JavaScript

JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else.

JavaScript

Contents

JavaScript

JavaScript

```
// var a;
// a = 5;
// alert(a);
//single line comment
/*multiple
line comment*/
```

//**********************javascript variable

```
// var
// var x = 2;
// var y = 5;
// var z = x + y;
// console.log(z);

//let
// let x = 2;
// let y = 5;
// let z = x + y;
// console.log(z);

//const
// let x = 2;
// const y = 5; // we cant change const
// let z = x + y;
// console.log(z);

//we cant start variable with number
//$ _ letter seh hi start hoga
//case sensitive matlab example Box aur box alag alag variable hoga
//we cant use reserved keywords as variable
//for writing text write in string "" or ''
// let x = 10, y = "hello" // hum log doh variable ek sath vi likh sakthe hain
//empty variable vi declare kar sakthe hain
// let _x;
// _x = 6;
// console.log(_x);
```

//***************************operators

```
// = asign karna
// + addition
// variable tabhi banathe hain jab hame store karna hain ya manipulate karna hain
// - * / %
// x = x + 2  or we can write x += 2
// -= *= /= %=
// power 5**2 is 25
```

JavaScript

```
// string or number addition ni hoga eg x = 5 and x = "5" will be 55


//  doh string ko jorneh ke liyeh
//  eg x = "hello" , y = "world" ; console.log(x + "" + y)


// number ko bara neh keh liyeh eg:
// let x = 5;
// x++; // gatah neh keh liyeh x--
// console.log(x);


//bodmas rule vi follow hota hain
```

// **************************datatype

```
// js meh alag alag datatype store ya change kar skathe hain
// bar bar datatype change kar sakthe hain
//eg x = 5; x = "hello"; //dynamic datatype

// "" '' doh keu hota hain // isliye ke "father's"  ya 'hel"lo' likne keh liyeh
// hel"o print karna ho "" pe toh backslas dena partha hain jese "hel\"lo"
// number // decimal negative integer sab work kartha hain

//boolen is for checking condition // true or false
// eg let y = 5 < 7
//    console.log(y)      //output true

//array
// eg let x = ["bwn",5,"tom"];

//object
// eg let man = {name: "bwn" , roll: 45 , sex : "gender"};

// undefined vi data type hain
// eg let x;
//    console.log(x);

// typeof // to check //eg
// let x = 10;
// let z = "bwn";
// console.log(typeof x, typeof z);

//template literals //eg
// let x = "bwn";
// console.log(`hello ${x}`);
```

JavaScript

//*************************** comnparison and logical operators

```
// == equals to
// eg 5==5 is true // 5==10 is false // 5 == "5" is true // == doesnt see datatype

// === equal value and same datatype
// here 5 === "5" is false

// != not equals to
// eg 8 != 5 is true // 6 != 6 is false

// !== not equals to and check datatype also
// eg 5 !== 5 is false  // 5 !== '5' is true

// greater than >

// less than <

// <= less than or equals to

// and // &&
// eg // (5 < 10) && (6 < 1) // is false

// || or
// eg // (5 < 10) && (6 < 1) // is true

// !  not
// eg //  !(6 == 5)   // is true
```

//*********************************conditions in js
//   if , else , else if

```
//eg:
// let age = 20;
// let hasvoter = 'no';
// if (age >= 18 && hasvoter == "yes") {
//     console.log("you can vote");
// }
// else if (age >= 18 && hasvoter == "no") {
//     console.log("Make your voter id");
// }
// else {
//     console.log("you cannot vote");
// }

//                 nested if
// let age = 20;
// let hasvoter = 'no';
```

JavaScript

```javascript
// if (age >= 18) {
//     if (hasvoter == "yes") {
//         alert("you can vote");
//     } else {
//         alert("Get your voter id card");
//     }
// }
// else {
//     alert("you cannot vote");
// }


//           ternary operator
// let isloginOrnot = 1;  // if 1 means u are login and 0 is logout
// let option = isloginOrnot == 1 ? "logout" : "login";  //  condition ? if this : else this; //
          syntax
// document.write(option);


// agar undefined dikha na ho toh
// let user;
// alert(user ?? "guest");        // ?? dekeh kya dikha na hain wo likho // null aur undefined meh
          kam kartha hain
```

        //** switch

```javascript
// === kartha hain comparison
//eg

//let input = "y";
// switch (input) {
//     case 1:
//         document.write("continue...");
//         break;
//     case "y":
//         document.write("continue...");
//         break;
//     case "yes":
//         document.write("continue...");
//         break;
//     case 0:
//         document.write("end...");
//         break;
//     case "n":
//         document.write("end...");
//         break;
//     case "no":
//         document.write("end...");
```

JavaScript

```javascript
//          break;
//      default:
//          document.write("wrong input");
// }

//                          or

// let input = "n";
// switch (input) {
//      case 1:
//      case "y":
//      case "yes":
//          document.write("continue...");
//          break;
//      case 0:
//      case "n":
//      case "no":
//          document.write("end...");
//          break;
//      default:
//          document.write("wrong input");
// }
```

```javascript
// *********************************************** loop in js
```

```javascript
// while loop//
// let counter = 1;
// while (counter <= 10) {
//      document.write("Bwn");
//      counter++;
// }


// let counter = 10;
// while (counter >= 1) {
//      document.write("Bwn");
//      counter--;
// }


// sum of 100 even number
// let n = 1;
// let sum = 0;
// while (n <= 100) {
//      if (n % 2 == 0) {
//          sum += n;
//      }
//      n++;
```

JavaScript

```javascript
// }
// document.write(sum);

//                  do while loop // pehele print karega phir condition check karega
// eg
//let counter = 1;
// do {
//     document.write("Bwn");
//     counter++;
// }
// while (counter <= 10);

//                  for loop
// eg
//     for (let i = 1; i <= 10; i++) {
//     //     document.write(i);
//     // }
```

//****************************** break , continue and nested loop */

```javascript
// break ka matlab {} seh bahar aa jaougi // code yehi peh katam
// continue dene seh woh particular condition kam nhi karega
//eg of break
//     for (let i = 1; i <= 10; i++) {
//     //     if (i == 5) {
//     //         break;
//     //     }
//     //     document.write(i);
//     //     document.write("<br>");
//     // }                                    // output 1 2 3 4

//eg of continue
    //for (let i = 1; i <= 10; i++) {
//     //     if (i == 5) {
//     //         continue;
//     //     }
//     //     document.write(i);
//     //     document.write("<br>");
//     // }                                    // output 12346789



// nested loop
// eg
// for (let i = 1; i <= 10; i++) {
//     document.write(i);
//     document.write("<br>");
```

JavaScript

```javascript
//      for (let a = 1; a < 2; a++) {
//          document.write("Bwn");
//          document.write("<br>");
//      }
// }


//
//outer: for (let i = 1; i <= 10; i++) {
    //      document.write(i);
    //      document.write("<br>");
    //      for (let a = 1; a < 2; a++) {
    //          if (i == 3) {
    //              break outer;
    //          }
    //          document.write("Bwn");
    //          document.write("<br>");
    //      }
    // }
```

```javascript
    //alert() ----- show a message
    // prompt() ----- show a message input text.It returns the text on ok or,if cancel button or
        esc is clicked
    // then null
    // confirm() ----- show a message , confirm with 'OK' or 'cancel'.It returns true for ok and
        false for
    //cancel / ese
// eg
// alert("welcome");

// let age = prompt("Enter your age", 20);
// if (age != null) {
//     document.write(`you are ${age} years old`);
// } else {
//     document.write("Age field was blank");
// }

// confirm eg
// let response = confirm("Are you sure you want to delete?");
// if (response) {
//     document.write("Deleted");
// } else {
//     document.write("Not deleted since u clicked cancel");
// }
```

