

negative → attribute in HTML not accepted

memo 3 weeks accepted

Date:

JavaScript:

- JS was invented by Brendan Eich in 1995
- It was developed for Netscape 2, and became the ECMA-262 standard in 1997.
- European Computer Manufacturers Association (formally European Computer Manufacturers Association) is an organization that develops standards in computer and technology.
- ES1 to ES5 (1997 to 2009)
- After that in 2015 (major changes to follow the rules and regulations) this is called JavaScript / ES2015 / ES6.
- ES6 is standard for JS after that every year new changes come ES7, ES8, ES10 etc.
- JS is a light weight object oriented programming language
- use in form submit
- in client side validation.
- Pop up events on click.
- Uses
 - Client side execute in browsers (JS query, React JS, Angular JS)
 - Website server side (node.js, Express.js)
 - Mobile Development (Hybrid App) (framework for mobile app react native, phone gap etc).
 - Software Development (Electron JS, Ex-ss(we), framework etc).

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(Small window)

Pop-up → Koi whatsapp pe like ka raha mere ps notification ya pop-up khul jaha.

Index.html (ye saara kam Java HTML kandha kija tha.)

<title> First class of JS </title>

JS ko hum head me bhi likh sakte or body me bhi
<body>

<script> → phle ye

alert("Hello!"); → Pop-up Khullega.

<head>

<script> alert("Hello2"); </head> phle ye aye ga

Different alert

Index.html

<title> JS </title>

<script src = "script.js" > </script> → head me lagayenge
↓ to memory load ho jayega work fast nahi hogta.
is se isse body ke closing tag se phle lagaye.

Attribute → baki apne head section me likha ho
lkjn we read ho me karega.

<script defer src = "script.js" > </script> → Parley ye
↓ attribute ho me read ho.

Right click inspect → console → JS code
window
↳ Error Show
MIGHTY PAPER PRODUCTS Coding
↳ Execute
Clear
bhi
ki sare

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JSTutorials:

Index.html , variable and datatype.js

↳ <script src="variable and datatype.js"></script>.

Content

<h1> Variables </h1>

 Var 3 tareekhe se hum apne variable

 Let Ko declare karne hain Is me

 const

- Ecma script se phle var use hota tha .

- 2015 se phle

- Ecma script / Es6 aya us wajt 2 new words introduce hune let or const .



variable ki value change kar sakte but
const ki nhi .

```
const abc = "hellow"; { ever  
    abc = "hi"; }
```

```
let name = "hina"; name = "sumaila";
```

```
console.log(name); → maya name show hogi .
```

F12 → console

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Variables

- ↳ Contains → TBS me Koi na Koi value gya store karate
- ↳ memory me ek space reserve hoga

Console (sau nahi hote yahan)

$$a = 34$$

$$b = 56$$

$$a + b = 90$$

• JS → 2015 se tha

var a = 6;

var a = 5;

var ko bu ba declare kame se koi error nahi dega
yeh let ko bu ba kame se error aiyega.

let a = 5;

let var a = 10; ~~a = "hellow";~~ → last value huge seif

modern javascript me let or const use hota.

const → JS ki constant ho

const pi = 3.142;

let a;

a = 67;

a = "hina";

↳ assign operator

const abc = "89"; → kabhi change nahi hote.

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↳ Data types
 number
 string
 boolean
 null
 undefined
 NaN
 Objects
 functions

Number:

let

age = 45;
console.log("Age"); → Age ko print
console.log(age); Age ki ^{Kondigo} value takon dega

```
let fullname = "balqeesa";
console.log(fullname);
let isPass = true;
console.log(isPass);
let rollNo = "";
```

variables rules
Case sensitive
↳ small abc or ABC to along variables honge
② variable ka name key word nahi hona chahye
Console.log → nahi sakte -
③ Key word nahi sakte
④ ladder, number, underscore,
 ↳ dollar sign can be used
 ↳ small or capital
⑤ variable ICO hum number se start nahi kar sakte.

console
+ typeo isPass
"booleam"

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Variables

- Variable is just like a container
- Variable is used to store information
- It reserves space in memory. Its data can vary but memory location will always remains same

Naming Variables in Javascript:

Rules:

- Variable's name can't be any keyword e.g alert, prompt etc (let, const)
- Variable is case sensitive. Same name in Capital and small letters are different e.g Name or name (both are different)
- Variables can be consist of alphabet, number, dollar sign and underscore.
- Variable can't be start with digits (number) its first letter.
- no space allowed.

As a Good Programmer.

- Your variable name should match with its content.
- When you want 2 words join in variable name, so first word start with small letter and 2nd word start with capital letter ..
e.g fullname, w1Numb3r etc
↳ camel case.

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Types of variables:

- **var**: Used Before EcmaScript. This type of variable can be declare again & again in JS.

After ES6 in modern or advance JavaScript these 2 keywords use for declaration variables.

- **let**: its value can change any time in programming language and can declare and assign in 2 steps.

e.g let name;(declare)
name = "Hello";(assignment).

- **const** used for constant value eg pi value. its value can't be changed.

