13. Hodisalar (Events)



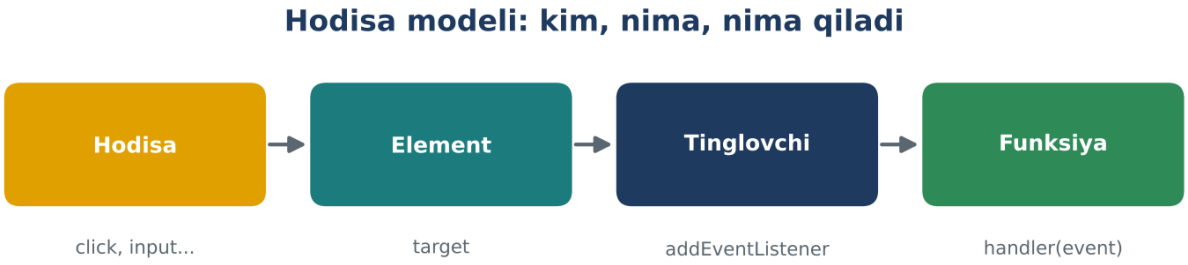
Hodisa (event) — foydalanuvchi yoki brauzer bilan sodir bo'ladigan voqea: **bosish, yozish, sichqoncha harakati**. Hodisalar sahifani **jonli** qiladi. Bu dars ularni noldan tushuntiradi. Misollardagi "bosish"lar kod bilan taqlid qilingan; brauzerda siz o'zingiz bosasiz.

> **Bu darsda nimani o'rganasiz**
>
> Hodisa nima va qanday ishlaydi.
>
> `addEventListener` bilan tinglovchi qo'shish.
>
> `click`, `input`, `keydown`, `submit` hodisalari.
>
> Event obyekti: `event.target`, `event.key`.
>
> Formani to'xtatish: `preventDefault`.
>
> Sodda interaktiv ilovalar.

1.1. Hodisa nima?

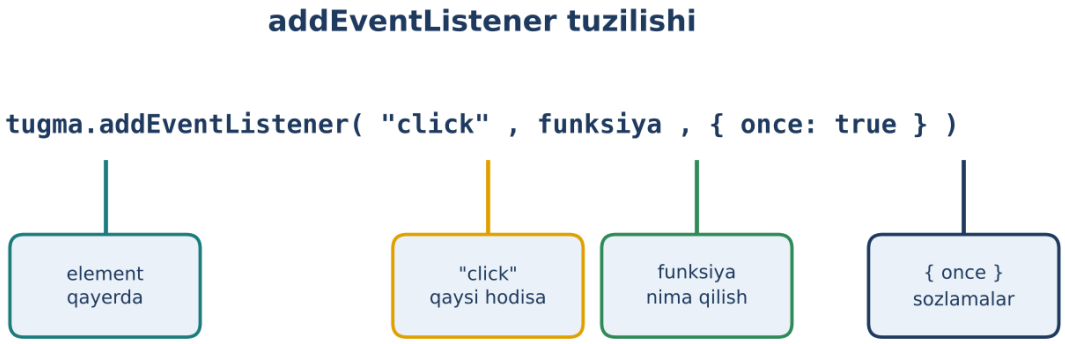
Sahifa **kutib turadi**: foydalanuvchi tugmani bosadi, matn yozadi, sichqonchani suradi — bularning har biri **hodisa**. Biz dasturga "agar shunday bo'lsa, mana bu funksiyani ishga tushir" deb aytamiz. Bu funksiya **tinglovchi (handler / listener)** deyiladi.

Hayotiy o'xshatish: eshik **qo'ng'irog'i**. Siz qo'ng'iroqni (hodisa) kutib turasiz; u jiringlaganda eshikni ochasiz (funksiya).



1-rasm. Hodisa modeli

1.2. addEventListener



2-rasm. addEventListener tuzilishi

```
const tugma = document.getElementById("tugma");
let sanoq = 0;

tugma.addEventListener("click", function () {
  sanoq++;
  console.log(`Tugma ${sanoq} marta bosildi`);
});

// Brauzerda siz bosasiz; bu yerda kod bilan taqlid qilamiz:
tugma.click();
tugma.click();
tugma.click();
```

Natija:

```
Tugma 1 marta bosildi
Tugma 2 marta bosildi
Tugma 3 marta bosildi
```

Funksiyani boshqa joyda e'lon qilib, nomini berish ham mumkin (qavs **yozilmaydi**!):

```
function salom() { console.log("Salom!"); }
const tugma = document.getElementById("tugma");
```

```
tugma.addEventListener("click", salom);       // to'g'ri: funksiyaning o'zi
tugma.click();

// NOTO'G'RI: salom() — funksiya darrov chaqiriladi, tinglovchi sifatida undef
// tugma.addEventListener("click", salom());
```

Natija:

```
Salom!
```

> **Qavsni unutmang... yoki yozmang!**
>
> `addEventListener("click", salom)` — to'g'ri.
> `addEventListener("click", salom())` — **xato**: funksiya darrov ishlab ketadi, natijasi tinglovchi bo'lib qoladi.

