**JAVASCRIPT**

* Java script improves the user experience of the web page by converting it from static page into an interactive one.
* Java script adds behavior to web pages.

**Syntax: Console.log(“ ”);**

Example:

console.log("Amit");

**executing file command: node demo.js**

**o/p: Amit**

console.log('Hello World');

**values and variables:**

(Name)

var myName = “Amit”

|- variable(key)

Example:

var myName = "Amit";

console.log(myName);

**Rules:**

1. The first character must be a letter or an underscore ( \_ ) or an dollar( $ ). You can’t use a number as the first character.
2. The rest of the variable name can include any letter, any number, or the underscore can’t use any other characters including spaces.
3. Variable names are case sensitive.
4. You can’t use one of JavaScript reserved words as a variable name (ex: var var = 26;)

**Example:**

var myName = "Amit";

var \_1my\_\_Name = "Amit";

var 1myName = "Amit"

var $myName = "Amit Yadawadi"

console.log($myName);

**Data Types:**

1. Undefined: typeof instance === “undefined”
2. Boolean: typeof instance === “boolean”
3. Number: typeof instance === “number”
4. String: typeof instance === “string”
5. Bigint: typeof instance === “bigint”
6. Symbol: typeof instance === “symbol”
7. var myName = "Amit";
8. console.log(myName);
9. var myAge = 26;
10. console.log(myAge);
11. var iamAmit = true;
12. console.log(iamAmit);
13. type of operator
14. console.log(typeof(iamAmit));

* NaN is a property of the global object == not a number.
* In other words, it is variable in global scope.
* The intial value of NaN is Not-a-Number.

**Console.log(isNaN(myPhoneNumber));**

var myPhoneNumber = 8123456789;

var myName = "Amit";

console.log(isNaN(myPhoneNumber));

console.log(isNaN(myName));

if (isNaN(myName)){

    console.log("enter valid number");

}

* NaN === NaN; == false
* Number.NaN === NaN; == false
* isNaN(NaN); == true
* isNaN(Number.NaN); == true
* Number.isNaN(NaN); == true

**Expressions and operators:**

1. Assignment operators: ==
2. Arithmetic operators: +, -, \*, /, %
3. Comparison operator: ==, !=, >, >=, <, <=
4. Logical operator: &&, ||, !
5. String operator: + (a+b = ab)
6. Conditional operator:

Assignment:

var x = 5;

var y = 5;

// console.log("Is both x and y are equal " + x == y);

// console.log('Is both x and y are equal : ${x == y}');

console.log(x == y);

arithmetic operator:

console.log(3+3);

console.log(10-5);

console.log(5\*3);

console.log(10/2);

console.log(81%8);

comparison operator:

var a = 30;

var b = 10;

console.log(a == b);

console.log(a != b);

console.log(a > b);

console.log(a < b);

console.log(a <= b);

console.log(a >= b);

logical operator:

var a = 20;

var b = -30;

console.log(a > b && b > -50 && b < 0);

console.log(a > b || b < -50 || b > 0);

console.log(!(a > b) || (b < -50));

string operator:

console.log("hello " + "world");

Increment and Decrement operator:

var num = 15;

var newNum = num++;

console.log(num);

console.log(newNum);

var num = 15;

var newNum = ++num;

console.log(num);

console.log(newNum);

var num = 15;

var newNum = num--;

console.log(num);

console.log(newNum);

var num = 15;

var newNum = --num;

console.log(num);

console.log(newNum);

**Control statements and loops:**

* If – else
* Switch statement
* While loop
* Do while loop
* For loop
* For in loop
* For of loop
* Conditional operator

CONTROL STATEMENTS

var tomr = "rain";

if(tomr == "rain"){

    console.log("take raincoat");

}

else{

    console.log("No need to take raincoat");

}

var tomr = "sunny";

if(tomr == "rain"){

    console.log("take raincoat");

}

else{

    console.log("No need to take raincoat");

}

var year = "2020";

if(year % 4 === 0){

    if(year % 100 == 0){

        if(year % 400 == 0){

            console.log("The year " + year + " is a leap year");

        }else{

            console.log("The year " + year + " is not a leap year");

        }

    }else{

        console.log("The year " + year + " is not a leap year");

    }

}else{

    console.log("The year " + year + " is not a leap year");

}

Switch statements:

var area = "square";

var PI = 3.142, l=5, b=4, r=3;

if(area == "circle"){

    console.log("The area of circle is : " + PI\*r\*\*r);