- Its value must be assigned at the time of declaration

e.g const name = "Hing"; (declare & assign in same sentence).

Variable Scope

- 1. **Block scope variable**: If variable declare in block of code (in curly braces {})

It will alive only in block and will not be accessible after curly braces.

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2) Global Scope variable: used Globally in whole program.

Comments in JS:

- Single line : //let name = "hina";
- multi line : /* */

console.log

Print / Display in JS: window → object.

document.write("world");

- On Browser: window.document.write("hina");
- In Console: console.log("hina");
- Popups: window.alert("hina");

Taking input from users in JS

• Prompt In JS, we use the prompt() function to ask the user for input. As a parameter, we input the text we want to display to the user. Once the user presses "OK", the input value is returned. We typically store user input in a variable so that we can use the information in our program.

let answer = prompt("Do you want to send payment y/n?");
in answer variable value will be stored as user can print it.

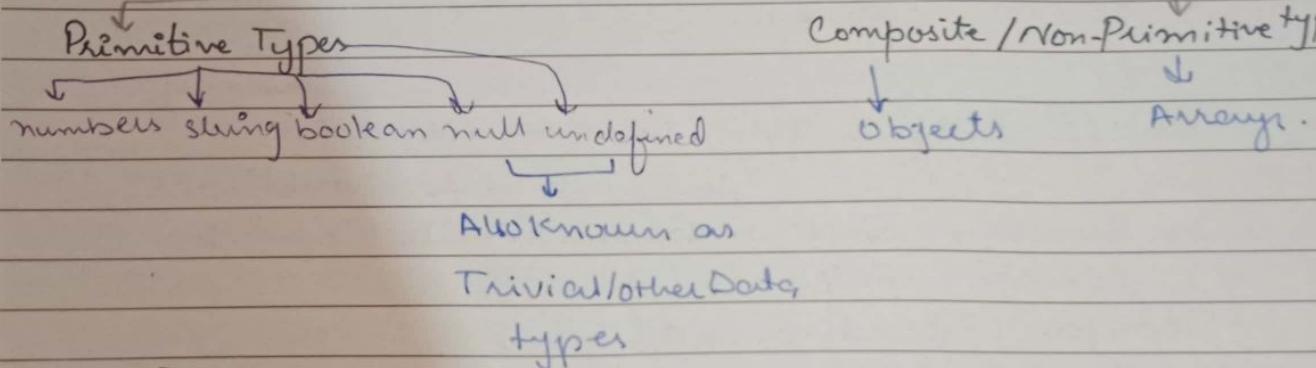
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• JS

```
let num=prompt("choose any number : 1-10");
```

```
document.write(num);
```

Variables & Data types:



• JS

```
//number  
let age=55;  
document.write(age);  
console.log(typeof age);
```

Primitive Data types

- number let rollNo = 56;
- string → single or double quotation let name = "Aishlaa";
- boolean let isPass = true;
- undefined let percentage ; → (coi value nahi hote)
- object (null) let class = null;

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```
let name = "alishba"; name = "kiam"; → string  
document.write(name);  
console.log(typeof name);
```

```
let ispan = true; → boolean  
document.write(ispan);  
console.log(typeof ispan);
```

```
let class; → undefined  
document.write(class);  
console.log(typeof class);
```

```
let abc = null;  
document.write(abc);  
console.log(typeof abc);
```

Non Primitive Data types :

1) Array

- Store multiple value in single variable.
- values written in square brackets [].

Syntax:

Print

```
let info = [5, "king", "computer"]; document.write(info);  
console.log(info); document.write(info[1]);
```

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• JS

Index
↑

```
//array [0, 1, 2]
let info = [5, "hima", "computer"];
document.write(info);
document.write(info[1]);
console.log(typeof info);
```

2. Object:

- Store multiple value in single variable.
- values written in curly brackets {} in pairs with keys
- Syntax:

```
let student = {
    name: "hima",
    rollno: 23,
    class: "computer"
}
```

```
document.write(student);
document.write(student.rollno);
```

//object

```
let student = {
    rollno: 5,
    name: "daniel",
    subs: "maths"
}
```

```
document.write(student);
console.log(typeof student);
```

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• JS → strings

```
let item = {  
    name: "lipstick",  
    price: 250, → number  
    rating: 4,  
    available: true, → boolean  
    offer: 20, → number
```

}

document.write(item);
or

console.log(item);

console me jaikan

typeof item.

item.price
250

item.offer

20

item.available
true.

Object → andou variable

Keys kehlata.

Operators in js

- Function banalii bet confilii paundha nahi hai function ko jh tk scroll na kia jaye.
- hum isse let se define nahi karle.
- function ka koi name rakhma hau → call execute nahi karla qb tk envoce na kia jaye.
- Js

function ka name rakholia
functions welcome()