1.3. Event obyekti

Tinglovchi funksiya **birinchi parametr** sifatida hodisa haqida ma'lumot beruvchi **event obyektini** oladi. Odatda uni `event` yoki `e` deb nomlashadi.

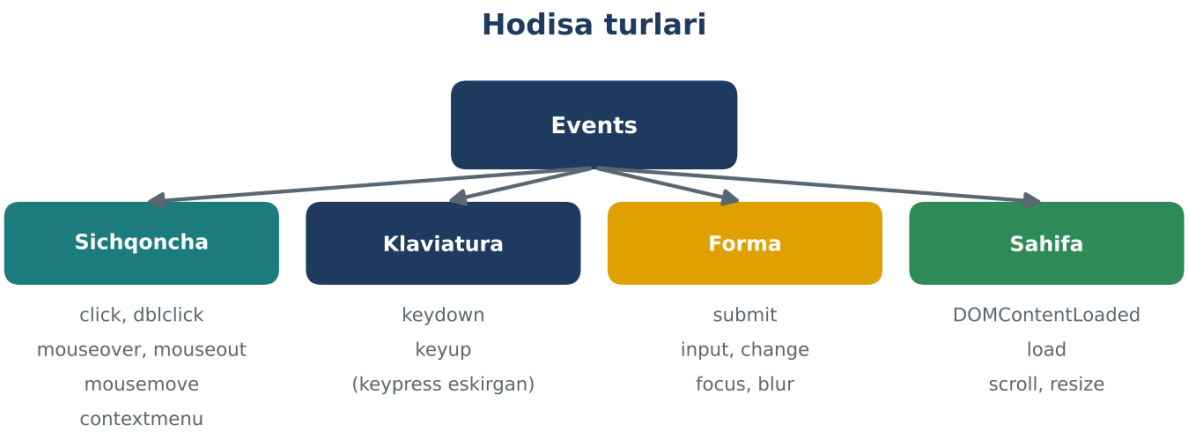
```
const tugma = document.getElementById("tugma");

tugma.addEventListener("click", (event) => {
  console.log(event.type);              // hodisa turi
  console.log(event.target.id);         // qaysi element bosildi
  console.log(event.target.textContent);
});
tugma.click();
```

Natija:

```
click
tugma
Bos
```

1.4. Eng ko'p ishlatiladigan hodisalar



3-rasm. Hodisa turlari

1-jadval. Asosiy hodisalar

Hodisa	Qachon sodir bo'ladi
`click`	Element bosilganda
`dblclick`	Ikki marta tez bosilganda
`input`	Matn maydoniga **har belgi** yozilganda
`change`	Qiymat o'zgarib, maydondan chiqilganda (yoki tanlov o'zgarganda)
`submit`	Forma yuborilganda
`keydown` / `keyup`	Klavish bosilganda / qo'yib yuborilganda
`mouseover` / `mouseout`	Sichqoncha ustiga kelganda / ketganda
`focus` / `blur`	Maydon fokus olganda / yo'qotganda
`DOMContentLoaded`	HTML to'liq o'qilganda

1.5. input va matn maydoni

```
const maydon = document.getElementById("ism");

maydon.addEventListener("input", (e) => {
  console.log("Hozir yozilgan:", e.target.value);
});

// Foydalanuvchi yozayotganini taqlid qilamiz
for (const matn of ["A", "Al", "Ali"]) {
  maydon.value = matn;
  maydon.dispatchEvent(new Event("input"));
}
```

Natija:

```
Hozir yozilgan: A
Hozir yozilgan: Al
Hozir yozilgan: Ali
```

1.6. Klaviatura

```
document.addEventListener("keydown", (e) => {
  console.log("Klavish:", e.key);
  if (e.key === "Enter") console.log("Enter bosildi!");
  if (e.key === "Escape") console.log("Escape bosildi!");
});

// Taqlid
for (const k of ["a", "Enter", "Escape"]) {
  document.dispatchEvent(new KeyboardEvent("keydown", { key: k }));
}
```

Natija:

```
Klavish: a
Klavish: Enter
Enter bosildi!
Klavish: Escape
Escape bosildi!
```

