

Name Umbrin Abid Ali

Roll No JS2- ①  
054

## JAVA SCRIPTS ①

```
<title> First class of JS </title>
<Script>
  alert("hello2");
</Script>
</head>
<body>
<Script>
  alert("hello");
</Script>
</body>
</html>
```

For POP UP

File link

```
<script src="script.js"></script>
</body>
</html>
```

Tamman errors inspect main ja  
kar console main dikhay hay.



②

Date \_\_\_\_\_

③

## Variable and Data types.

Variables:- • Rules / declaration

kisi bhi cheez ko variable  
banata hay to memory main space  
reserve ho jati hay variable key na  
bay.

## Types of Variables.

Var:-

(Used before escript)  
let:- (Its value can change any  
time in programming language &  
can declare & assign in 2 steps  
e.g let name; (declare)  
name = "Hello"; (assignment)

Const:- (It use for constant value  
e.g pi value). Its value can't be  
changed.

Its value must be assigned at  
the time of declaration.

e.g const name = "Umbrin"; (declare)  
and assign in same sentence

Variable:- It is just like a container.

It is used to store information. It reserves  
space in memory. Its data can vary but  
memory location will always remain same.

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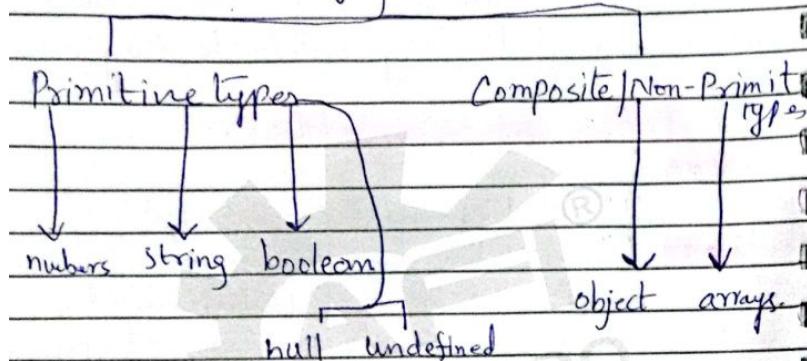
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## Variables & Datatype in JAVASCRIPT

### Data types in JS



### Primitive Data Types:-

Number

```
let rollno = 54;
```

String

```
let name = "Umbrin";
```

Boolean

```
let ispass = true;
```

Undefined

```
let percentage;
```

Object(null)

```
let class = null;
```

③ Function:- Function welcome()

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

function sum(a, b)

```
{
  let c = a + b;
  return c
}
sum();
```

Welcome();
let answer = sum(4, 5);
document.write(typeof answer);

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Document.write("Answer is " + answer);

### Non Primitive Data Types:-

#### 1. Array

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

Syntax:-

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

Print:-

```
document.write(info);
document.write(info[1]);
```

#### 2 Object:-

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

Syntax:-

```
let student = {
  name: "Umbrin",
  rollno: 54,
  class: computer
}
```

Print:-

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

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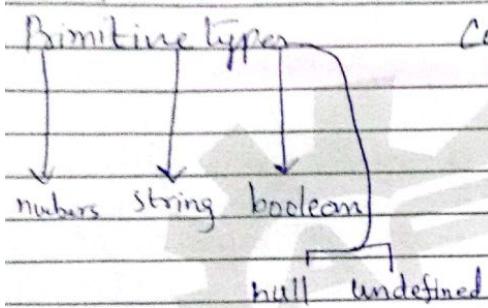
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## Variables & Datatype in JAVA SCRIPT

### Data types in JS



### Primitive Data types:-

Number

```
let rollno= 54;
```

String

```
let name = "Umbrain";
```

Boolean

```
let ispass=true;
```

Undefined

```
let percentage;
```

Object (null)

```
let class=null;
```

③ Function:- Function welcome()

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

function sum(a,b)

```
let c=a+b;
return c
}
sum(4,5);
let answer = sum(4,5);
document.write(typeof sum);
```

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### Non Primitive Data types:-

#### 1. Array

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

Syntax:-

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

Print:-

```
document.write(info);
document.write(info[1]);
```

#### 2. Object:-

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

Syntax:-

```
let student={
    name:"Umbrain",
    rollno: 54,
    clas: "computer"
}
```

Print:-

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

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## Variable scope:-

1. Block scope variable: If variable declare in block of codes (in curly braces {})  
It will alive only in block & will not be accessible after curly braces.
2. Global scope variable: These variables used globally in whole program.