```
{  
    document.write("welcome");  
}
```

```
function sum(a,b)  
{
```

```
    let c=a+b; → add operation  
    return
```

```
}
```

isse hum html or java dono me call kar sakte hain

welcome(); → call

let answer = sum(4,5);
 ^a
 _b

document.write(answer); → kahan thi print karwasakte.

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→ yahan print karne dega iski type
data document • write (datatype of sum);
functions

Operators in if

↳ task perform k liye use hote
↳ kisi bhi data pe

$a+b$, expression
 $4+5$ → operator
operand

1) Arithmetic Operator

2) Assignment Operator

3) Comparison Operator

4) Logical Operator

5) Conditional Operator

6) Arithmetic Operator

+ (Addition) , * (multiplication, / (Division)) } 2 val
- (Subtraction) , % (modulus/remainder) } 2 oper
Exponentiation } and

• Increment } single unary operators

• Decrement } operand Post increment $a++$

Pre increment $++a$

Post decrement $a--$

Pre decrement $--a$

at b

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• JS

// Arithmetic Operators

let a = 9;

let b = 5;

// Addition

document.write(a + b); // 14
or

document.write(a, "+", b, "=", a + b); 9 + 5 = 14

→ Browser

// subtraction

document.write

document.write(a, "-", b, "=", a - b); 9 - 5 = 4

"</br>"

Quotation K andan num html IC tag bh likh
sakbe hain

// multiplication

document.write(a, "*", b, "=", a * b "</br>") // 45

// Division

document.write(a, "/", b, "=", a / b "</br>") // 1.8

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// Modulus

document.write(a, "%", b, "=", a % b, ""); // 4

// Exponentiation

$$2^2 * 2^2 = 2^{2+2} \quad a=5, b=3$$

document.write(a, "**", b, "=", a ** b, ""); // 11

// many operand

// a++, a = a + 1;

// a--, a = a - 1; a++;

document.write(a); or document.write(a++); // 4
b--;
document.write(b); // 3-1 document.write(a--);

phle value ayge bol me increment ya
delement hog a

// Pre decrement

document.write(--a); // phle delement hog
document.write(a); // M

// pre increment

document.write(++a); //
document.write(a); //

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7 Assignment Operator (assign value)

= $a = 2$; leftside = rightside .

+ = $a + = 4$ | $a = a + 4$;

- = $a - = 4$ | $a = a - 4$;

* = $a * = 4$ | $a = a * 4$;

% = $a \% = 4$ | $a = \% 4$;

** = $a ** = 4$ | $a = a ** 4$;

/ =

// assignment operator

let $a = 8$;
 $a + = 4$;

document.write(a); // 12

$a - = 3$

document.write(a); // 5

$a * = 3$;

document.write(a); // 24

$a / = 3$;

document.write(a); // 2.66

$a \% = 3$; ~~modulus~~

document.write(a); // 2

$a ** = 3$; // $8 \times 8 \times 8$

document.write(a); // 512

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3) Comparison Operators:

→ True or False

↑
same data type True

$==$ (equal to) $==$ (equal to + same data type)
not \neq (not equal to) \neq (not equal to & data type)

> greater than

$>=$

< less than

$<=$

If $a == b$

let $a = 2$; // number

let $b = 2$; or $b = "2"$; // string

$a == b$ True

$2 == 2$ True

$a == b$ False

$a != b$ False

$a != b$ True → Data type not same

4) Logical Operator

2 values to determine

2 condition check haurge.

• logical And $\&$ & Condition 1 & Condition 2 → 2nd condition

• logical OR $||$ Any 1 true True haurge

• logical Not $!$ Ternary operator changing

5) Conditional operator.

Condition? True output: false

If Statement

output:

If-else statement

e.g.

If-else if statement

age > 18 ? "adult" : "not adult"

like be

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check kannams

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• JS

// comparison Operator

let a = 5; // number

let b = "5"; // string 5 == 5

if (a == b) {

document.write ("no") → Age aur a bancha hai
} or hollow b is to hollow
likh kaade

if (a == b) {

document.write ("no")

} Lekhi hog a show

Kio ke data type different hain -

a = 5; b = 5;

if (a != b)

document.write ("no")

} Lekhi kon ke dega print

let a = 5;

let b = "5";

→ if (a != b) → kon ke dega print

let age = 14;

if (age >= 18)

document.write ("you can vote");

}

else {

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document.write (" You can't vote ");
}

You can't vote → show in browser

let age = 23;

if (age < 18)
{

document.write (" You are child ");

}

else if (age > 48)
{

document.write (" You are old ");

}

else {

document.write (" You are young ");

}

// ~~logical~~ Operator

let a=5; or a>7

let b=6;

if (a>2 && b>5)

{

 alert (" both conditions are true ");

}

else { alert (" your condition False ") } ↵

{

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let a = 5;

let b = 6;

if (a > 7 || b > 5)
{

 alert ("hellow"); ①
}

else {

 alert ("welcome"); ②
}

if b > 9

let a = 5;

let b = 6;

if (! (a < b)) // false
{

 alert ("hellow");
}

else {

 alert ("welcome");
}

Ternary Operator

1 line code me check karna hu.

// ternary operator // logical

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```
let age = 20;  
let result;  
result = age > 18 ? "adult"; "not adult";  
alert(result);
```