JavaScript

//*** type conversion */

```
//check using typeof and then convert it into any of this
// Number()
// String()
// Boolean()
```

//** Striing manipulation */

```
//      \n line break karneh ke liyeh
// agar \ ko use karna hain string mejh toh \\ use karo
//      \t dene seh space milega
//   \"      \'
// eg
// // let str = "Biswanath \n Basumatary";
// // let str = "Biswanath \\ Basumatary";
// // let str = "Biswanath \t Basumatary";
// let str = "Biswanath \" Basumatary";
// console.log(str);

// string meh no. of letter jan neh ke liyeh .length use karthe hain
//eg
// let str = "Biswanath Basumatary";
// console.log(str.length);

// string meh particular character fetch karneh ke liyeh index doh from 0
//eg
// let str = "Biswanath Basumatary";
// console.log(str[3]);

// addition of string
// let str = "Biswanath";
// let str2 = "Basumatary";
// console.log(str + " " + str2);

// js is case sensitive

// string ko combine karne ke liyeh function hain .concat()
//eg
// let str = "Biswanath";
// let str2 = "Basumatary";
// let str3 = str.concat(" ", str2);
// console.log(str3);
```

JavaScript

```javascript
// string meh seh tora part nikalne ke liyeh function hain .substr(start,length of word);
//start from 0 while counting
// let str4 = "I am Learning Javascript";
// let str5 = str4.substr(5, 19);
// console.log(str5);
//                          or
//  .substring(start,end)
// let str4 = "I am Learning Javascript";
// let str5 = str4.substring(5, 23);
// console.log(str5);
//                                  output is Learning Javascript

//To find index of specific character we have .indexOf  // first letter ka index batayega
//eg
// let str4 = "I am Learning Javascript, I am in vs code";
// let str5 = str4.indexOf("Javascript");
// console.log(str5);

// if more than one word then .indexOf("",after this index start searching)
// let str4 = "I am Learning Javascript, I am in vs code";
// let str5 = str4.indexOf("am", 10);
// console.log(str5);

// start searching from last
// let str4 = "I am Learning Javascript, I am in vs code";
// let str5 = str4.lastIndexOf("am");
// console.log(str5);

// if it doesnt find then it will show -1

// .trim() ----------------- space hata neh keh liyeh aage ya piche seh
//eg
// let str4 = "   I am Learning Javascript, I am in vs code    ";
// let str5 = str4.trim();
// console.log(str4);
// console.log(str5);

// .trimStart() ---- aggeh seh hata neh key liyeh // .trimEnf() ---------- piche seh


//
// let str4 = "   I am Learning Javascript, I am in vs code    ";
// let str5 = str4.toUpperCase();
// console.log(str5);

//
// let str4 = "   I am Learning Javascript, I am in vs code    ";
// let str5 = str4.toLowerCase();
// console.log(str5);
```

JavaScript

```
//
// let str4 = "I am Learning Javascript, I am in vs code";
// let str5 = str4.replace("vs code", "Assam , India");
// console.log(str5);

// .includes("") ---------- check karne ke liyeh // yeh true or false output dega
// let str4 = "I am Learning Javascript, I am in vs code";
// let str5 = str4.includes("html");
// console.log(str5);
```

//***********************************array */

```
// two type for declaring array
// let book = ["Maths","Biology","Computer Science","Physics"];
//              or
// let book1 = new Array("Maths","Biology","Computer Science","Physics");

// access elements of array
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// console.log(book);
// console.log(book[0]);
// console.log(book[3]);

// change element of array
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book[1] = "Chemistry";
// console.log(book);
```

//******************************** operations on array */

```
// check length
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// console.log(book.length);

// add more elements in last
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book.push("chemistry");
// console.log(book);

// add more element in first
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book.unshift("chemistry");
```

JavaScript

```javascript
// console.log(book);

//last element hatana hain toh
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book.pop();
// console.log(book);

// first element hatana hain toh
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book.shift();
// console.log(book);

// bitch ka wala hatana hain toh
//// book.splice(position or index, kitna hatana hain);
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book.splice(1, 2);
// console.log(book);

// array ko empty karna ho toh // 2 ways
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book = [];
// console.log(book);
//                         or

// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book.length = 0;
// console.log(book);


// element ka position jan ne ke liyeh
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// let position = book.indexOf("Computer Science");
// console.log(position);

// string array ka character hain

// array ko check karneh ke liyeh
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// console.log(Array.isArray(book));


// word ko array banana hain toh
//split meh jo dalega wohi seh tokrra karega wo
```

JavaScript

```javascript
//eg
// let sentence = "This is a random word";
// let wordArray = sentence.split(" ");
// console.log(wordArray);

//                  or
// let sentence = "This is a random word";
// let wordArray = sentence.split("s");
// console.log(wordArray);


// array ko join karke word banana hain toh
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// let wordBook = book.join(" ");
// console.log(wordBook);

//              or
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// let wordBook = book.join(",");
// console.log(wordBook);


//      add two array
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// let book2 = ["chemistry", "digital electronic"];
// let book3 = ["Hindi", "english"];
// let allBooks = book.concat(book2, book3);
// console.log(allBooks);


// multi dimension array
//eg
// let booksWithChapter = [
//     ["Maths", "integration"],
//     ["physics", "magnetic field"],
//     ["electrical", "transient state"]
// ];
// console.log(booksWithChapter);
// console.log(booksWithChapter[0][1]);
// console.log(booksWithChapter[2][0]);

//          3d
// let booksWithChapter = [
//     ["Maths", "integration"],
//     ["physics", ["Ac", "Dc"]],
//     ["electrical", "transient state"]
// ];
```

JavaScript

```javascript
// console.log(booksWithChapter[1][1][0]);


// for loop in array // iterate karna
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// for (let i = 0; i < book.length; i++) {
//     console.log(`Element of index ${i} is ${book[i]}`);
// }


// forEach()
//eg
// let book = ["Maths", "Biology", "Computer Science", "Physics"];
// book.forEach(myfunc);

// function myfunc(value) {
//     console.log(value);
// }
```

// ******************************** functions

```javascript
//eg
// function multiplyOf2() {
//     for (let i = 1; i <= 10; i++) {
//         document.write(`2 x ${i} = ${2 * i}`);
//         document.write("<br>");
//     }
// }

// multiplyOf2();
```

//******************************** parameters and arguments */

```javascript
//eg
// function multiplyOf2(num) {
//     for (let i = 1; i <= 10; i++) {
//         document.write(`${num} x ${i} = ${num * i}`);
//         document.write("<br>");
//     }
// }

//// multiplyOf2(5);
// multiplyOf2(24);
```

JavaScript

```
// multiple parameter de sakthe hain
//eg
// function add(num1, num2, num3) {
//     document.write(num1 + num2 + num3);
// }

// add(41, 65, 98);
```

//**********************************the arguments object */

```
// function meh argument nam ka array hain
// without passing parameter we can access arguments
//eg
// function add() {
//     if (arguments.length == 0) {
//         console.log("No Arguments passed !");
//     } else {
//         let sum = 0;
//         for (let i = 0; i < arguments.length; i++) {
//             sum += arguments[i];
//         }
//         console.log(sum);
//     }
// }

// add();
// add(5, 5, 5, 5, 6);
// add(8, 9, 1, 3, 45, 7, 4, 6);
// let addition = add;
// addition(60, 40, 50);
```

//********************************* return in function */

```
// function meh seh ek value ko return karna
// function ke under jab vi pehela return milega uskhe bad execute nhi karega
//eg
// function addNum(a, b) {
//     return a + b;
// }

// let c = addNum(5, 6);
// document.write(c);


//eg
// function compare(num1, num2) {
//     if (num1 > num2) {
//         return num1;
//     }
```

