← javascript → by mosh hamadani

Is programming language

Used in web /apps ,games

Ecmascript-specification
Javascript- programming language

// is comment in javascript

How to run javascript with the help of node js ?

1) Install node js
2) Vs code ke terminal mai jao
3) Terminal kholo aur cd dalke wo folder mai pohcho eg cd javascript
4) Javascript was name of the folder in which i have created index.html and index.js
5) To run javascript in vs code type the following node + javascript file name
6) node index.js

Variable let

Should have meaningful
Cannot be started with number
If i need to give name of variable which has 2 word in it then
-1st letter should be small and second should be capital with no space and hyphen eg
var firstName ="adu";

Let value can be changed

Let adu = 0.67;
adu=1;
console.log("adu");
→ 1 ;

Variable const

Value cant be changed it is fixed if we try to change it will show error;

DATA TYPE –

Which is further divided into 2

1)Primitive Type
2) Reference Type

PRIMITIVE TYPE –
1)STRING   2)BOOLEAN   3) UNDEFINED   4) NUMBER   5) NULL

**** NULL*** = used explicitly when we want to clear the value of variable

Reference Type

   1) object   2) array   3) function

Object

Used instead of using more variable
 we use object is use to reduce the variable
There is key and value inside object


```
let person = {
name:"adarsh",
age:"22"
};
```

```
console.log(person);
```
Output →

Name:adarsh
Age:22

Now i want to change my name and age so —-->

```
let person = {
name:"adarsh",
age:"22"
};
```

```
person.name ="adi";
person.age ="19";
```

console.log(person);

Output →

Name:adi
Age:19

If i only need name then i will do →

console.log(person.name);

—> output= adi ;

Array

   1) IT IS REPRESENTED BY [ ] ;

2) EACH ELEMENT HAS AN INDEX index of 1st element is 0 ; and index of 2nd element is 1;

3)index number is written in square bracket

 Var setColor = ["red " ,"blue "];

console.log(setColor[0]) ;

—-> output is red
 4) value inside array can be changed and it can be any data type

Eg

setColor[2]="violet" ;

setColor[1] = " 5";
console.log(setColor)

→ output → ["red", "5", 'violet'] ;

*Difference between console.log and document.write

Document.write() will print the output on webpage where as
console.log() will print the output in browser console

Babbar lectures

Commands-

Pwd- present working directory (to standard output the full path name of your current directory)

Cd - change directory (used to change the current working directory)

→ Difference between var and let is (scope)

Var is in global space
 Let can be accessed inside block scope
Block ke baar aaega tho uska mrityu ho jaega

If (true) {

Let name = "adarsh " ;

}

console.log(name); —----> iska output mar chuka hoga because it is outside block it is showing (not defined)

Object = multiple variable linked hai aapas mai kisi prakar se

Array = [collection of variable]

Let a =5 ;
Let a=7;
console.log(a) ; → error

Let a =5 ;
a=7;
console.log(a) ; → 7

We can't use let more than 1 time in let variable

Pre increment (++x)

1) increment the value
2) use the value

Post increment (x++)