Practice

Even or odd

- Get input from user a number and check and print it is even number or odd.
- Get input from user a number and check it is divisible by 3 or not & print it is divisible by 3 or not?

```
let num = 40; // So the answer will be even  
let result = num % 2 == 0 ? "Even"; "odd";  
alert(result);
```

```
let num = 40; b = 3;  
document.write(`a,"1",b,"=", a/b"abc")
```

```
result = a/b / 3 == 0,  
userinput = prompt("30");  
if (num % 3 == 0) {  
    alert(num + " is divisible by 3.");}  
else {alert(num + " MIGHTY PAPER PRODUCT  
+ not divisible by 3.");}
```

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Assignment of Marksheets

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

marksheets.js

< body >

document.write ("Roll No : 56");

let name = "Syeda Maania";

document.write(name);

or

let rollno = 56;

let name = "Maania";

let teachername = "Miss Hina";

let class = "9+H"; growing

out of 100

let emarks = prompt ("Enter Your English's marks");

let ur 78

ur 98

ur 89

ur 90

let total = emarks + umarks + pmarks + cmarks + fmarks;

let per = total / 500 * 100;

let grade;

// document.write (rollno);

document.write (name);

" (total); //

if (per <= 100 && per > 88) {

grade = "A+"; }

else if (per <= 88 && per >= 80) { grade = "A"; }

Smarter way to learn JS
in document
in schools

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document.write(grade);
document.write(per);

else if (per <= $\frac{70}{50}$ & per $>= \frac{69}{50}$)
{ grade = "B" }

else if (per <= 60 & per $>= 69$)
{ grade = "D"; }
else { grade = "F"; }

// now create marksheet

```
document.write("Roll No:", roll no);  
d 1, ("<B>Name:" name);  
, ("<B>Class:" class);  
, ("<B>Teacher Name:" teachername);  
document.write("<table border=4>");  
" "<tr><th>Subjects </th><th>Marks  
obtained </th><th>out of </th><th>Percentage");  
document.write("<tr><td>English <td><td>100 <td>");  
'<td><td> 100 </td>");
```

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String .js

Switch statement:

• Is yes or no

- let reply = prompt ("Do you want to continue..."); if(reply == "y")
- Switch (reply) → Keyword so we can write reply == "y"

{ case "y":

document.write ("continue");
break;

case "yes":

document.write ("continue...");
break;

case "N":

document.write ("end");
break; → loop se bahan

case "no":

document.write ("end");
break; }

default: { document.write ("wrong input"); }
↳ wrong input

- Is // switch case break.

copy paste karte se error aye ga to
copy paste kar ke inverted commas
dilbara krapye error sohi hajayega.

else if → Js
↳ if → Python

Date:

String

- String is a sequence of characters used to represent a text.
- It is a primitive data type.
- We can create string by using template literals and in single and double quotations.

String Creation and manipulation

• let str = "I am learning js"; // double
• let str = 'I am learning js'; // single
• let str = `I am learning string template`; // template
literal (adjacent to \`1 keyboad called back tick)
↳ left corner escape button bottom
adjacent to 1

Template literal

Template literals are a feature in Js that were introduced with ES6. They give you a more flexible and maintainable way of working with strings in Javascript.

we can write variable in string if string is string template
How to use template literal. Syntax

- normal string: document.write("my
• For next line \n will not be ;, variable");
• For tab(space) it Template literal: document('my will not
• For print() in string \\ is \${variable});
• For write variable in string \$ (variable name)

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- For double quotation 'hello' hello!

• Js

```
let str = 'hello! how are you?'
```

```
document.write(str);
```

// use of template literal

Backward /n → next line Be IC tag ki zaroori
nhi parate.

```
let num=5;
```

```
document.write('hello $ (num)');
```

Some String Properties and methods.

- let str1 = "I am learning Js";

- let str2 = "CSS";

- let str3 = "html";

- position/index start with 0 in string.

- to find length str.length

- to join strings

```
document.write(str1 + " " + str2)/(str1, " ", str2)
```

- by concat()

```
let str4 = str.concat(str2)/str.concat(str2, str3)
```

```
document.write(str4)
```

True = Yes
False = No

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String Komdu Kitne letters hain

① let str : hello! how are you?;

let l = str.length; //length

document.write(l);

browsers = 19

index 0 Oposition pe h hai

Konsa word kis position pe hai.

→ 5th Position pe Konsa word

document.write(str[4]); // 0 pr w

→ Index find Karte

② let str2 = "I am leaving JS";

concatenate Joined → Joining 2nd line

document.write(str + str2)

→ space

newvar = str.concat(str2);

→ phle wale variable ke saath abse
ko join kardo.

let str3 = "world";

document.write(str + str3 + str2)

let newvar = str.concat(str2, str3); // concatenation

↓ document.write(newvar);

declare new
variable

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let str = "I am learning JS";

- str.trim() // to remove space from start and end
- str.trimStart() //
- str.trimEnd() //
- str.toUpperCase() // change in uppercase
- str.toLowerCase() // change in lowercase
- str.replace("Javascript", "html") // search word and replace (case sensitive)
- str.includes("is") // search word in 1 if not found return -1.