2-jadval. Klaviatura xossalari

Xossa	Ma'nosi	Misol
`e.key`	Bosilgan belgi/klavish nomi	`"a"`, `"Enter"`, `"ArrowUp"`
`e.code`	Klavishning jismoniy kodi	`"KeyA"`, `"Space"`
`e.ctrlKey`, `e.shiftKey`, `e.altKey`	Qo'shimcha klavish bosilganmi	`true / false`

1.7. Forma va preventDefault

Forma yuborilganda brauzer odatda **sahifani yangilaydi**. Biz buni to'xtatib, ma'lumotni o'zimiz qayta ishlashimiz mumkin: `event.preventDefault()` — "brauzerning odatiy harakatini bekor qil" degani.

```
const forma = document.getElementById("forma");

forma.addEventListener("submit", (e) => {
  e.preventDefault();                          // sahifa yangilanmasin!
  const email = forma.elements.email.value;
  console.log("Yuborildi:", email);
  console.log("Bekor qilinganmi:", e.defaultPrevented);
});

forma.dispatchEvent(new Event("submit", { cancelable: true }));
```

Natija:

```
Yuborildi: ali@mail.uz
Bekor qilinganmi: true
```

1.8. Oddiy loyiha: hisoblagich

```
document.body.innerHTML = `<h2 id="son">0</h2><button id="plus">+</button><but
?</button><button id="reset">0</button>`;

let n = 0;
const son = document.getElementById("son");
const yangila = () => { son.textContent = n; };

document.getElementById("plus").addEventListener("click", () => { n++; yangila
document.getElementById("minus").addEventListener("click", () => { n--; yangil
document.getElementById("reset").addEventListener("click", () => { n = 0; yang

// Foydalanuvchi bosishlarini taqlid qilish
const bos = (id) => document.getElementById(id).click();
bos("plus"); bos("plus"); bos("plus"); bos("minus");
console.log(son.textContent);
bos("reset");
console.log(son.textContent);
```

Natija:

```
2
0
```

1.8.1. Hodisani biriktirishning uch usuli

Biriktirish usullari

Usul	Yozuvi	Baho
HTML atributi	`<button onclick="salom()">`	Eskirgan: HTML va JS aralashadi
DOM xossasi	`tugma.onclick = funksiya;`	Ishlaydi, lekin faqat **bitta** tinglovchi
`addEventListener`	`tugma.addEventListener("click", fn)`	**Tavsiya etiladi**: istalgancha tinglovchi

```
const tugma = document.getElementById("tugma");

// onclick — keyingisi oldingisini O'CHIRIB yuboradi
tugma.onclick = () => console.log("onclick 1");
tugma.onclick = () => console.log("onclick 2");
tugma.click();

// addEventListener — hammasi ishlaydi
tugma.addEventListener("click", () => console.log("listener A"));
tugma.addEventListener("click", () => console.log("listener B"));
```

```
tugma.click();
```

Natija:

```
onclick 2
onclick 2
listener A
listener B
```

1.8.2. Ko'rsatish / yashirish: tab va akkordeon

```
document.body.innerHTML = `
  <button class="tab" data-nom="a">A</button><button class="tab" data-nom="b">
  <div id="a" class="panel">A paneli</div><div id="b" class="panel" hidden>B p

document.querySelectorAll(".tab").forEach((tab) => {
  tab.addEventListener("click", () => {
    document.querySelectorAll(".panel").forEach((p) => { p.hidden = p.id !== t
  });
});

const korinadi = () => [...document.querySelectorAll(".panel")].filter((p) =>
console.log(korinadi());
document.querySelector('[data-nom="b"]').click();
console.log(korinadi());
document.querySelector('[data-nom="a"]').click();
console.log(korinadi());
```

Natija:

```
[ 'A paneli' ]
[ 'B paneli' ]
[ 'A paneli' ]
```

1.8.3. Oddiy viktorina

viktorina.js

```
const savollar = [
  { s: "2 + 2 = ?", variantlar: ["3", "4", "5"], togri: 1 },
  { s: "JS da massiv indeksi nechadan?", variantlar: ["0", "1"], togri: 0 },
];
document.body.innerHTML = `<h3 id="savol"></h3><div id="javoblar"></div><p id=

let i = 0, ball = 0;
const korsat = () => {
  const q = savollar[i];
  document.getElementById("savol").textContent = q.s;
  document.getElementById("javoblar").innerHTML = "";
  q.variantlar.forEach((v, j) => {
    const b = document.createElement("button");
    b.textContent = v;
    b.addEventListener("click", () => {
      if (j === q.togri) ball++;
      i++;
      if (i < savollar.length) korsat();
```

```
      else document.getElementById("ball").textContent = `Natija: ${ball}/${sa
    });
    document.getElementById("javoblar").append(b);
  });
};
korsat();

// O'yinchi javob beradi (taqlid)
const javobBer = (k) => document.querySelectorAll("#javoblar button")[k].click
javobBer(1);        // 1-savol: "4" — to'g'ri
javobBer(1);        // 2-savol: "1" — noto'g'ri
console.log(document.getElementById("ball").textContent);
```