1) use the value
2) Increment the value

```
11
12    let a =0 ;                          // a is pre increment //
13    let b=0                             // b is post increment //
14    console.log (++a);
15
16    console.log(b++);
17    console.log(b);
18
19
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
PS C:\Users\DELL\Desktop\js> node app.js
1
0
1
PS C:\Users\DELL\Desktop\js>
```
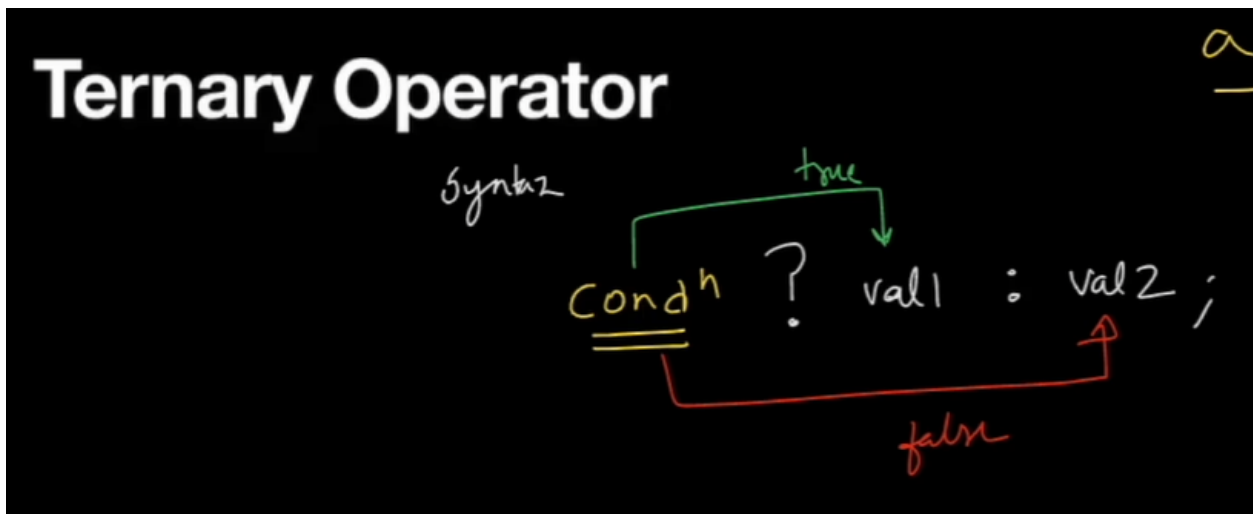
Pre decrement (--x)

1) decrement the value
2) use the value

Post decrement(x - -)
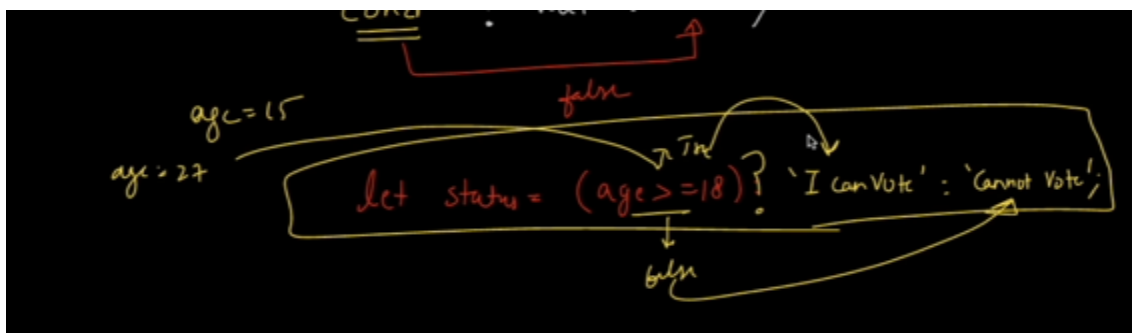
3) use the value
4) decrement the value

→ → → → → → →

Condition output (condition)

Syntex hai re bhai

 ? val1 (agar condition true (?) then it will show output as val1

: val2 (agar wo upar wala condition false hoga then this condition will be true i.e it will show value as val2)


```
let age = 23 ;

let con = age >=18?"ho jega ":" fir bhi ho jaegaa"  ;

console.log(con);
```

```
PS C:\Users\DELL\Desktop\js> node app.js
ho jega
```

? ka matlab is (then)

: ka matlab is (else)

———————————————————   ————————————————— ——————————————————— —————————

And = && (all condition should be true then only output is true) and gate yaad rakhna
(GIRLFRIEND KI TARAHA - MUJHE YE BHI CHIYE WO BHI CHIYE SAAB CHIYE)

Or = || (at least 1 condition should be true then output is true) or gate yaad rakhna
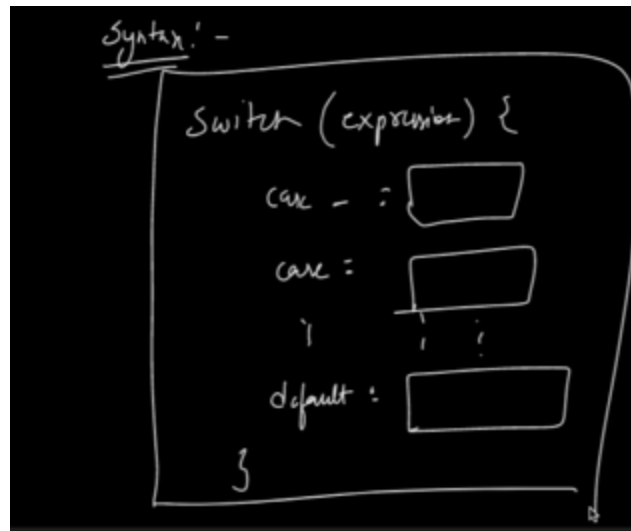(DOST KI TARA EK GANNE KE JUICE MAI BHI PAAT JAE)

not = !