Q let str2 = " I am learning Js ";

- ① document.write(str2); or (str2.trim()); // remove str2.trim() → remove space space from start and end
- ② document.write(str2.trimStart()); only from start
" (str2.trimEnd());

Camel case new word
↳ first word capital

document.write(str3.toUpperCase());

- ③ document.write(str2.replace("learning", "reading"));
↳ if 1st learning KO (diego).
• replaceAll → save Kareeg

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let str = "I am learning JS. it is very easy language";

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→ True ya false return karega

7) document.write(str.includes("is")); → True or the
case → false & minus

Slice Method

document.write(str.slice(5, 10));
↑ spk Jayega or 10
↑ sephale
(5) → 5 be pure string
print karega

first index

Switch statement

```
let reply = prompt("Do you want to continue....");  
if (reply == "y")  
    document.write("continue...");
```

```
switch (reply){
```

```
    case "y":  
        document.write("continue...");  
        break;
```

```
    case "yes":  
        document.write("continue");  
        break;
```

```
    case "n":  
        document.write("end...");  
        break;
```

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escape K richupal baltik ka sign
Date: 1 se phele

Case "no":

```
document.write("end");  
break;
```

default:

```
document.write ("wrong input");
```

Template literal

```
let rollno = 56;  
let name = "hina";  
document.write ('my roll no is ${rollno} my name is  
${name}');
```

or

```
let num1 = 56;  
let num2 = 66;  
document.write ('the sum of ${num1} and ${num2}  
is ${num1 + num2}' );
```

String manipulation

- \n use for print text in new line.
- It use for spaces (tab) more than single space in text.
- \ use for single \ in text.
- \" use double quotations in string.

Ye browser pe show nhi hounge
is lyse console pe kia Date: _____

→ next line

console.log ("my name is Maina /n My subject is
computer");

For Quotation

/t ⇒ 3,4 characters space

console.log (" " subject is "Computer");

console.log ("My students are fatima\\shafila\\abc");

Print start or end me se space ko remove
Karta hai.

let str2 = " I am learning JS ";

console.log(str2.trim()); → space remove

console.log(str2); → as it is no removal of space

console.log(str2.trimStart()); → remove space from start
• trimEnd(); → remove space from end

document.write(str2, "
");

document.write(str2.trimStart()); → work karega
but space khatam
nhi karega.

document.write(str2.length, "
");

↪ browser pe pure line ki length
ayega.

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Loops

- To execute a piece of code again and again.
 - Finite loop and infinite loop
 - Finite loop (ending point).
 - Infinite (not end) memory full / computer hang.
↳ ye ux nhi Katingc.

for loop \Rightarrow variable declare karna 1st step.

- `for` is block scope variable. use for iteration /
counting.
 - First step initialization
 - 2nd condition check if tab conditions true
block of code execute.

variable is south dollar ka sign agarne ka hum
→ space
(“nunis\\n”); Date: _____

• Is

```
for (i=1; i<=5; i++)  
{  
    document.write ("main");  
}  
( "main<br" ); → for space.  
or
```

```
{ document.write (i); ⇒ counting 1 to 5  
}  
or  
( i, "<br>" );
```

Practice questions

1. Print counting 10 to 1.
2. Print ur name 20 times on screen.
3. Print a table of any number by taking user's input.

For table:

```
let tabno = prompt (parseInt("Enter Table no of  
→ Kitne? your choice:"));  
for (i=1; i<=12; i++)  
{  
    document.write ('$ {tabno} x $ {i} = $ {tabno * i}  
'); // 3 x 1 = 3 * 1  
    document.write ("<br>");  
}
```

Array

Property → value dedete
Method → to kam karta

Date:

Index.html

<body>

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

array.js (Counting)

```
for (let i=20; i>=1; i--)  
{  
    document.write("<br>", e);  
}
```

^{mutable non} **Array (primitive data types)**

^{information} [] 1 | 2 | 3 | 4

collection of item

→ linear, position / index matter

- store multiple values in single variable.
- values written in square brackets []
- values separated by comma.
- each position is called index.
- each value can be accessed through index number start with 0.

• e.g arr[0], arr[1]

Syntax:

```
let info = [5, "hina", "computer"]; console.log(info);
```

info = []; // to empty any array.

Array Indices → values are stored in linear
arr[0], arr[1], arr[2] ...

arr[2] = 66

Array length \Rightarrow last index + 1

Date: _____

arr \Rightarrow variable for array
 \hookrightarrow you can change it
 \rightarrow variable

let arr = [34, "Sadia Adil", "JavaScript"];
document.write(arr[0]); \Rightarrow Index zero wala print 34
document.write(arr); \rightarrow Print arr
document.write(arr[2], arr[1]);

For loop

document.write(arr.length); // 3
let l = arr.length - 1;
for (let i = 0; i <= l; i++)
{
 document.write(arr[i]);
}

\rightarrow strings and arrays

For Of loop \Rightarrow used for array.

iterator \hookrightarrow value
for (let i \in arr) {
 me {
 characters document.write(i);
 separate {
 value } \rightarrow array ki ek ek item
 value } uthega or print
 (value, "
") \rightarrow karega