Natija:

```
Natija: 1/2
```

1.9. Kod izi

```
let n = 0;
tugma.addEventListener("click", () => { n += 2; });
tugma.click();
tugma.click();
console.log(n);
```

3-jadval. Kod izi

Qadam	Nima bo'ladi	n
1	`n = 0`, tinglovchi qo'shildi (hali ishlamadi)	0
2	1-bosish: tinglovchi ishladi	2
3	2-bosish: yana ishladi	4
4	`console.log(n)`	4 chiqadi

1.10. Mini loyihalar

hodisa_loyiha.js

```
document.body.innerHTML = `<input id="matn"><p id="sanoq"></p><button id="rang

// 1) Belgilar hisoblagichi
const matn = document.getElementById("matn");
const sanoq = document.getElementById("sanoq");
matn.addEventListener("input", () => { sanoq.textContent = `${matn.value.lengt
matn.value = "Salom dunyo";
matn.dispatchEvent(new Event("input"));
console.log(sanoq.textContent);

// 2) Rangni almashtirish
const quti = document.getElementById("quti");
document.getElementById("rang").addEventListener("click", () => quti.classList
document.getElementById("rang").click();
console.log(quti.className);
```

```
document.getElementById("rang").click();
console.log(JSON.stringify(quti.className));

// 3) Katta harfga o'tkazish
matn.addEventListener("input", () => { matn.value = matn.value.toUpperCase();
matn.value = "salom";
matn.dispatchEvent(new Event("input"));
console.log(matn.value);
```

Natija:

```
11 / 20
qizil
""
SALOM
```

1.11. Eng ko'p uchraydigan xatolar

4-jadval. Tipik xatolar

Xato	Sababi	To'g'ri yozuv
`addEventListener("click", f())`	Funksiya darrov chaqiriladi	`addEventListener("click", f)`
`onClick` yoki `"onclick"` deb yozish	`addEventListener` da on yozilmaydi	`"click"`
Element `null` bo'lib qolgan	Skript HTML dan oldin ishladi	`defer` yoki `DOMContentLoaded`
Forma yuborilganda sahifa yangilanadi	`preventDefault` unutilgan	`e.preventDefault()`
`input` va `change` ni adashtirish	`input` — har belgida, `change` — maydondan chiqqanda	Vaziyatga qarab tanlang
`e.target.value` ni son deb ishlatish	`value` doim matn	`Number(e.target.value)`

1.12. Mashqlar

1. Tugma bosilganda sarlavha matnini o'zgartiring.
2. Har bosishda 1 ga oshadigan hisoblagich yarating.
3. Matn maydoniga yozilganda pastda aynan shu matnni ko'rsating.
4. `Enter` bosilganda "Yuborildi" deb yozing.
5. Formani `preventDefault` bilan to'xtating va maydon qiymatini chiqaring.
6. Tugma bosilganda elementga klassni almashtiring (`toggle`).
7. "Parolni ko'rsatish" tugmasi: `input.type` ni `password` ↔ `text` almashtiring.

8. Sichqoncha `mouseover` bo'lganda elementning rangini o'zgartiring.

1.13. O'zingizni tekshiring

5-jadval. Qisqa test

№	Savol	Javob
1	Hodisa tinglovchisi qanday qo'shiladi?	`el.addEventListener("click", fn)`
2	Funksiya nomidan keyin qavs yozilsa?	Darrov chaqiriladi — xato
3	Event obyekti qaysi parametrda?	Birinchi
4	Qaysi element bosildi?	`event.target`
5	Bosilgan klavish?	`event.key`
6	Forma yangilanishini to'xtatish?	`event.preventDefault()`
7	Har belgida ishlaydigan hodisa?	`input`
8	`input.value` turi?	Matn

6 va undan ko'p to'g'ri javob — **2-darajaga** tayyorsiz.

Xulosa

Hodisa — voqea, tinglovchi — unga javob beruvchi funksiya. `addEventListener("tur", funksiya)`. Event obyekti `target`, `key` kabi ma'lumot beradi. Formada `preventDefault` sahifa yangilanishini to'xtatadi.

Chuqurroq o'rganmoqchimisiz?

Bu mavzuning o'rta va murakkab darajalari JavaScript adaptiv kursida — daraja testi sizga mos materialni o'zi tanlaydi, oxirida sertifikat.