## Comment in JS.

\* Single line // let name = "Umbrin";

Multi line /\* \*/

## Display & Print in JS for

Browsers:

- document.write ("World");
- console.log ("Hello world")
- Pop up : alert ("Hello world");

In JS we use the **prompt** ( ) ask the user for input As a parameter we input the text we want to display the user once the user press ok the input value is returned We typically store user input in a variable so that we used the information in our program

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et answer = prompt ("Do you want to say Hello world?")  
answer variable value will be stored  
You can print it... -

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## Rules of Variable:-

- Variables name can't be any keyword e.g alert, prompt etc...
- Variables is case sensitive same name in capital & small letters are different e.g Name or name (both are different variables)
- Variable can be consist of alphabet number, dollar sign \$, underscore \_
- Variable name can't be start with digit (number) its first letter. let age = 45;
- No space allowed --- console.log("age");  
console.log (age);

## Good Programmers:-

- Your variable name should match with its contents.
- When you want 2 words join in variable name, so first word start with small letters & 2nd word start with capital letter.
- e.g full Name, rollNumber etc...

```
String type {let fullName = "Umbrin"
let IsPass = true;
console.log(fullName);
console.log(IsPass);}
```

```
Boolean type {let rollNo = "54";
console.log(rollNo);}
```

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## Operators in JS

- Arithmetic operator  $a+b, 4+5$  4 operand + (operator)
- Assignment operator
- Comparison operator
- logical operator
- conditional operator

koi no koi task perform karney ka.  
~~lega~~ ki jati hay data per way  
operator kahtay hay.

### Arithmetic Operators

+ (Addition)

- (Subtraction)

\* (Multiplication)

/ (Division)

% (modulus/remainder)

Exponentiation

• Increment

• Decrement

~~let a = 9;~~

~~let b = 5;~~

~~document.write(a, "+",  
b, "-", a+b); //14~~

~~document.write(a, "%",  
b, "=", a%b); //9~~

~~document.write(a, "\*\*",  
b, "=", a\*\*b, </b>); //81~~

### Unary Operators

Post increment  $a++$

Pre increment  $+a$

Post decrement  $a--$

Pre ~~decrement~~  $--a$

decrement

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### Arithmetical Operators

```
let a = 5;  
let b = 3;
```

Add, Sub, Mult, Div, Modula

```
document.write(a, "+", b, "=", a+b, "</br>"); //11  
document.write(a, "-", b, "=", a-b, "</br>"); //12  
" " " (a, "*", b, "=", a*b, "</br>"); //13  
" " " (a, "/", b, "=", a/b, "</br>"); //14  
" " " (a, "%", b, "=", a%b, "</br>"); //15  
" " " (a, "**", b, "=", a**b, "</br>"); //16
```

### Unary operand

```
let a = 5; //a++, a=a+1;  
let b = 3; //a--, a=a-1;  
a++;  
document.write(a);  
b--;  
document.write(b);
```

### Post increment

```
let a = 5;  
let b = 3;  
//a++;  
document.write(a++); //5  
document.write(a); //6
```

Date: ⑨

### Post decrement

```
let a = 5;  
let b = 3;  
//&a--;  
document.write(a--); //4  
document.write(a);
```

### Pre decrement

```
let a = 5;  
let b = 3;  
// --a;  
document.write(--a); //4  
document.write(a);
```

### Pre increment

```
let a = 5;  
let b = 3;  
// ++a;  
document.write(++a); //6  
document.write(a); //6
```

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## Assignment Operator

```
= a=2; leftside=right
+= a+=4/a=a+4;
-= a-=4/a=a-4;
*= a*=4/a=a*4;
% = a% =4/a=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); //29
a/=3;
document.write(a); //2.66666
a% =3;
document.write(a); //2
a**=3;
document.write(a); //512
```



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## Comparison Operator

= (equal to) == (equal to + same datatype)

!= (not equal to) != (not equal to & datatype)

> greater than

>=

< less than

<=

~~let a~~

~~a=2~~

let a=2; //number

let b="2"; //String

a==b //true

a==b //false

a!=b //false

a!=b //true

## Logical Operator

- logical AND && condition1 && condition2
- logical OR ||
- logical NOT !