Controlled Statement →

1) if else
2) switch

```javascript
let marks = 85;

if  (marks >= 90 ) {

  console.log("u r topper")
}

else if ( marks> 80 && marks <90 ) {

  console.log("u r a fool")
}

else {

  console.log("go ahead champ")
}
```
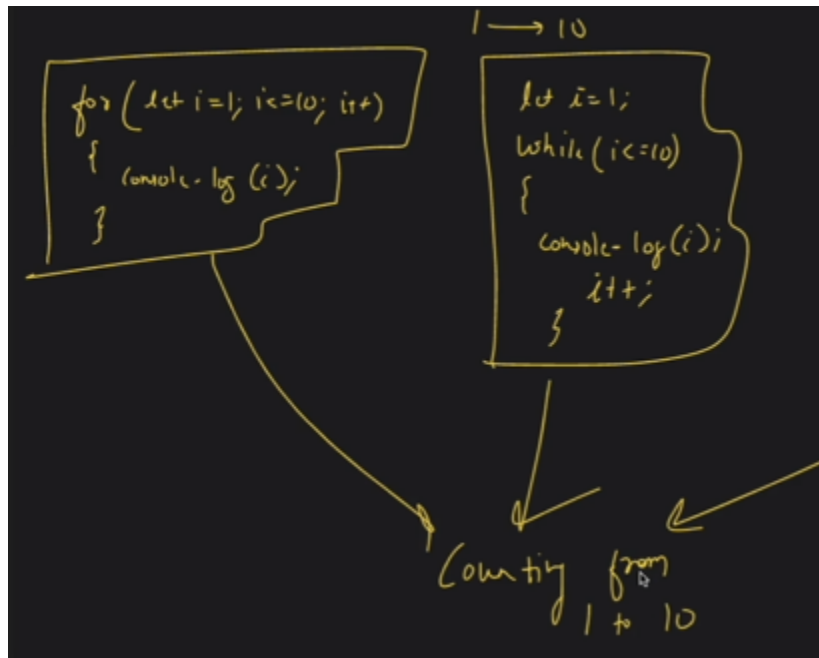
Switch

Syntax :-

```
Switch (expression) {

    case - : [    ]

    case : [       ]

        1        :   :

    default : [      ]

}
```

```javascript
7
8      let marks = 3;
9
10
11   switch (marks){
12
13     case 1: console.log("ho jaega");
14     break ;
15
16     case 2 : console.log("hota hai re ");
17     break ;
18
19     case 3 : console.log("sahi hoga re") ;
20     break ;
21
22     default : console.log("ho ga re ")
23   };
24
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

PS C:\Users\DELL\Desktop\js> node app.js
ho ga re
PS C:\Users\DELL\Desktop\js> []

LOOP (repeatation of task)

While looop mai last mai i++ hota hai yaad rakna (mostly used for infinite looping)

OBJECT

Can i create function inside object ?

→ yes