Looping over an array

\hookrightarrow Print all elements of an array.
iterable \rightarrow item who iterate (loop)
 \downarrow strings, objects, arrays

Date: _____

Properties and methods in Array..

let book = ["maths", "English", "Urdu", "Physics", "Comp"]

1. book.length // length of array
2. book.push("chemistry"); // add word in array in the end
3. book.unshift("chemistry"); // add in start of array
4. book.shift(); // remove a word from start
5. book.pop(); // to remove word from last & return updated array
6. book.toString() // convert array in string
7. book.concat(book2) // join 2 or 3 array in new array don't change original array

1) Push Method

let arr = [34, "Sadia Adil", "Java", "Scikit", "Computer"];
arr.push("html"); // insert in end.
 ^ item

document.write(arr);

Push ka dega Computer ke bad html add
Kadega.

2) Unshift

arr.unshift("cm"); // add item in start
document.write(arr, "
");

Date: _____

3. Shift :-

arr.shift(); // remove word from start
document.write(arr, "
");

4. Pop :- remove item from end

arr.pop();
document.write(arr, "
");

5. To string convert array into string

arr.toString();
document.write(arr, "
");

6. concat → 2 array ko join karne

let arr = [34, "S Adil", "J", "S", "Comp"];
let arr2 = ["abc", "xyz");

2nd array ko barabar me likh dega
3rd array me rakhna paega
let arr3 = arr.concat(arr2);
document.write(arr3, "
");

book is array

Date:

→ array ka

Slice → Slice ka ek piece takar dete hai
• Starting or ending index batane par einge
(number batana hai)

- book.indexOf ("Urdu"); // to find any word's position in array.
- book.slice (start idx, end idx); // don't change in original array // return a slice piece of array.
- book.splice (startidx, delcount, next); // change original array // add, remove and replace.

e.g

let arr = [1, 2, 3, 4, 5, 6, 7];

arr.splice (2, 2, 55, 56); // 2 index per 3 // 3 and 4 lemon
// replace them 55 and 56

arr.splice (3, 0, 44); // if you don't want to delete any item // 3 index per you can add 44

arr.splice (2, 3); // if you don't want add only delete items // 2 idx and items

Slice Method

Date: _____

let arr = [0, "Sadia Adil", 2, 3, 4, "Java", "Script", "Comp"];

document.write (arr.slice(2), "
");

↳ 2 se end the array dega
like Java, Script, Comp

Splice Method

Jahan se tohaa \Rightarrow phle value

2 pr jiske all kaane uski yaga \Rightarrow eslichde

→ Splice index

1st position \rightarrow Index position \rightarrow kahan jiske item hoga

2nd \rightarrow kitne item all kaane \rightarrow remove (item no)

3rd \rightarrow kia add kaana \rightarrow add

let arr5 = [2, 5, 7, 8, 9, 10]

→ for 8 all

document.write (arr5.splice(2, 2, 44), "
");

document.write (arr5, "
");

Agar kuch all nhi kaana to uski yaga
0 bikhdeinge

both
Add

document.write (arr5.splice(2, 0, 6), "
");

" (arr5, "
");

Agar kuch add nhi kaana
(2, 1)

Date: _____

Splice is used for deleting and adding

Practice Questions.

- Create an array to store different items (minimum 6) vegetables / fruits / companies etc.

both methods

1. find length of array
2. print all items of array by using for loop
3. remove first item from array.
4. remove 3rd item and add 2 items in this place.
5. Add any item in the last of array.
6. Remove item from end.

For me length find Kaise paage "or" for of length ki sawarat kisi paage.

↳ Direct kisi bhi variable bana leuse

Answers , JS

• let fruits = ["mango", "orange", "apple", "banana", "grapes",
document.write (fruits.length);

for (let value of fruits)
{

document.write (value); → kisi line me print hog
on

document.write (value, "
"); → line wise
print

Date:

length one index no count nhi hota

let array = [^{0, 1, 2, 3} 2, 3, 56, "hina", 78, 65, 23, 89];

1) document.write (array.length);

document.write (array.slice(3)); index 3 se fast tk

" (array.slice(3,6)); → 6 se phle tk

document.write (array.splice(2, 2, 99, 66));
↑ start element, ×

1st index nahi

2nd index item document.write (array); replace nahi karne
↑ Add ↓

Non-Primitive Data type.

2. Object

- Store multiple value in single variable
- Values written in curly brackets {} in pairs with Keys.

Syntax

```
let student = {  
    name: "hina",  
    rollno: 23,  
    class: Computer  
}
```

document.write (student);

" (student.rollno);

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• JS

2 touch se Keys likhao
Date:

② const student or
const student = { name: "fatima",
name: "fatima", rollno: 55, subject: "comp" }
rollno: 55,
subject: "Computer"
} For in loop head
for (let key^a in student)
{
document.write(key, ":", student[key], "
")
}
Any name

OR
document.write (student.name);
(student.subject);

For in loop method me use howa hai keys
uthane ke liye

→ array ke uthata or by one value likha

1, For of loop:

let arr = [1, 2, 3, 4, 5, 6];

for (let i of arr)

{

document.write(i); or (i, "
");

}

For of / For in loop practice questions

1. Print odd number of this array = [34, 45, 65, 45, 24, 12, 1, 5, 6, 8, 9, 79] by using for of loop.
2. Create an object and print keys and data with it by using for in loop.