## Conditional Operator

- if Statement
- if-else statement condition?true output:false
- if-else if statement output; e.g:-  
age > 18 ? "adult": "not adult"

Date (12)

```
// Comparison operator
let a = 5;           // number
let b = "5";          // string 5==5
if (a == b)
{
    document.write("Hello")
}
if (a === b)
{
    document.write("Hello")
}
if (a != b)
{
    document.write("Hello")
}
let age = 14;
if (age >= 18)
{
    document.write("You can vote")
}
else
{
    document.write("You cannot vote")
}
```

Print  
Hello

Print  
Hello

Print  
Hello

Print  
You cannot  
vote

Date (13)

```
let age = 23;
if (age < 18)
{
    document.write("You are child");
}
else if (age > 40)
{
    document.write("You are old");
}
else
{
    document.write("You are young");
}
```

Print  
You are old

Print  
You are child

Date \_\_\_\_\_

(14)

## Logical operators

```
let a = 5;
let b = 6;
```

```
if(a>2 && b>5)
```

{

```
    alert("both condition are true")
```

{

```
else{
    alert("Yours condition true")
}
```

```
if(a > 7 && b > 5)
```

{

```
    alert("both conditions are true");
```

{

```
else{
    alert("both condition are
        not true")
}
```

```
If(a > 7 || b > 5)
```

{

```
    alert("hello");
}
```

{

```
else{
    alert("welcome");
}
```

```
If (a > 7 || b > 9)
```

{

Print  
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(15)

```
let a = 5;
```

```
let b = 6;
```

```
if (! (a < b))
```

{

```
    alert ("hello");
```

{

```
else
```

```
    alert ("welcome");
```

{

```
if (! (a > b))
```

{

```
    alert ("true");
}
```

{

```
let age = 20;
```

{

```
let result;
```

{

```
result = age > 18 ? "adult" : "not adult";

```

{

```
alert (result);

```

{

Print  
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- let ~~int~~ ~~String~~ input ("Do you want to continue?");
- switch (~~int~~) {
  - case "y":
    - do something ("continue");
    - break;
  - case "yes":
    - do something ("Continue");
    - break;

case "N"

default:
 

- with ("end");
- break;

case "no":

do something ("end");

break;

default:

{ do something("wrong input"); }

We can write variable in string if string  
is string template

~~Template~~

- internal strings : do something ("controlling a variable");
- do something like this: {{variable}}

- for next line
- for tab (space)
- for print in string
- for little variation in string (variable place)
- for double quotes

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**String** (Basic type)  
is a sequence of characters with  
represented a text

- It is a primitive data type.
- We can create strings by using  
template literals in single, double  
quotation quotes.

## String creation & manipulation

- let str = "I am learning JS";
- let str2 = "I am learning JS";
- let str3 = "I am learning JS";

Template literals

~~Template~~

Template literals are a feature in ES6  
which introduced with ES6. They give you a  
more flexible and straightforward way of working  
with strings in ES6.

The basic template literals

- for next line
- for tab (space)
- for print in string
- for little variation in string (variable place)
- for double quotes

**String**

- Let str = 'Hello! how are you?'; // hello! how are you?
- document.write(str);
- // use of template literal
- let str = `Hello! how are you?`; // hello!
- document.write(str);
- let str = 'Hello! How are you?'; // hello!
- document.write(str);
- let str = 'Hello \n how are you?'; // hello\n how are you?
- document.write(str);
- let str = 'Hello \t how are you?'; // hello\t how are you?
- document.write(str);
- let str = 'Hello \n\t how are you?'; // hello\n\t how are you?
- document.write(str);