```
33
34    let obj = {
35
36
37        len:15,
38        breadth :24,
39        draw: function (){
40
41            console.log( this.draw)
42        }
43
44    };
45    obj.len=24;
46
47    console.log(obj);
48
49
50
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
PS C:\Users\DELL\Desktop\js> node app.js
{ len: 24, breadth: 24, draw: [Function: draw] }
PS C:\Users\DELL\Desktop\js> node app.js
{ len: 24, breadth: 24, draw: [Function: draw] }
PS C:\Users\DELL\Desktop\js> node app.js
{ len: 24, breadth: 24, draw: [Function: draw] }
PS C:\Users\DELL\Desktop\js> []
```

Here we have defined function inside object

What will we call them
 Function inside an object is called is called what ?
 ans → method <—

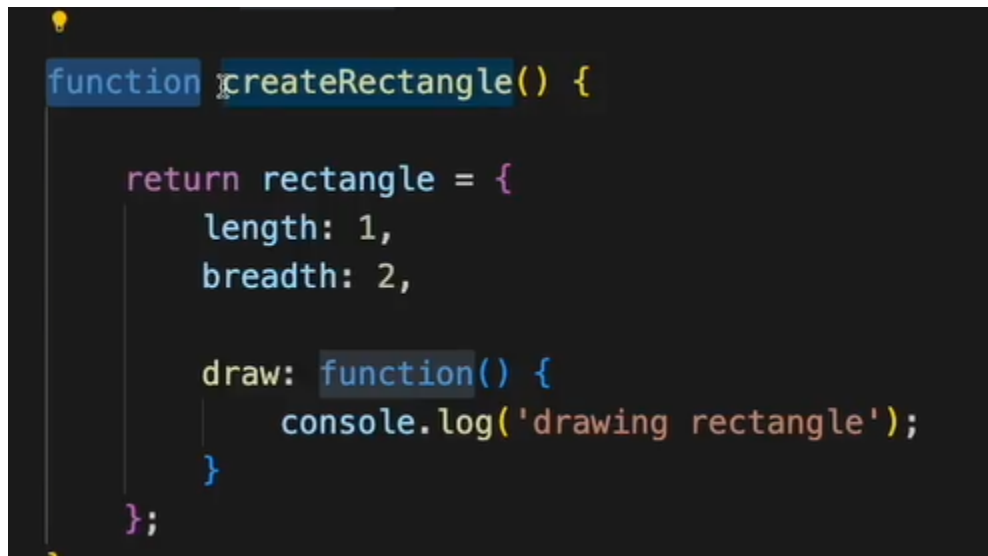. (dot) use karke hum object ky property aur value ya methord ko access kar paa raha hai

Agar mujhe object   baar baar repeat karna hoga then it will be lengthy so to save time i will use
Function

1) factory function

2) constructor function

Factory function

In factory function we pass object inside function and we return it

```
function createRectangle() {

    return rectangle = {
        length: 1,
        breadth: 2,

        draw: function() {
            console.log('drawing rectangle');
        }
    };
```

Now if we need to change object inside the function we need to provide a variable and store function in that variable
See image new variable created

```
31   // }
32   let obj ;
33 ∨ function adu (len,bre)  {
34
35 ∨     return obj = {
36
37
38             length:len,
39             breadth :bre,
40 ∨            draw : function  (){
41
42                 console.log( "seek raha hai tu")
43              }
44          };
45     };
46
47   let adi = adu (10,30)
48
49   console.log(adi);
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
PS C:\Users\DELL\Desktop\js> node app.js
{ length: 10, breadth: 30, draw: [Function: draw] }
PS C:\Users\DELL\Desktop\js>
```

Yaha par hum parameter ko dho naam de diye (len,bre) aur usko neche object ke sth jodh diye

Fir function mai jo value chiye vo value pakda diye

```javascript
function createRectangle() {

    return rectangle = {
        length: 1,
        breadth: 2,

        draw() {
            console.log('drawing rectangle');
        }
    };
}

let rectangleObj1 = createRectangle();
```

Factory function mai input karte hai object ko aur retun karte hai aur usko koi aur variable mai store karte hai

```
31    //  }
32    let obj ;
33    function adu (len,bre)  {
34
35        return obj = {
36
37
38            length:len,
39            breadth :bre,
40            draw : function  (){
41
42                console.log( "seek raha hai tu")
43            }
44        };
45    };
46
47    let adi = adu (2,3)
48
49    console.log(adi);
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   **TERMINAL**

```
    at Module._extensions..js (node:internal/modules/cjs/loader:1308:1
    at Module.load (node:internal/modules/cjs/loader:1117:32)
    at Module._load (node:internal/modules/cjs/loader:958:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modu
    at node:internal/main/run_main_module:23:47

Node.js v18.16.0
PS C:\Users\DELL\Desktop\js> node app.js
{ len: 15, breadth: 24, draw: [Function: draw] }
PS C:\Users\DELL\Desktop\js> node app.js
{ length: 2, breadth: 3, draw: [Function: draw] }
PS C:\Users\DELL\Desktop\js> []
```