JavaScript

```
//      else if (num2 > num1) {
//          return num2;
//      } else {
//          return 0;
//      }
// }


// let compare2 = compare(9, 9);
// document.write(compare2);
```

//******************************* Global variable vs Local Variable */

```
// jo vi variable function ke undar define hoga usko local variable bolega
// bahar ke variable ko global variable bolega
// jo vi variable function ke undar hain usko function ke bahar use nhi kar saktha
// global varable ko jaha chaheh use kar sakthe hain
// same nam ka local variable alag alag function meh use kar sakthe hain
//eg
// let car = "audi"; // global variable
// function variable() {
//      let course = "javascript"; //  local variable
//      console.log(course);
//      console.log(car);
// }

// variable();


//eg
// let car = "audi"; // global variable
// function variable() {
//      let course = "javascript"; //  local variable
//      console.log(course);
//      console.log(car);
// }
// function vari() {
//      let course = "html,css"; //  local variable
//      console.log(course);
// }

// variable();
// vari();
```

//******************************* anonymous function */

```
//yesa function jiska nam hi na ho
//              Function Expression
// eg
```

JavaScript

```
// let show = function () {
//     console.log("Hello World !");
// }

// show();

// to save memory storage we doesn't give function name

//setTimeout(function/function name , millisecond) ---- how much you want to delay the time to run
        function
//eg
// setTimeout(function () {
//     console.log("Hello World !");
// }, 5000);
```

//*** immediately invoked function
*/

```
// automatic function ko run karneh ke liyeh
// memory ka storage save karneh ke liyeh
//eg
// (function () {
//     let msg = "Hello World";
//     console.log(msg);
//     alert(msg);
// })();

// agar doh variable ka nam same hain toh ek ko lobal meh rakho
// let msg = "Hello World";
// console.log(msg);
// alert(msg);

// (function () {
//     let msg = "Hello Javascript";
//     console.log(msg);
// })();
```

// ******************************** objects in js
// properties in object

```
// can access by two ways dot notation or square braket notation
// koi vi properties jo exist nhi kartha uska undefined aayega
//eg
// let person = {
//     firstName: "Bwn",
//     "last Name": "Bsty",
```

JavaScript

```javascript
//      age: 20
// };
// console.log(person.firstName);
// console.log(person["last Name"]);
// console.log(person["age"]);


//property ke value ko modify karna
//eg
// let person = {
//      firstName: "Bwn",
//      "last Name": "Bsty",
//      age: 20
// };
// person.firstName = 'Biswanath';
// person["last Name"] = 'Basumatary';
// console.log(person);


// naya property add karneh ke liyeh
//eg
// let person = {
//      firstName: "Bwn",
//      "last Name": "Bsty",
//      age: 20
// };
// person.state = 'Assam';
// person["country"] = "India";
// console.log(person);


// property delete karneh keh liyeh
//eg
// let person = {
//      firstName: "Bwn",
//      "last Name": "Bsty",
//      age: 20
// };
// delete person.age;
// delete person["last Name"];
// console.log(person);


// property check karna object meh // true or false meh return karega
//eg
// let person = {
//      firstName: "Bwn",
//      "last Name": "Bsty",
//      age: 20
```

JavaScript

```
// };
// console.log('height' in person);
// console.log('age' in person);


// loop in array
// loop meh dot notation kam nhi karega // use braket notation
//eg
// let person = {
//      firstName: "Bwn",
//      "last Name": "Bsty",
//      age: 20
// };
// for (let key in person) {
//      console.log(key + ": " + person[key]);
// }
```

// ******************************** methods in object

```
// object meh function dalna
// by expression/anonymous function
// eg
// let person = {
//      firstName: "Bwn",
//      "last Name": "Bsty",
//      age: 20
// };
// person.sayHello = function () {
//      console.log("Hello");
// }
// person.sayHello();
// console.log(person);


// by function method
//eg
// let person = {
//      firstName: "Bwn",
//      "last Name": "Bsty",
//      age: 20
// };
// function greet() {
//      console.log("Hello");
// }
// person.sayHello = greet;
// console.log(person);


// by directly assigning
//eg
```

JavaScript

```javascript
// let person = {
//     firstName: "Bwn",
//     "last Name": "Bsty",
//     age: 20,
//     sayHello: function () {
//         console.log("Hello");
//     }
// };
// person.sayHello();
// console.log(person);

// or
//eg
// let person = {
//     firstName: "Bwn",
//     "last Name": "Bsty",
//     age: 20,
//     sayHello() {
//         console.log("Hello");
//     }
// };
// person.sayHello();
// console.log(person);
```

// ********************************** "this" in object

```javascript
//eg
// let person = {
//     firstName: "Bwn",
//     "last Name": "Bsty",
//     age: 20,
//     sayHello() {
//         console.log(`Hello i am ${this.firstName} and i have ${car.company} car.`);
//     }
// };
// let car = {
//     Name: "Tata Nexon",
//     company: "Tata"
// };
// person.sayHello();
```

// *** Math object

```javascript
// maths ka constant value iss method seh milega
//eg
// console.log(Math.PI);
// console.log(Math.E);
```

JavaScript

```javascript
// number ko round off bananeh keh liyeh // round ka eg 8.3 ka 8 hoga, 8.6 ka 9 hoga,etc
//eg
// var number = Math.round(3.4);          // output is 3
// var number = Math.round(3.7);           // output is 4
// console.log(number);


// ceil ka eg 4.2 ko 5 karega ,3.12 ko 4 karega,etc
//eg
// var number = Math.ceil(3.4);          // output is 4
// var number = Math.ceil(3.7);          // output is 4
// console.log(number);


// floor ka eg 4.something is 4, 5.something is 5,etc
// eg
// var number = Math.floor(3.4);
// var number = Math.floor(3.7);
// console.log(number);


// trunc ---- point/decimal katane wala
// eg
// var number = Math.trunc(6.789);
// console.log(number);


// power ka pow hain eg pow(2,3) is 8
// eg
// var number = Math.pow(2, 3);
// console.log(number);


//square root ka sqrt hain
//eg
// var number = Math.sqrt(100);
// console.log(number);


// minumum number bataneh ke liyeh min hain
//eg
// var number = Math.min(100, 13, -45, 67, 114);
// console.log(number);


// maximum number bataneh ke liyeh man hain
//eg
// var number = Math.max(100, 13, -45, 67, 114);
// console.log(number);
```

JavaScript

// ********************************** random number

```
// let x = Math.random();
// console.log(x);          // 0 seh 1 ke bitch ka no. random display karega


// ye 0 seh 9 ke bitch ka dikayega // 0 aur 9 vi
// let x = Math.floor(Math.random() * 10);
// console.log(x);


// ye 1 seh 10 ke bitch ka dikayega // 1 aur 10 vi
// let x = Math.floor(Math.random() * 10 + 1);
// console.log(x);


// generate random number using function
//
// function generateRandomNo(min, max) {
//     let x = Math.floor(Math.random() * (max - min + 1)) + min;
//     console.log(x);
// }
// generateRandomNo(1, 10);
// generateRandomNo(15, 25);
```

//*** date object */

```
// latest date and time store hoga // aapke computer ka
// date function use karneh seh compare karna aasan hota hain isliye use karthe hain
// js meh january ko 0 aur dec ko 11 denote karthe hain
// js meh sunday ko 0 aur saturday ko 6 denote karthe hain
// js millisecond meh store kartha hain

//eg
// let x = new Date();
// console.log(x);

// date change karneh ke liyeh  // output - Sat Dec 05 2020 12:45:20 GMT+0530 (India Standard
         Time)
// let x = new Date(2020, 11, 5, 12, 45, 20, 55);
// console.log(x);

// get
// eg
// let x = new Date();
// console.log(x);
// console.log(x.getFullYear());
// console.log(x.getMonth());
// console.log(x.getDate());
```

