("key was released");
// });
```

ab

click me!

snehagupta7385@gmail.com

Elements

top

Default levels

No Issues

a

KeyA

key was pressed

b

KeyB

key was pressed

>

```
</head>
<body>
  <input placeholder="move you character" />
  <button>click me!</button>
  <script src="app.js"></script>
</body>
</html>
```

JS app.js >  inp.addEventListener("keydown") callback

```
1  let inp = document.querySelector("input");
2
3  inp.addEventListener("keydown", function (event) {
4      console.log("code = ", event.code); //ArrowUp, ArrowDown, ArrowLeft, ArrowRight
5      if (event.code == "ArrowUp") {
6          console.log("character moves forward");
7      } else if (event.code == "ArrowDown") {
8          console.log("character moves backward");
9      } else if (event.code == "ArrowLeft") {
10         console.log("character moves left");
11     } else if (event.code == "ArrowRight") {
12         console.log("character moves right");
13     }
14 });
15
```

JS app.js >  inp.addEventListener("keydown") callback

```
1  let inp = document.querySelector("input");
2
3  inp.addEventListener("keydown", function (event) {
4      console.log("code = ", event.code); //ArrowUp(U), ArrowDown(D), ArrowLeft(L), ArrowRight(R)
5      if (event.code == "KeyU") {
6          console.log("character moves up");
7      } else if (event.code == "KeyD") {
8          console.log("character moves down");
9      } else if (event.code == "KeyL") {
10         console.log("character moves left");
11     } else if (event.code == "KeyR") {
12         console.log("character moves right");
13     }
14 });
15
```



⌕ ↻ Elements Console >

⏮ ⏪ top ⏩ ⏭ Filter

Default levels ▾ No Issues

```
code = KeyU
character moves up
code = KeyL
character moves left
code = KeyL
character moves left
code = KeyL
character moves left
code = KeyD
character moves down
code = KeyR
character moves right
```

```
</head>
```

```
<body>
```

```
  <form action="/action">
```

```
    <input placeholder="username" />
```

```
    <button>Register</button>
```

```
  </form>
```

```
  <script src="app.js"></script>
```

```
</body>
```


```
</html>
```



JS app.js >  form.addEventListener("submit") callback

1 let form = document.querySelector("form");

2


3  form.addEventListener("submit", function () {


4 | alert("form submitted");

5 });

6


 alert

 ariaRoleDescription

 [🔒] SpeechRecognitionAlternative

## Form Events

 `event.preventDefault()`

JS app.js >  form.addEventListener("submit") callback

```
1 let form = document.querySelector("form");  
2  
3 form.addEventListener("submit", function (event) {  
4     event.preventDefault();  
5     alert("form submitted");  
6 });  
7
```

agupta7385@gmail.com

# Extracting Form Data

```
JS app.js >  form.addEventListener("submit") callback
1   let form = document.querySelector("form");
2
3   form.addEventListener("submit", function (event) {
4       event.preventDefault();
5
6       let inp = document.querySelector("input");
7       console.dir(inp);
8       console.log(inp.value);
9   });
```

```
10 7285@gmail.com
```

</head>  
<body>

<form action="/action">

<input placeholder="username" type="text" id="user" />

<input placeholder="password" type="password" id="pass" />

<button>Register</button>

</form>

<script src="app.js"></script>

</body>


abc password


sneha


JS app.js >  form.addEventListener("submit") callback

```
1 let form = document.querySelector("form");
2
3 form.addEventListener("submit", function (event) {
4   event.preventDefault();
5
6   let user = document.querySelector("#user");
7   let pass = document.querySelector("#pass");
8
9   console.log(user.value);
10  console.log([pass.value]);
11 });
12
```


[] pass

[] PaymentResponse

JS app.js >  form.addEventListener("submit") callback

```
1 let form = document.querySelector("form");
2
3 form.addEventListener("submit", function (event) {
4     event.preventDefault();
5
6     let user = document.querySelector("#user");
7     let pass = document.querySelector("#pass");
8
9     console.log(user.value);
10    console.log(pass.value);
11    
12    alert(`Hi ${user.value}, your password is set to ${pass.value}`);
13 });
14
```



JS app.js >  form.addEventListener("submit") callback

```
1 let form = document.querySelector("form");
```

```
2
```

```
3 form.addEventListener("submit", function (event) {
```

```
4   event.preventDefault();
```

```
5   console.dir(form)
```

```
6
```

► form

app.js:5

> form.elements

< HTMLFormControlsCollection(3) [input#user,  
 ► input#pass, button, user: input#user, pass:  
 input#pass]

> form.elements[0];

< <input placeholder="username" type="text" id=  
 "user">



> form.elements[1];


< <input placeholder="password" type="password"  
 id="pass">

> form.elements[2];

< <button>Register</button>

>

JS app.js >  form.addEventListener("submit") callback >  pass

```
1 let form = document.querySelector("form");
2
3 form.addEventListener("submit", function (event) {
4   event.preventDefault();
5   console.dir(form);
6   
7   let user = this.elements[0];
8   let pass = this.elements[1];
9
10  console.log(user.value);
11  console.log(pass.value);
12
13  alert(`Hi ${user.value}, your password is set to ${pass.value}`);
14  });
15
```

## More Events

### **change** event


The change event occurs when the value of an element has been changed (only works on `<input>`, `<textarea>` and `<select>` elements).

### **input** event

The input event fires when the value of an `<input>` , `<select>` , or `<textarea>` element has been changed.

JS app.js > ...

```
1  let form = document.querySelector("form");
2
3  form.addEventListener("submit", function (event) {
4    event.preventDefault();
5  });
6
7  let user = document.querySelector("#user");
8  💡
9  user.addEventListener("change", function () {
10    console.log("input changed");
11    console.log("final value = ", this.value);
12  });
13
```


JS app.js >  user.addEventListener("input") callback

```
1  let form = document.querySelector("form");
2
3  form.addEventListener("submit", function (event) {
4    event.preventDefault();
5  });
6
7  let user = document.querySelector("#user");
8
9  user.addEventListener("change", function () {
10    console.log("change event");
11    console.log("final value = ", this.value);
12  });
13
14  user.addEventListener("input", function () {
15    console.log("input event");
16    console.log("final value = ", this.value);
17  });
18
```

snehagupta738

```
</head>
<body>
  <h1>My Text Editor</h1>
  <p></p>
  <input placeholder="type something" id="text" />
  <script src="app.js"></script>
</body>
</html>
```



```
JS app.js >  inp.addEventListener("input") callback
1   let inp = document.querySelector("#text");
2   let p = document.querySelector("p");
3
4   inp.addEventListener("input", function () {
5       console.log(inp.value);
6       p.innerText = inp.value;
7   });
8
```