****
Yaha hum parameter derahe hai jaise ki len ,bre jisse ki changes fat se ho jae
Tho function mai hum len bre ka naya value assign kar denge

Issai value aaramse change ho jaega we dont need to create and update any object

2) constructor function (used to define properties and function)
→ pascal notation ("every first letter should be capital ");

Here we dont need to return any thing

```
34  function Rectangle() {
35      this.length = 1;
36      this.breadth = 2;
37      this.draw= function() {
38          console.log('drawing');
39      }
40  }
```

"new" ek aisa keyword hai jo aapko → "" empty object return karta hai "";

```
function Rectangle() {
    this.length = 1;
    this.breadth = 2;
    this.draw= function() {
        console.log('drawing');
    }
}

//object creation using constrcutor function
let rectangleObject = new Rectangle();
```

```
33  //constructor function -> prop/methods -> int
34  function Rectangle(len, bre) {
35      this.length = len;
36      this.breadth = bre;
37      this.draw= function() {
38          console.log('drawing');
39      }
40  }
41
42  //object creation using constrcutor function
43  let rectangleObject = new Rectangle(4,6);
44
```

This → jis bhi current object pe kaaam kar rahe ho usko ye refer kar raha hota hai

New → empty object create hota hai

```
47    // let adi = adu (10,30)|
48
49 ∨    function Adi (l,m) {
50
51      this.obj=l;
52      this.sab =m;
53 ∨    this.draw = function (){
54
55          console.log("saab sahi ho jaega ")
56      };
57    };
58
59    let adu = new Adi(2,3);
60    console.log(adu);
61
62
63
64
65
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   **TERMINAL**

```
    at Object.<anonymous> (C:\Users\DELL\Desktop\js\a
    at Module._compile (node:internal/modules/cjs/loa
    at Module._extensions..js (node:internal/modules/
    at Module.load (node:internal/modules/cjs/loader:
    at Module._load (node:internal/modules/cjs/loader
    at Function.executeUserEntryPoint [as runMain] (n
    at node:internal/main/run_main_module:23:47

Node.js v18.16.0
PS C:\Users\DELL\Desktop\js> node app.js
Adi { obj: 2, sab: 3, draw: [Function (anonymous)] }
```

Kya hum naya object daal sakte hai once object is declared ?
 Yes
→ Hum jo variable ko value diye hai usmai "." daal kar ka-sakte hai

```
48
49      function Adi (l,m) {
50
51        this.obj=l;
52        this.sab =m;
53        this.draw = function (){
54
55            console.log("saab sahi ho jaega ")
56        };
57      };
58
59      let adu = new Adi(2,3);
60
61  //    console.log(adu);
62
63      adu.color="blue";
64      console.log(adu);
65
66
67
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   **TERMINAL**

```
PS C:\Users\DELL\Desktop\js> node app.js
Adi { obj: 2, sab: 3, draw: [Function (anonymous)], color: 'blue' }
PS C:\Users\DELL\Desktop\js>
```

Now can i delete any value inside object ?

Yes → just put "delete"

delete adu.color
console.log(color)

```
55              console.log("saab sahi ho jaega ")
56        };
57       };
58
59      let adu = new Adi(2,3);
60
61  //   console.log(adu);
62
63      adu.color="blue";
64      console.log(adu);
65
66      delete adu.color ;
67
68      console.log(adu);
69
70
71
72
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
PS C:\Users\DELL\Desktop\js> node app.js
Adi { obj: 2, sab: 3, draw: [Function (anonymous)], color: 'blue' }
Adi { obj: 2, sab: 3, draw: [Function (anonymous)] }
PS C:\Users\DELL\Desktop\js>
```

Pele baar color add kiya inside object

Dusre baar object remove kiya inside function which contain object (with the help of delete)

Constructor property

Aaapke js mai koi bhi object hai uski ek property hoti hai jisko constructor khehte hai →
Jo ki ye darshata hai ki apka object kaisa bana hai

 *) everything in javascript is an object
Function,array is also an object.

DIFFERENCE BETWEEN PRIMITIVE AND REFERENCE

Primitive type se → (boolean , string,number) → isme value of "= " will be (copy banti hai) ;

Reference type se (object,array,function)--> ismai value of "="will be (same address pe point karte hai);

Note:-

Primitiv are copied by their Value

References are Copied by their address/reference