JavaScript

```javascript
// console.log(x.getDay());
// console.log(x.getTime());
// console.log(x.getHours());

// set // same properties like get for set also
// eg
// let x = new Date();
// let y = x.setFullYear(2020);
// console.log(x);



// aaj seh 50 din ke bad kiya date hoga check karne ke liyeh
//
// let today = new Date();
// let y = new Date();
// y.setDate(today.getDate() + 50);
// console.log(today);
// console.log(y);



// comparison of date
//
// let x = new Date(2020, 11, 5, 12, 45, 20, 55);
// let y = new Date();
// if (y > x) {
//     console.log("future");
// }
// else if (x > y) {
//     console.log("past");
// } else {
//     console.log("present");
// }
```

// ************************************** new keyword

```javascript
// new keyword dekhe object bana saktha hain
// eg
// let person = new Object();
// person.name = "Biswanath";
// person.age = "20 years";
// console.log(person);
```

//************************************** property getters and setters

```javascript
// property ka value ko manipulate/change karna ho toh
// get laganeh seh function ko vi property ke tarah access kar sakthe hain
// get eg
// let person = {
```

JavaScript

```javascript
//      firstName: "Bwn",
//      age: 20,
//      get changeTo() {
//          return this.firstName.toUpperCase();
//      }
// };
// console.log(person.changeTo);
// console.log(person);



//set eg
// ismeh direct firstName ke value ko hi uppercase set kar diya
// agar firstName ko change karega toh vi direct uppercase lag jayega
//
// let person = {
//      firstName: "Bwn",
//      age: 20,
//      set changeTo(n) {
//          this.firstName = n.toUpperCase();
//      }
// };
// person.changeTo = "Biswanath";
// console.log(person.firstName);
// console.log(person);
```

// ****************** object constructor function

```javascript
// object ka key same hain aur value alag alag
// aur hum log ko multiple object chahiye toh object constructor function use karthe hain
//eg
// function Student(firstName, lastName, age) {
//      this.firstName = firstName;
//      this["lastName"] = lastName;
//      this.age = age;
//      this.name = function () {
//          return this.firstName + " " + this.lastName;
//      }
// }
// let student1 = new Student("Biswanath", "Basumatary", 20);
// let student2 = new Student("Bwn", "Bsty", 21);
// let student3 = new Student("nath", "Bty", 25);
// console.log(student1);
// console.log(student2);
// console.log(student3);


// individually key value add karna ho toh use dot or braket notation as it is object
//eg
```

JavaScript

```
// function Student(firstName, lastName, age) {
//      this.firstName = firstName;
//      this["lastName"] = lastName;
//      this.age = age;
//      this.name = function () {
//          return this.firstName + " " + this.lastName;
//      }
// }
// let student1 = new Student("Biswanath", "Basumatary", 20);
// console.log(student1.name());
// student1.school = "ABC";
// student1.rollNo = 1356;
// let student2 = new Student("Bwn", "Bsty", 21);
// let student3 = new Student("nath", "Bty", 25);
// console.log(student1);
// console.log(student2);
// console.log(student3);

// constructor meh direct function keh undar hi key apply karna hain // dot/bracket notation seh
//         key add
// nhi kar saktha   // object has {key:value}

```

// ********************************* object prototypes

```
// prototype ek pre defined object hain
//eg
// function Student(firstName, lastName, age) {
//      this.firstName = firstName;
//      this["lastName"] = lastName;
//      this.age = age;
// }
// Student.prototype.Nationality = "Indian";
// Student.prototype.name = function () {
//      return this.firstName + " " + this.lastName;
// };
// let student1 = new Student("Biswanath", "Basumatary", 20);
// let student2 = new Student("Bwn", "Bsty", 21);
// let student3 = new Student("nath", "Bty", 25);
// console.log(student1);
// console.log(student2);
// console.log(student3);
// console.log(student1.name());
// console.log(student2.name());
```

// ********************************* nested object

```
//eg
```

JavaScript

```javascript
// var user = {
//     id: 15680,
//     email: "abc001@gmail.com",
//     personal_info: {
//         firstName: "Bwn",
//         lastName: "Bsty",
//         age: 20,
//         get fullName() {
//             return this.firstName + " " + this.lastName;
//         },
//         address: {
//             state: "Assam",
//             country: "India"
//         }
//     }
// };
// console.log(user);
// console.log(user.personal_info);
// console.log(user.personal_info.fullName);
// console.log(user.personal_info.address);
// console.log(user.personal_info.address.country);
```

//*** hoisting */

```javascript
// to lift or pull
// js sab code pehele par lega
// declaration ka upar le jata hain code execute hone seh pehele // kud ke scope meh
// let aur const meh undefined nhi hota // sirf var meh hota hain
// js kud seh declare vi kar deta hain variable ko
// "use strict" dene seh bina declaration seh code run nhi hoga

// yesa vi kam kartha hain js meh
// hello();
// function hello() {
//     console.log("Hello World");
// }


//output 18 hi aayega
// x = 18;
// console.log(x);
// var x;


// output error show nhi hoga undefined aayega // keuki var contain undefined
//keuki js sirf declaration ko uta tha hain
// console.log(x);
// x = 18;
```

JavaScript

```
// var x;


// let aur const meh error aayega
// eg
// console.log(x);
// let x;
// x = 18;

//                    and
// console.log(x);
// const x;
// x = 18;


// run hoga keuki js kud seh declaration kar tha hain
// x = 18;
// console.log(x);


// output will be error
// "use strict"
// x = 18;
// console.log(x);
```

//*************************** Document Object Model (DOM) */

```
// broswer html page ko dom tree banatha hain taki js implement kar sakeh.
// with the object model js get all the power it needs to create dynamic html:
// js can change all the html elements in the page.
// js can change all the html attributes in the page.
// js can change all the css styles in the page.
// js can remove existing html elements and attributes.
// js can add new html elements and attributes.
// js can react to all existing html events in the page.
// js can create new html events in the page.
// note: in the dom,all html elements are defined as objects.so it will have both property and
        method.
// the document object represents your web page.
// if you want to access any element in an html page, you can always start with accessing the
        document object.
```

//*************************** select an element by id */

```
// to select an element by id
// can use object properties
//eg
/* <body>
```

JavaScript

```
        <ul>
            <li>list 1</li>
            <li id="second">list 2</li>
            <li>list 3</li>
        </ul>
        <script>
            let li2 = document.getElementById("second");
            console.log(li2);
        </script>
    </body> */


// element ke undar ko select karne ke liyeh
//eg
/* <body>
        <ul>
            <li>list 1</li>
            <li id="second">list 2</li>
            <li>list 3</li>
        </ul>
        <script>
            let li2 = document.getElementById("second");
            let inside = li2.innerHTML;
            console.log(inside);
        </script>
    </body> */


// element ke undar ke text ko change karna
/* <body>
        <ul>
            <li>list 1</li>
            <li id="second">list 2</li>
            <li>list 3</li>
        </ul>
        <script>
            let li2 = document.getElementById("second");
            li2.innerHTML = "<p> changed </p>";
        </script>
    </body> */
```

```
        //*************************** select an element by class */
```

```
// multiple element select karneh seh array jesa behave karega

//select a class
//eg
/* <body>
        <ul>
```