}else if(area == "triangle"){

    console.log("The area of triangle is : " + (l\*b)/2);

}else if(area == "rectangle"){

    console.log("The area of rectangle is : " + (l\*b));

}else{

    console.log("Please enter valid data");

}

Loop statements:

While loop:

var num = 10;

while(num <= 10){

    console.log(num); //infinite loop

}

var num = 0;

while(num <= 10){

    console.log(num);

    num++;

}

Do while loop:

Do While loop

var num = 0;

do{

    console.log(num);

    num++;

}

while(num <= 10);

for loop:

syntax:

for(initializer; condition; iteration)

{

}

for(var num = 0; num <= 10; num++){

    console.log(num);

}

* Program to print table of 8:
* for(var num = 1; num <=10; num++){
* var tableof = 8;
* console.log(tableof + " \* " + num + " = " + tableof \* num);
* }

Output:

PS C:\Users\kiran\Desktop\javascript> node loop.js

8 \* 1 = 8

8 \* 2 = 16

8 \* 3 = 24

8 \* 4 = 32

8 \* 5 = 40

8 \* 6 = 48

8 \* 7 = 56

8 \* 8 = 64

8 \* 9 = 72

8 \* 10 = 80

**Function:**

* A JavaScript function is a block of code designed to perform a particular task.

Syntax:

Function functionName()

{

}

Example:

function sum(){

    var a = 10, b = 40;

    var total = a+b;

    console.log(total);

}

sum();

PS C:\Users\kiran\Desktop\javascript> node func.js

50

//function parameters and arguments

function sum(a,b){

    var total = a+b;

    console.log(total);

}

sum();

sum(20,30);

sum(50,50);

//function expressions

function sum(a,b){

    var total = a+b;

    console.log(total);

}

var funExp = sum(5,15);

Return keyword:

function sum(a,b){

    return total = a+b;

}

var funExp = sum(5,15);

console.log(total);

Anonymous function:

var funExp = function(a,b){

    return total = a + b;

}

var sum = funExp(15,15);

console.log("The sum of two no is: " + sum );

**ECMAScript**

* JavaScript was created in 1996.
* It was then submitted to “ECMA International” for standardization, which resulted in “ECMAScript” in 1997.
* Decided to switch to annual releases of ECMAScript is called ES6 released in 2015.
* Like ES7 in 2016, ES8 in 2017…..ES11.

**Services:**

* LET and CONST
* Destructing
* Template strings
* Object properties
* Default Argument
* ARROW function
* Rest operators
* Spread operators

**Let and const:**

Var is called as function scope.

Let and const is called as block scope

// LET vs CONST vs VAR

// var myName = "Amit";

// console.log(myName);

// myName = "Abc";

// console.log(myName);

//LET

// let myName = "Amit";

// console.log(myName);

// myName = "Abc";

// console.log(myName);

//CONST

// const myName = "Amit";

// console.log(myName);

// myName = "Abc";

// console.log(myName);

//Example

//VAR

// function biodata(){

//     var myFirstName = "Amit";

//     console.log(myFirstName);

//     if(true){

//         var myLastName = "Abc"

//         console.log("inner " + myLastName);

//         console.log("inner " + myFirstName);

//     }

//     console.log("innerouter " + myLastName);

// }

// biodata();

//let

// function biodata(){

//     let myFirstName = "Amit";

//     console.log(myFirstName);

//     if(true){  //let used in this block outside block it is not accessible

//         let myLastName = "Abc"

//         console.log("inner " + myLastName);

//         console.log("inner " + myFirstName);

//     }

//     console.log("innerouter " + myLastName); //this is not accessible by let

// }

// biodata();

//CONST

function biodata(){

    const myFirstName = "Amit";

    console.log(myFirstName);

    if(true){  //const used in this block outside block it is not accessible

        const myLastName = "Abc"

        console.log("inner " + myLastName);

        console.log("inner " + myFirstName);

    }

    console.log("innerouter " + myLastName); //this is not accessible by const

}

biodata();

Template literals:

for(let num = 1; num <= 10; num++){

    let tableof = 12;

    // console.log(tableof + "\*" + num + "=" + tableof \* num);

    console.log(`${tableof} \* ${num} = ${tableof \* num}`);

}

Arrow function:

const sum = () => `The sum of the two number is ${(a=5) + (b=6)}`

console.log(sum());