Date: _____

⑦ // for of loop

let arr = [1, 2, 3, 4, 5, 6];

```
for (let i of arr)
{
    ↗ operator for check → for odd i
    if (i % 2 == 0) {
        document.write(i, "<br>");
```

}

while and do while loop

① Print sum of 1 to 20 numbers by using while loop and do while loop.

For loop (let i = 1; i <= 10; i++)

// while loop Just like for loop \Rightarrow 10 times print karana.

let i = 1

while (i <= 10) 10 se chota

{

document.write(i, "Hinach
");

i++;

} \hookrightarrow jb tk + nahi hoga wo infinite hogayeg

// do while loop

ye kam kaw phi conditions check karo.

phle print hoga bat me check hoga true or false

let i=1;

do

{

document.write(i,"Hina
");
i++;

} while (i <= 10); // False

whi kaug agar true hote to dousaa open
yata or 10 ke print harte.

- 1 time execute aaoal nota.

Answer Do while $1+1 = 2 + 2 = 4 + 3 = 7 + 4 = 11$

let i=1;

let sum=0;

do

{ document.write(i); (i,"
");
sum = sum + i;
i++;

}

while (i <= 10); // false

document.write(sum); or

" ("Sum of 1 to 10 = ",sum);

whi se behind hame

Paranthesis → invoke kaunsa task Date:

Functions in JS

- A javascript function is a block of code designed to perform a particular task, can be invoked whenever needed.
- A JS function is executed when "Something" invokes it (call it)

Functions .JS

function K saath 2 paranthesis hote hain ()

document.write ("hina ".toUpperCase());

function ko hum html me bhi call kar sakte or js me bhi

→ html

<button onclick = "abc()"> click me </button>

→ JS

function abc() {

document.write ("hina ");

"

"

"

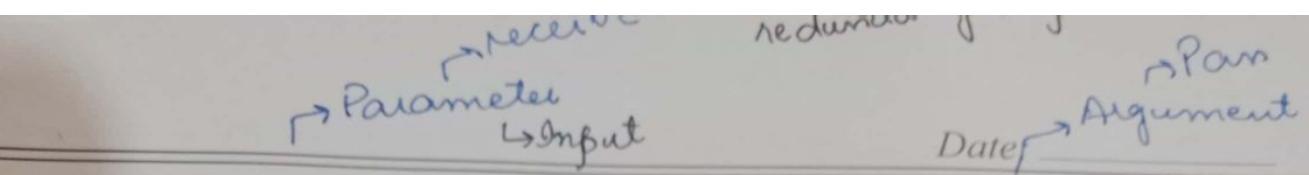
}

abc(); → call karna ek ba likhneing to S br.

abc(); → 10 br

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name age



Function definition (define)

- function fname()

{
block of codes
}

Function invoke (call)

- fname();

- function fname(p1, p2)

{
document.write(p1 + p2)
}

- fname(aug1, aug2)

or

fname(2,3)

functions call se value param hoga phr

define me argument ..

abc(s,t);
→ Argument Params

function abc(p1, p2){
 → block escape variable jo sif issi
 document.write(p1 * p2); // 35
 K andar alive hote

}

document.write(p1 * p2); // 35

P1 block of code K liye hai sif
ye print bhi nahi hogi
↓

document.write(p1); → nahi hogi print

Date:

Q1
let a=6;
let b=8;
abc(a,b);
function abc(p₁,p₂) {

document.write(p₁*p₂); //348

}

function definition

call

- function sum(p₁,p₂)

{

ans = p₁+p₂;

return ans;

}

let a=6;

let b=8;

// call / invoke

let ans=mult(a,b);

function mult(p₁,p₂) {

// function defn

let ans=p₁*p₂;

return ans;

}

document.write(ans);

Q2

x

// function define

function mult(p₁,p₂) {

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Date: _____

```
let ans = p1 * p2;  
return ans;  
{
```

```
let a = 6;  
let b = 8;  
// Call in voice  
let ans = mult(a, b);  
document.write(ans);  
let abc = mult(a, b);  
a. w // (ans);
```

ek function ban gaya usko kahan hi save karake
• function is lyce use hote k ba bhi bht save coding
ma likhne pare.

```
let abc = mult(7, 4);  
document.write(abc); // 28
```

Arrow Function (ES6)

↳ Short form for declaration of function

```
const fname = () => {  
    block of code ↴ arrow  
}
```

// arrow functions (ES6)

function ki jaga let ya const likhna
pare

Date: _____

```
const mult = (p1, p2) => {  
    let ans = p1 * p2;  
    return ans;  
}
```

```
let a = 9;  
let b = 8;  
// call in voice  
let ans = mult(a, b);  
document.write(ans);
```

Same kam Arrow function IC through thi hogaya

Practice Question

1) Any task related to simple JS Arrow function.