JavaScript

```
        <li class="cls">list 1</li>
        <li id="second">list 2</li>
        <li class="cls">list 3</li>
    </ul>
    <script>
        let cls = document.getElementsByClassName("cls");
        console.log(cls);
    </script>
</body> */


// innerhtml of class
//eg
/* <body>
    <ul>
        <li class="cls">list 1</li>
        <li id="second">list 2</li>
        <li class="cls">list 3</li>
    </ul>
    <script>
        let clss = document.getElementsByClassName("cls");
        console.log(clss.length);
        for (let i = 0; i < clss.length; i++) {
            clss[i].innerHTML = "<p> Hello </p>";
        }
    </script>
</body> */


// multiple class value ho toh
/* <body>
    <ul>
        <li class="cls pi">list 1</li>
        <li id="second">list 2</li>
        <li class="cls">list 3</li>
    </ul>
    <script>
        let clss = document.getElementsByClassName("cls pi");
        console.log(clss.length);
        for (let i = 0; i < clss.length; i++) {
            clss[i].innerHTML = "<p> Hello </p>";
        }
    </script>
</body> */
```

JavaScript

```
// eg
/* <body>
    <h1>Heading 1</h1>
    <p>Paragraph 1</p>
    <h1>Heading 2</h1>
    <p>Paragraph 2</p>
    <h1>Heading 3</h1>
    <p>Paragraph 3</p>
    <script>
        let heding = document.getElementsByTagName("h1");
        for (let i = 0; i < heding.length; i++) {
            heding[i].innerHTML = "Heading changed";
        }
    </script>
</body> */


// eg
/* <body>
    <h1>Heading 1</h1>
    <div id="h_and_p">
        <p>Paragraph 1</p>
        <h1>Heading 2</h1>
        <p>Paragraph 2</p>
        <h1>Heading 3</h1>
        <p>Paragraph 3</p>
    </div>
    <script>
        let heding = document.getElementById("h_and_p");
        let div1 = heding.getElementsByTagName("h1");
        for (let i = 0; i < div1.length; i++) {
            div1[i].innerHTML = "Heading changed";
        }
    </script>
</body> */
```

```
// querySelector sirf ek hi element select kartha hain
//eg
/* <body>
    <h1 class="hello1">Heading 1</h1>
    <div id="h_and_p">
        <p class="hello1">Paragraph 1</p>
        <h1 class="hello1">Heading 2</h1>
        <p>Paragraph 2</p>
```

JavaScript

```
        <h1>Heading 3</h1>
        <p class="hello1">Paragraph 3</p>
    </div>
    <script>
        let div1 = document.querySelector("p.hello1");
        div1.innerHTML = "paragraph changed";
        console.log(div1);
    </script>
</body> */


// for multiple selection use querySelectorAll
//eg
/* <body>
    <h1 class="hello1">Heading 1</h1>
    <div id="h_and_p">
        <p class="hello1">Paragraph 1</p>
        <h1 class="hello1">Heading 2</h1>
        <p>Paragraph 2</p>
        <h1>Heading 3</h1>
        <p class="hello1">Paragraph 3</p>
    </div>
    <script>
        let div1 = document.querySelectorAll("p.hello1");
        console.log(div1);
        for (let i = 0; i < div1.length; i++) {
            div1[i].innerHTML = "Heading changed";
        }
    </script>
</body> */
```

//** traversing elements */

```
// element seh kud ke parent ko select karna
/* <body>
    <ul>
        <li>list 1</li>
        <li id="slt">list 2</li>
        <li>list 3</li>
        <li>list 4</li>
    </ul>
    <ul>
        <li>list a</li>
        <li>list b</li>
        <li>list c</li>
        <li>list d</li>
    </ul>
    <script>
        let div1 = document.getElementById("slt");
```

JavaScript

```
            let prt = div1.parentElement;
            console.log(prt);
        </script>
</body> */


// parent kudke children ko select karna
//eg
/* <body>
        <ul>
            <li>list 1</li>
            <li>list 2</li>
            <li>list 3</li>
            <li>list 4</li>
        </ul>
        <ul id="slt">
            <li>list a</li>
            <li>list b</li>
            <li>list c</li>
            <li>list d</li>
        </ul>
        <script>
            let div1 = document.getElementById("slt");
            let prt = div1.children;
            console.log(prt);
        </script>
</body> */


// parent kudke first and last child ko select karna
//eg
/* <body>
        <ul>
            <li>list 1</li>
            <li>list 2</li>
            <li>list 3</li>
            <li>list 4</li>
        </ul>
        <ul id="slt">
            <li>list a</li>
            <li>list b</li>
            <li>list c</li>
            <li>list d</li>
        </ul>
        <script>
            let div1 = document.getElementById("slt");
            let frt = div1.firstElementChild;
            console.log(frt);
            let lst = div1.lastElementChild;
```

JavaScript

```
        console.log(lst);
    </script>
</body> */


// kud ke sibling ko select karna
//eg
/* <body>
    <ul>
        <li>list 1</li>
        <li>list 2</li>
        <li id="slt">list 3</li>
        <li>list 4</li>
    </ul>
    <ul>
        <li>list a</li>
        <li>list b</li>
        <li>list c</li>
        <li>list d</li>
    </ul>
    <script>
        let div1 = document.getElementById("slt");
        let frt = div1.previousElementSibling;
        console.log(frt);
        let lst = div1.nextElementSibling;
        console.log(lst);
    </script>
</body> */
```

// *** innerHtml

```
// eg
/* <body>
    <div id="elm">
        <p>This is a paragraph tag</p>
    </div>
    <script>
        let content = document.getElementById("elm");
        let content_1 = content.innerHTML;
        console.log(content_1);
    </script>
</body> */


// to change
//eg
/* <body>
    <div id="elm">
```

JavaScript

```
        <p>This is a paragraph tag</p>
    </div>
    <script>
        let content = document.getElementById("elm");
        content.innerHTML = "<h1>This is a heading tag</h1>";
    </script>
</body> */
```

//******************************** create and append element */

```
// dusra element add karneh ke liyeh bina replace kiyeh
// eg
/* <body>
    <div id="intro">
        <p>This is a paragraph tag</p>
    </div>
    <script>
        let elm = document.getElementById("intro");
        let newElm = document.createElement("h1");
        let text = document.createTextNode("This is heading tag");
        newElm.appendChild(text);
        elm.appendChild(newElm);
    </script>
</body> */


// class aur id add karna ho toh
//eg
/* <body>
    <div id="intro">
        <p>This is a paragraph tag</p>
    </div>

    <script>
        let elm = document.getElementById("intro");
        let newElm = document.createElement("h1");
        let text = document.createTextNode("This is heading tag");
        newElm.appendChild(text);
        elm.appendChild(newElm);
        newElm.className = "try bg-primary";
        newElm.id = "hding";
    </script>
</body> */


// body ke bad add karna ho toh yani body ko parent banana hain toh
//eg
/* <body>
```

```
    <div id="intro">
        <p>This is a paragraph tag</p>
    </div>

    <script>
        let newElm = document.createElement("h1");
        let text = document.createTextNode("This is heading tag");
        newElm.appendChild(text);
        document.body.appendChild(newElm);
        newElm.className = "try bg-primary";
        newElm.id = "hding";
    </script>
</body> */


// properties ke through text add karna
//eg
/* <body>
    <div id="intro">
        <p>This is a paragraph tag</p>
    </div>

    <script>
        let elm = document.getElementById("intro");
        let newElm = document.createElement("h1");
        newElm.textContent = "Content is added in h1 tag"
        elm.appendChild(newElm);
    </script>
</body> */


// textContent property seh element ko read vi kar sakthe hain
// yani console meh inner text ko display karna
//eg
/* <body>
    <div>
        <p id="read">This is a paragraph tag</p>
    </div>
    <script>
        let pra = document.getElementById("read");
        let readPra = pra.textContent;
        console.log(readPra);
    </script>
</body> */



// ul meh li add karna
//
```