**String length**

- let str = "Hello! how are you?"; // hello!
- let l = str.length; //length printing
- document.write(l);
- let str = "Hello! how are you?"; // hello!
- let l = str.length; //length printing
- document.write(str[0]); // H index 0
- document.write(str[1]); // e index 1
- document.write(str[2]); // l index 2
- document.write(str[3]); // l index 3
- document.write(str[4]); // o index 4
- document.write(str[5]); // w index 5
- document.write(str[6]); // o index 6
- document.write(str[7]); // r index 7
- document.write(str[8]); // e index 8
- document.write(str[9]); // space index 9
- document.write(str[10]); // ! index 10
- document.write(str[11]); // h index 11
- document.write(str[12]); // e index 12
- document.write(str[13]); // l index 13
- document.write(str[14]); // l index 14
- document.write(str[15]); // o index 15
- document.write(str[16]); // ? index 16
- document.write(str[17]); // " index 17
- document.write(str[18]); // ! index 18
- document.write(str[19]); // h index 19
- document.write(str[20]); // o index 20
- document.write(str[21]); // w index 21
- document.write(str[22]); // o index 22
- document.write(str[23]); // r index 23
- document.write(str[24]); // e index 24
- document.write(str[25]); // space index 25
- document.write(str[26]); // ! index 26
- document.write(str[27]); // h index 27
- document.write(str[28]); // e index 28
- document.write(str[29]); // l index 29
- document.write(str[30]); // l index 30
- document.write(str[31]); // o index 31
- document.write(str[32]); // ? index 32
- document.write(str[33]); // " index 33
- document.write(str[34]); // ! index 34

**Concat. → Join two strings**

- let str = "Hello! how are you?"; // hello!
- let str2 = "I am learning T.S"; // I am learning T.S
- let l = str.length; // length of str
- document.write(str + str2); // hello! how are you? I am learning T.S

**Concatenations.**

- Position/index start with 0 in string
- To find length str.length
- To join strings
- document.write(str1 + " " + str2); // Hello! World
- let newvar = str.concat(str2, str3); // hello! world
- document.write(newvar); // hello! world
- print(str2); // world
- let str4 = str.concat(str2); // hello! world
- document.write(str4); // hello! world
- document.write(str4); // hello! world

Date (20)

```

let str = " I am learning T-S ";
• str.trim() // remove space from start & end.
• str.trimstart() // 
• str.trimend() // 
• str.toUpperCase() // change in uppercase
• str.toLowerCase() // change in lowercase
• str.replace("T-S","html") // search word
    and replace (case sensitive)
• str.includes("is") // search word is / is / not
    found return -1

```

### Training

Hamara space remove karnay  
 key kam ate hay kisi bhi string  
 main manipulation koi kei action  
 perform kartay hay koi na hoi  
 Kartay hay is se no manipulation  
 kahtay hay.

Date (21)

```

let str = "Hello! how are you?";
let str2 = "I am learning T-S leaving";
let str3 = "I am learning T-S. It is
    very easy language";
document.write(str2.trim()); // remove
    space from start & ending
document.write(str2.trimStart());
    " " (str2.trimEnd());
    " " (str3.toUpperCase());
    " " // change in uppercase
    " " (str3.toLowerCase());
    " " (str2.replaceAll("learning",
        "reading"));
    " " (str3.includes("ore"));
    " " (str3.slice(5,10));

```



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## Template literal / String template

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

```
let num1 = 56;
my age is ${num1}
```

```
let num2 = 66;
document.write(`The sum of ${num1} and ${num2}`);
```

## String manipulation

In use of print text in new line  
It use for spaces (tab) more than  
single space in text.

\ use for single \ in text  
\" use double quation in string

console.log("My name is umair my subject is  
computer");  
My name is umair

my subject is computer



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## LOOPS

- To execute a piece of code again & again
- Finite loop & infinite loop.
- Finite loop (reaching point)
- Infinite (not end) memory full/computer break

Finite loop we know how  
infinite loop we don't know.  
**FOR LOOP**

```
For (let i = 1; i <= 5; i++) {
```

```
document.write("Hello")
```

It is block scope variable use,

iteration counter is

First step initialization

2nd condition check tab tab

condition true block of code ex  
3rd step update.

## (Loops) coding

```
For (i = 1; i <= 5; i++)
{
    document.write("Umberin<br>");
}
```

Print

String variable

## Table

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

## Backward counting

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

Non-

## ARRAY (Primitive data types)

- Store multiple values in single variable
- Values written in square bracket [ ]
- Values separated by comma.
- Each position is called index
- each value call through index number start with 0
- e.g. arr[0], arr[1]

## Syntax :-

```
let info = [5, "Umberin", "Computer"];
console.log(info);
info[]; to empty any array.
```

## Properties & Method of Array:-

1. book.length Length of array
2. book.push("Chemistry"); // add word in array in end
3. book.unshift("Chemistry"); // add in start of array
4. book.shift(); // remove word from start
5. book.pop(); // to remove word from last and 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.