- Create a function
- Pass string as ^{argument} parameter (, argument) (long string)
 - Print vowels in it
 - and return counting number of vowels in string

for loops ki tarha hogar for of thi

Practice Class

Date: _____

1) Answer "simple function"

```
let string = "abcdefghijklmnopqrstuvwxyz";  
vowels(string);  
function vowels(str)  
{
```

let i=0; // i used for counting vowels
 "for of loop"

```
    for(let char of str)  
{
```

```
        if(char == "a" || char == "e" || char == "i"  
           || char == "o" || char == "u")  
{
```

```
            document.write(char, "<br>");
```

```
            i++; // i = i + 1;
```

```
}
```

```
        document.write(i); }
```

From Arrow function.

```
let string = "abcdefghijklmnopqrstuvwxyz";
```

```
const vowels = (str) => {
```

let i=0; // i used for counting vowels

"for of loop"

```
    for(let char of str)  
{
```

```
        if (char == "a" || char == "e" || char == "i"  
           || char == "o" || char == "u")
```

Date: _____

```
{ document.write (char, "<br>");  
    i++; // i = i + 1;  
}  
} document.write (i);  
vowels (string);
```

→ Create a function

↳ argument pass

```
function table (num)
```

```
{  
    for (let i = 1; i <= 10; i++)
```

```
{  
    document.write ('$' + num + ' x $' + i + ' = $' + num * i);  
    document.write ("<br>")
```

```
}
```

```
}  
table (6);
```

OR

```
let table = prompt ("Enter table number : ")  
table (tableno);
```

Object For in loop

Date: _____

```
const student =
```

```
{
```

```
    name: "Mamina",
```

```
    rollno: 20,
```

```
    class: 12th,
```

```
    IPmark: ten
```

```
}
```

```
for (let key in student)
```

```
{
```

```
    document.write(key, ":", student[key], "<br>");
```

```
}
```

Create an

Array to suppose different items minimum 6

```
let cit = ["Karachi", "Lahore", "Islamabad", "Peshawar",  
          "Hyderabad", "Sawat"];
```

```
// document.write(cit.length);
```

```
for (let value of cit)
```

```
{
```

```
    document.write(value, "<br>");
```

```
}
```

Starting se alt + type shift use hota.

Last item pop se alt hoga

"
"

```
document.write(cit.pop()); // at
```

```
document.write(cit); // remaining
```

Date: _____

document.write (cit.shift(), "
"); → first dlt
document.write (cit, "
"); kaachi

document.write (cit.unshift ("Multan"), "
");
↳ Multan start
document.write (cit, "
"); me add hogaya

document.write (cit.push ("Faisalabad"), "
");
document.write (cit, "
"); ↳ Add in last
↳ dlt Islamabad and Pehawar

↑ cit.splice (3, 2, "Sialkot");
↳ Add

document.write (cit, "
");

cit.splice (3, 0, "Sialkot"); → Kuch bhi dlt
document.write (cit, "
"); na kare 3 p1 S14
↳ Add 1conde
↳ cit.length);

let cit2 = ["Rawalpindi", "Khanewal", "Bahawalpur"];
↳ original array me ye 3

let cit3 = []; city add karoge

cit3 = cit.concat (cit2);

document.write (cit3, "
", cit3.length);

Date: _____

console.log(cit3.slice(3,6));
↳ Pehamur, hy, seneat

```
let num=5;  
while (num <=10)  
{  
    console.log("Maving");  
    num++;  
}
```

DO while me while end me aye??

Date: _____

Q) Prompt the user to enter their full name. Generate a username for them based on the input. Start username with @, followed by their full name and ending with the fullname length.

e.g. username = "ShraddhaKapoor"; username should be "@ ShraddhaKapoor13"
full name no spaces no home change

let fullname = prompt ("enter your fullname without spaces");

let username = "@ " + fullname + fullname.length;
console.log (username);

Q) For a given array with marks of students → [85, 97, 44, 37, 76, 60]. Find average marks of entire class.

let marks = [85, 97, 44, 37, 76, 60];

let sum = 0;

for (let val of marks) {

sum += val; or sum = sum + val;

}

let avg = sum / marks.length;

console.log ('avg marks of the class = \$ {avg}

1 = 66.5

Date:

Q For a given array with prices of 5 items as [250, 645, 300, 900, 50]. All items have an offer of 10% off on them. Change the array to store final price after applying offer.

For of loop

```
let items = [250, 645, 300, 900, 50],
```

```
let i or index = 0;
```

```
for (let val of items) {
```

```
    console.log(`value at index ${i} = ${val}`);
```

```
    let offer = val / 10;
```

```
    items[i] = item[i] - offer;
```

```
    console.log(`value after offer = ${items[i]}`);
```

```
    i++;
```

```
}
```

For loop

```
let items = [205, 100, ];
```

```
for (let i = 0; i < items.length; i++) {
```

```
    let offer = items[i] / 10;
```

```
    items[i] = items[i] - offer;
```

```
}
```

```
console.log(items);
```