JavaScript

```
/* <body>
    <ul id="lists">
        <li>list 1</li>
        <li>list 2</li>
        <li>list 3</li>
        <li>list 4</li>
    </ul>
    <script>
        let liss = document.getElementById("lists");
        let li5 = document.createElement("li");
        li5.textContent = "New list 5";
        liss.appendChild(li5);
    </script>
</body> */
```

//******************************** Insert before */

```
// list 1 seh pehele add karna ho toh
//
/* <body>
    <ul id="lists">
        <li>list 1</li>
        <li>list 2</li>
        <li>list 3</li>
        <li>list 4</li>
    </ul>
    <script>
        let liss = document.getElementById("lists");
        let li5 = document.createElement("li");
        li5.textContent = "New list 5";
        let pos = liss.firstElementChild;
        liss.insertBefore(li5, pos);
    </script>
</body> */


// list 3 seh pehele add karneh ke liyeh
//eg
/* <body>
    <ul id="lists">
        <li>list 1</li>
        <li>list 2</li>
        <li>list 3</li>
        <li>list 4</li>
    </ul>
    <script>
        let liss = document.getElementById("lists");
        let li5 = document.createElement("li");
```

JavaScript

```
        li5.textContent = "New list 5";
        let pos = liss.firstElementChild.nextElementSibling.nextElementSiblings;
        liss.insertBefore(li5, pos);
    </script>
</body> */


// div seh pehele add karna
//
/* <body>
    <div id="item">
        <p>This is a paragraph tag</p>
    </div>
    <script>
        let par = document.body;
        let elm = document.getElementById("item");
        let newElm = document.createElement("h2");
        newElm.textContent = "This is a heading 2 tag";
        par.insertBefore(newElm, elm);
    </script>
</body> */
```

//******************************* remove child element */

```
//parent seh child ko remove karna
// eg
/* <body>
    <ul id="item">
        <li>list 1</li>
        <li>list 2</li>
    </ul>
    <script>
        let par = document.getElementById("item");
        let elm = par.firstElementChild.nextElementSibling;
        par.removeChild(elm);
    </script>
</body> */


// body ko parent liya
//
/* <body>
    <ul id="item">
        <li>list 1</li>
        <li>list 2</li>
    </ul>
    <script>
        let par = document.body;
```

JavaScript

```javascript
        let elm = document.getElementById("item");
        par.removeChild(elm);
    </script>
</body> */
```

//*** clone element */

```javascript
// true likhne seh child element vi sath meh copy hota hain
//eg
/* <body>
    <ul id="menu">
        <li>Home</li>
        <li>About</li>
        <li>contact</li>
        <li>Service</li>
    </ul>
    <script>
        let elm = document.getElementById("menu");
        let cloneElm = elm.cloneNode(true);
        cloneElm.id = "mobile_menu";
        document.body.appendChild(cloneElm);
    </script>
</body> */
```

//*** replace element */

```javascript
//eg
// about ko replace karke services bana diya
//
/* <body>
    <ul id="menu">
        <li>Home</li>
        <li>About</li>
        <li>contact</li>
    </ul>
    <script>
        let par_ent = document.getElementById("menu");
        let newElm = document.createElement("li");
        newElm.textContent = "Services";
        let ch_ild = par_ent.firstElementChild.nextElementSibling;
        par_ent.replaceChild(newElm, ch_ild);
    </script>
</body> */
```

JavaScript

```
//selected element seh 4 position hote hain
// beforebegin , afterbegin , beforeend , afterend
// text ko html meh convert kar sakthe hain
// eg
/* <body>
    <div id="intro">
        <p>This is a paragraph tag</p>
    </div>
    <script>
        let par = document.getElementById("intro");
        let newElm = "<h1>Heading</h1>";
        // par.insertAdjacentHTML("beforebegin", newElm);
        // par.insertAdjacentHTML("afterbegin", newElm);
        // par.insertAdjacentHTML("beforeend", newElm);
        par.insertAdjacentHTML("afterend", newElm);
    </script>
</body> */
```

// ******************************** change attribute

```
//set attribute
//eg
/* <body>
    <button id="btn">click</button>
    <script>
        let btn = document.getElementById("btn");
        btn.setAttribute("name", "form_1");
        btn.setAttribute("class", "form1");
    </script>
</body> */


// get attribute
//eg
/* <body>
    <button id="btn">click</button>
    <script>
        let btn = document.getElementById("btn");
        let getAttri = btn.getAttribute("id");
        console.log(getAttri);
    </script>
</body> */


// remove attribute
//eg
/* <body>
```

JavaScript

```
    <button id="btn" class="form1">click</button>
    <script>
        let btn = document.getElementById("btn");
        btn.removeAttribute("class");
    </script>
</body> */
```

//******************************* inline style */

```
// three ways
// 1
/* <body>
    <button id="btn" class="form1">click</button>
    <script>
        let btn = document.getElementById("btn");
        btn.style.cssText = "background-color: red; color:white;";
    </script>
</body> */


// 2
/* <body>
    <button id="btn" class="form1">click</button>
    <script>
        let btn = document.getElementById("btn");
        btn.setAttribute("style", "background-color: red; color:white;");
    </script>
</body> */


// 3
/* <body>
    <button id="btn" class="form1">click</button>
    <script>
        let btn = document.getElementById("btn");
        btn.style.background = "black";
        btn.style.color = "white";
    </script>
</body> */



// already style ho toh setAttribute aur style.cssText useko hatakeh kud ka laga deta hain
// but to use both then give += as shown below
//eg
/* <body>
    <button id="btn" style="background-color: black;color: aliceblue;">click</button>
    <script>
```

JavaScript

```
        let btn = document.getElementById("btn");
        btn.style.cssText += "background-color: red;";
    </script>
</body> */
```

// ** get computed css

```
//eg
/* <head>
    <style>
        #btn {
            background-color: red;
            color: aliceblue;
        }
    </style>
</head>
<body>
    <button id="btn" style="color: blue;">click</button>
    <script>
        let bton = document.getElementById("btn");
        let css = getComputedStyle(bton);
        console.log(css.color);
    </script>
</body> */
```

// *** css classes

```
// know classes
// eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour dimm">
<p>This is a pragraph</p>
</div>
<script>
let elm = document.getElementById("box");
```

JavaScript

```
console.log(elm.className);
</script>
</body> */



// add classes
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour">
<p>This is a pragraph</p>
</div>
<script>
let elm = document.getElementById("box");
elm.className += " dimm";
</script>
</body> */



// access classes
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour dimm">
<p>This is a pragraph</p>
```

JavaScript

```
</div>
<script>
let elm = document.getElementById("box");
        console.log(elm.classList);
        for (let clss of elm.classList) {
            console.log(clss);
        }
</script>
</body> */



// add classes
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour">
        <p>This is a pragraph</p>
    </div>
    <script>
        let elm = document.getElementById("box");
        elm.classList.add("dimm");
    </script>
</body> */



// remove classes
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
```

JavaScript

```
}
</style>
</head>
<body>
<div id="box" class="colour dimm">
        <p>This is a pragraph</p>
    </div>
    <script>
        let elm = document.getElementById("box");
        elm.classList.remove("dimm");
    </script>
</body> */



// replace classes
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour">
        <p>This is a pragraph</p>
    </div>
    <script>
        let elm = document.getElementById("box");
        elm.classList.replace("colour", "dimm");
    </script>
</body> */



// check particular class laga hua hain ki nhi
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
```

JavaScript

```
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour">
        <p>This is a pragraph</p>
    </div>
    <script>
        let elm = document.getElementById("box");
        let result = elm.classList.contains("colour");
        console.log(result);
    </script>
</body> */



// agar laga hua hain toh hata doh // aur nhi laga toh laga doh
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour">
        <p>This is a pragraph</p>
    </div>
    <script>
        let elm = document.getElementById("box");
        elm.classList.toggle("dimm");
    </script>
</body> */



// already hain toh hata dega
//eg
/* <head>
<style>
.colour {
```