Date (26)

## Coding 'Array'

```
let arr=[54,"Umbrin abid","Javascript"];
document.write(arr);
document.write(arr[0]);
    " (arr[2]);
```

54  
Umbrin Abid  
T.S  
Javascript

~~for of loop~~  
document.write(arr.length);

Print  
3

~~for Loop~~ is main length batay basi

```
let l=arr.length-1
for(let i=0; i<=l; i++)
{
    document.write(arr[i],<br>);
```

54 Umbrin Abid  
T.S  
Javascript

## For of Loop

```
for(let value of arr)
{
    document.write(value);
```

Print

54,Umbrin  
T.S  
Sub jaye

humay batay ki zarorat nahi jahan  
tak ho ga wahan tak chalay ga

Date (27)

## Properties & Method Coding

```
let arr=[54,"Umbrin abid","T.S","computer"];
arr.push("html"); //insert item in end
document.write(arr);
arr.unshift("css"); //Add item in start
document.write(arr);
arr.shift(); //remove item in start
document.write(arr);
arr.pop(); //remove item from end
document.write(arr);
arr.toString();
document.write(arr,<br>);
```

Convert array into string  
let arr=[54,"Umbrin", "T.S", "computer"];  
let arr2=[ "abc", "xyz"];

let arr3=arr.concat(arr2);  
document.write(arr,<br>);

Concatenate main temporary value a  
jaye gi arr + arr2

### Click to add title

- book-index of ("urdu"); to find any word's position in array.
- book-slice (start idx, endidx); Not change in original array return a slice piece of array.
- book-splice (startidx,delecount,next); //change original array // add, remove and replace.

### ex:-

```
let arr = [1,2,3,4,5,6,7];
arr.splice(2,2,55,56); //2 index per 3 //3 and remove //replace //item 55 and 56
arr.splice(3,0,44); if you dont want to delete any item //3 index per 3 add 44
arr.splice(0,3); //if you dont want add only delete items //2 i.e. and items.
```

### Coding

```
let arr = [54, "Ubuntu", "T.s", "Rorputer"];
```

```
let arr = ["computer"];
document.write(arr[0]);
```

### Slice Method

Starting & ending index batayga hoto hoga  
to yet piece to kar day ga array ka

```
let arr = [54, "Ubuntu", "T.s", "script", "computer"];
document.write(arr.slice(2, "lhrz"));
```

### Splice Method

```
let arr = [2,5,7,8,9,10];
document.write(arr.splice(2,1,44), "lhrz");
```

// Splice (index remove add) [2,5,44,

```
document.write(arr.splice(2,0,6), "lhrz"); print
[2,5,6,7,8,9]
```

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Date \_\_\_\_\_

### ~~length~~ Method coding

```
let array = [2, 3, 56, "Umbrin", 78, 65, 23, 89];
document.write(array.length)
```

Print  
8

### Object. (Non- Primitive)

For in loop Method.

```
Const student =
```

{ name: "Umbrin",

roll no: 54,

Subject: "computer".

} for (let ~~key~~ <sup>loop</sup> in student)

{ document.write(key, "<br>")

} " " (key, student[key], "<br>")

name	roll no
name : Umbrin	roll no : 54
subject	subject comp

### Slice Method

```
document.write(array.slice(3));
```

Print  
Umbrin 78  
65, 23, 89

```
" " " (3, 6);
```

Print  
Umbrin,  
78, 65

```
" " " (1, 6);
```

Print  
3, 56, Umbrin,  
78, 65

### Splice Method

```
let array = [1, 2, 3, 4, 5, 6, 7, 8];
```

Print

```
document.write(array.splice(1, 2));
```

Print  
1, 2, 1, 8;

```
document.write(array);
```

Print  
1, 2, 3, 4,  
7, 8

```
" " " (1, 2, 98, 99);
```

Print  
1, 98, 99, 3,  
4, 5, 6, 7, 8

### Splice:-

First cheez jo hti hoi wo index number hotay hoga

Second cheez kitney item delete karney hoga

Third cheez main jo add karney ho

### For of loop Method.

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

for (let i of arr)

{ document.write(i);

Print  
1, 2, 3, 4,

### Even Number (For of loop)

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

for (let i of arr)

{ if (i % 2 == 0) {

document.write(i, "<br>");

Print  
2, 4, 6

32

Date

## While loop & Do while loop.

```
White loop for (let i=1; i<10; i++) {  
    let i = 1  
    while (i<=10)  
        {  
            document.write(i, "Umbris<br>");  
            i++  
        }  
}
```