JavaScript

```
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour dimm">
        <p>This is a pragraph</p>
    </div>
    <script>
        let elm = document.getElementById("box");
        elm.classList.toggle("dimm");
    </script>
</body> */
```

//*** height and width of an element

```
// offset meh border padding include hota hain
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour dimm">
<p>This is a pragraph</p>
</div>
<script>
let elm = document.getElementById("box");
let heightOf = elm.offsetHeight;
let widthOf = elm.offsetWidth;
console.log(heightOf);
console.log(widthOf);
```

JavaScript

```
</script>
</body> */



// client meh border include nhi hoga
//eg
/* <head>
<style>
.colour {
    background-color: black;
    color: white;
}
.dimm {
    padding: 50px;
    border: 2px solid red;
}
</style>
</head>
<body>
<div id="box" class="colour dimm">
        <p>This is a pragraph</p>
    </div>
    <script>
        let elm = document.getElementById("box");
        let heightCl = elm.clientHeight;
        let widthCl = elm.clientWidth;
        console.log(heightCl);
        console.log(widthCl);
    </script>
</body> */
```

//*** DOM events */

```
// search on internet for more dom events
//eg
/* <body>
    <button id="battan" onclick="btn()">Click Me</button>
    <script>
        let btn = () => alert("Button was clicked");
    </script>
</body> */


// using addEventListener
// eg
/* <body>
    <button id="battan">Click Me</button>
```

JavaScript

```
    <script>
        let btn = () => alert("Button was clicked");
        let batn = document.getElementById("battan");
        batn.addEventListener("click", btn);
    </script>
</body> */



// we can use multiple events also
//eg
/* <body>
    <button id="battan">Click Me</button>
    <script>
        let batn = document.getElementById("battan");
        batn.addEventListener("click", () => alert("Button was clicked"));
        batn.addEventListener("mouseover", () => console.log("click here"));
        batn.addEventListener("mouseout", () => console.log("Thanks for clicking"));
    </script>
</body> */
```

// *** remove eventListener

```
// eg
/* <body>
    <button id="battan">Click Me</button>
    <script>
        let batn = document.getElementById("battan");
        function clickbtn1() {
            console.log("clickbtn1 activated");
        }
        function clickbtn2() {
            console.log("clickbtn2 activated");
        }
        batn.addEventListener("click", clickbtn1);
        batn.addEventListener("click", clickbtn2);
        batn.removeEventListener("click", clickbtn2);
    </script>
</body> */
```

//*** page load event */

```
// DOMContentLoad ---- fully load hone seh pehele
// load ---- fully load honeh ke badh

//eg
/* <body>
```

JavaScript

```
    <img src="images/teahub.io-bilder-wallpaper-1669233.jpg" alt="statellite view">
    <script>
        window.addEventListener("DOMContentLoaded", () => console.log("DOM Tree created"));
        window.addEventListener("load", () => console.log("fully loaded"));
    </script>
</body> */


// particular element ko vi deh sakthe hain
```

//******************************** Mouse Events */

```
// search online for more
//eg
/* <head>
    <style>
        #box {
            background-color: red;
            height: 100px;
            width: 100px;
        }
    </style>
</head>
<body>
    <!-- <div id="box" onclick="mouseFunc()"></div> -->
    <!-- <div id="box" oncontextmenu="mouseFunc()"></div> -->
    <!-- <div id="box" onmousedown="mouseFunc()"></div> -->
    <!-- <div id="box" onmouseover="mouseFunc()"></div> -->
    <div id="box" onmouseup="mouseFunc()"></div>
    <script>
        // let mouseFunc = () => alert("The user clicks on an element");
        // let mouseFunc = () => alert("The user right-clicks on an element");
        // let mouseFunc = () => alert("A mouse button is pressed over an element");
        // let mouseFunc = () => alert("The mouse pointer is moved over an element");
        let mouseFunc = () => alert("The mouse button is released over an element");
    </script>
</body> */
```

//*** key down event */

```
// u can know window mwh kya key press kiya
// keydown -- jab dabayega tab hoga
// keyup ---dabakeh choro gi tab hoga

// eg
/* <body>
    <script>
```

JavaScript

```
        let keyCheck = (eventt) => console.log(eventt.key);
        window.addEventListener("keydown", keyCheck);
    </script>
</body> */



//eg
/* <body>
    <script>
        let keyCheck = (eventt) => console.log(eventt.key);
        window.addEventListener("keyup", keyCheck);
    </script>
</body> */
```

// *** scroll events

```
// to detect scrolling
// Y for vertical
// X for horizontal
// scrolling
//eg
/* <head>
    <style>
        body {
            height: 2000px;
        }
    </style>
</head>
<body>
    <p>Hello</p>
    <script>
        window.addEventListener("scroll", () => console.log("scrolling...."));
    </script>
</body> */



//check scrolling up or down (vertically)
//eg
/* <head>
    <style>
        body {
            height: 2000px;
        }
    </style>
</head>
<body>
    <p>Hello</p>
```

JavaScript

```
        <script>
            window.addEventListener("wheel", (storedHere) => {
                if (storedHere.deltaY < 0) {
                    console.log("scrolling up.......");
                } else if (storedHere.deltaY > 0) {
                    console.log("scrolling down......");
                }
            })
        </script>
</body> */



// change style when i reaches specific pexel
//eg
/* <head>
    <style>
        body {
            height: 2000px;
        }
    </style>
</head>
<body>
    <p>Hello</p>
    <script>
        window.addEventListener("scroll", () => {
            if (window.pageYOffset > 200) {
                document.body.style.background = "red";
            } else {
                document.body.style.background = "white";
            }
        })
    </script>
</body> */



// for horizontal
//eg
/* <head>
    <style>
        body {
            width: 2000px;
        }
    </style>
</head>
<body>
    <p>Hello</p>
    <script>
```

JavaScript

```
        window.addEventListener("scroll", () => {
            if (window.pageXOffset > 200) {
                document.body.style.background = "red";
            } else {
                document.body.style.background = "white";
            }
        })
    </script>
</body> */
```

```
// ********************************************* Input events
// jese hi user type karega wo focus state meh aa jayega  // hatega toh blur
// to detect input events
//eg
/* <body>
    <form action="">
        Name: <input type="text" id="inpName">
    </form>
    <script>
        let nam = document.getElementById("inpName");
        nam.addEventListener("focus", () => nam.style.background = "yellow");
        nam.addEventListener("blur", () => nam.style.background = "white");
    </script>
</body> */



// get the value written in input form
// change event
//eg
/* <body>
    <form action="">
        Name: <input type="text" id="inpName">
    </form>
    <script>
        let nam = document.getElementById("inpName");
        nam.addEventListener("change", function () {
            console.log(this.value);
        });
    </script>
</body> */



// input event
//eg
/* <body>
    <form action="">
```

JavaScript

```
        Name: <input type="text" id="inpName">
    </form>
    <script>
        let nam = document.getElementById("inpName");
        nam.addEventListener("input", function () {
            console.log(this.value);
        });
    </script>
</body> */
```

//*************************************** Event Bubbling and Event capturing */

```
// first kisko execute karna hain // parent ko ya children ko
// false aur kutch nhi likhe toh bubbling // true likhne seh capturing
// bubbling meh peheleh children execute hoga uske badh parent
// capturing meh peheleh parent execute hoga uske badh children
// eg of bubbling
/* <head>
    <style>
        body {
            padding: 100px;
            background-color: burlywood;
        }
        #div_Hu {
            padding: 50px;
            background-color: blue;
        }
        #btn {
            background-color: red;
            color: white;
        }
    </style>
</head>
<body>
    <div id="div_Hu">
        <button id="btn">Click Me</button>
    </div>
    <script>
        let d = document.getElementById("div_Hu");
        let b = document.getElementById("btn");
        d.addEventListener("click", () => console.log("You Clicked div..."), false);
        b.addEventListener("click", () => console.log("You Clicked button..."), false);
        document.body.addEventListener("click", () => console.log("You Clicked body..."));
    </script>
</body> */
```

JavaScript

```
// eg of capturing
/* <head>
    <style>
        body {
            padding: 100px;
            background-color: burlywood;
        }
        #div_Hu {
            padding: 50px;
            background-color: blue;
        }
        #btn {
            background-color: red;
            color: white;
        }
    </style>
</head>
<body>
    <div id="div_Hu">
        <button id="btn">Click Me</button>
    </div>
    <script>
        let d = document.getElementById("div_Hu");
        let b = document.getElementById("btn");
        d.addEventListener("click", () => console.log("You Clicked div..."), true);
        b.addEventListener("click", () => console.log("You Clicked button..."), true);
        document.body.addEventListener("click", () => console.log("You Clicked body..."), true);
    </script>
</body> */


// to run function individually
//eg
/* <head>
    <style>
        body {
            padding: 100px;
            background-color: burlywood;
        }
        #div_Hu {
            padding: 50px;
            background-color: blue;
        }
        #btn {
            background-color: red;
            color: white;
        }
    </style>
```

JavaScript

```
</head>
<body>
    <div id="div_Hu">
        <button id="btn">Click Me</button>
    </div>
    <script>
        let d = document.getElementById("div_Hu");
        let b = document.getElementById("btn");
        d.addEventListener("click", function (event) {
            console.log("You Clicked div...");
            event.stopPropagation();
        });
        b.addEventListener("click", function (event) {
            console.log("You Clicked button...");
            event.stopPropagation();
        });
        document.body.addEventListener("click", function (event) {
            console.log("You Clicked body...");
            event.stopPropagation();
        });
    </script>
</body> */
```

// *** prevent default

```
// click karneh seh kam na kareh
// eg
/* <body>
    <a href="https://www.google.com" id="google">Click Here</a>
    <script>
        let link = document.getElementById("google");
        link.addEventListener("click", function (e) {
            console.log("You Clicked");
            e.preventDefault();
        });
    </script>
</body> */


//eg
/* <body>
    <form action="" id="errorSub">
        Name: <input type="text">
        <input type="submit">
    </form>
    <script>
        let Sub_mit = document.getElementById("errorSub");
```

JavaScript

```
        Sub_mit.addEventListener("click", (event) => event.preventDefault());
    </script>
</body> */
```

//******************************* Browser object Model (BOM)   */

```
// used to interact with browser
// jo var seh variable defined hain wohi window ka property bantha hain
// window ek default object hain
//eg
// var x = "Hello World";
// console.log(window.x);


//eg
// function xyz() {
//      console.log("Hello World !!!!");
// }
// window.xyz();


//eg
// window.alert("Welcome");
```

// ** window

```
// inner height and width display area / view
// outer meh pura browser aa jata hain
//
// console.log(window.innerHeight);
// console.log(window.innerWidth);
// console.log(window.outerHeight);
// console.log(window.outerWidth);



// naya window kese open karthe hain // window.open("url","name","features")
// search window.open() in browser to know more features
// eg
/* <body>
    <button id="btn_1">Google</button>
    <script>
        let btn1 = document.getElementById("btn_1");
        let feature = "height = 500,width = 500";
        btn1.addEventListener("click", () => window.open("https://www.google.com", "google",
          feature));
    </script>
```

JavaScript

```
</body> */



// alag window nhi kulega same name use karneh seh
//eg
/* <body>
    <button id="btn_1">Google</button>
    <button id="btn_2">flipkart</button>
    <script>
        let btn1 = document.getElementById("btn_1");
        let btn2 = document.getElementById("btn_2");
        let feature = "height = 500,width = 500";
        btn1.addEventListener("click", () => window.open("https://www.google.com", "google",
          feature));
        btn2.addEventListener("click", () => window.open("https://www.flipkart.com/", "google",
          feature));
    </script>
</body> */




// to close window
//eg
/* <body>
    <button id="btn_1">Google</button>
    <button id="btn_2">flipkart</button>
    <button id="btn_3">Close</button>
    <script>
        let btn1 = document.getElementById("btn_1");
        let btn2 = document.getElementById("btn_2");
        let btn3 = document.getElementById("btn_3");
        let feature = "height = 500,width = 500";
        var win;
        btn1.addEventListener("click", () => {
            win = window.open("https://www.google.com", "google", feature);
        });
        btn2.addEventListener("click", () => {
            win = window.open("https://www.flipkart.com/", "google", feature);
        });
        btn3.addEventListener("click", () => win.close());
    </script>
</body> */
```

```
    //************************************** Time out and Time interval */
// run a function after specific time // time is in millisecond
/* <script>
```

JavaScript

```javascript
        setTimeout(myFunc, 5000);
        function myFunc() {
            alert("Please rate our website .....");
        }
</script> */



// to stop setTimeout
//eg
/* <script>
        var _time = setTimeout(myFunc, 5000);
        function myFunc() {
            alert("Please rate our website .....");
        }
        clearTimeout(_time);
</script> */



// Time interval --- to run a function repeatedly after specific time
//eg
/* <body>
    <button id="btn" style="position: fixed;left: 100px;">Stop</button>
    <div id="cloneMe">
        <p>I Love You</p>
    </div>
    <script>
        var _time = setInterval(myFunc, 1000);
        function myFunc() {
            let elm = document.getElementById("cloneMe");
            let cloneElm = elm.cloneNode(true);
            document.body.appendChild(cloneElm);
        }
        var _btn = document.getElementById("btn");
        _btn.addEventListener("click", () => clearInterval(_time));
    </script>
</body> */
```

```
    //************************************* Location object */
// check location
// console.log(location.href);
// console.log(location.pathname);
// console.log(location.protocol);


// redirect to other page
```

JavaScript

```
// many ways
// eg
/* <body>
    <button id="btn" onclick="myFunc()">redirect to google</button>
    <script>
        function myFunc() {
            window.location = "https:/www.google.com";
        }
    </script>
</body> */



// eg
/* <body>
    <button id="btn" onclick="myFunc()">redirect to google</button>
    <script>
        function myFunc() {
            location.href = "https:/www.google.com";
        }
    </script>
</body> */



// eg
/* <body>
    <button id="btn" onclick="myFunc()">redirect to google</button>
    <script>
        function myFunc() {
            location.assign("https:/www.google.com");
        }
    </script>
</body> */



// ismeh back aaneh ka option nhi hota
//eg
/* <body>
    <button id="btn" onclick="myFunc()">redirect to google</button>
    <script>
        function myFunc() {
            location.replace("https:/www.google.com");
        }
    </script>
</body> */
```

JavaScript

```
// make reload button in page
//eg
/* <body>
    <button id="btn" onclick="myFunc()">reload</button>
    <script>
        function myFunc() {
            location.reload();
        }
    </script>
</body> */
```

//*** Navigator object */

```
// browser ke bareh meh information
// eg
// console.log(navigator.appName);
// console.log(navigator.appVersion);
// console.log(navigator.appCodeName);
// console.log(navigator.cookieEnabled);
// console.log(navigator.userAgent);
// console.log(navigator.platform);
// console.log(navigator.javaEnabled());


// and many more
```

// ************************************* screen object

```
//eg
// console.log(screen.height);
// console.log(screen.width);
// console.log(screen.colorDepth);
// console.log(screen.orientation);
```