

#Javascript \Rightarrow all browser contains javascript

④ chrome \rightarrow inspect \Rightarrow console & here you can run js here

`alert("Hello world");` \Rightarrow it will provide a pop up window in browser

\Rightarrow you have to need a html file to render out javascript you written

\Rightarrow javascript is make website interactive.

\Rightarrow say you can write javascript in html tag

`<button type="button" onclick="alert('hello')">click</button>`

or you can use tag

`<script> _____ || _____ </script>`

Here you can write JS

\Rightarrow the position of javascript calling is important if you place js at top (head) so html will not render until that (JS) not done

\Rightarrow so it is good idea to use javascript after rendering html

* \Rightarrow we will prefer to use js at bottom of html

\Rightarrow you can also link javascript file with html file

`<script src = "location"> </script>`

at end of code and this will connect html file with (JS)

`(#) html event listeners (Search for it)`

① If you write same function of (JS) in src file, below the html, or in head

② the browser first check function in src file JS, if there, so js code below & at end on top(head)

⇒ If you multiple page javascript so it is always a good idea to use a separate js file which has all interaction info

④ To centre a div we assign class to it and add CSS property `{margin: auto}` and adjust widths

⑤ Console.dir (document) (DOM)

To provide a large info about your HTML page

⑥ update html content using JS

```
document.querySelector('h1').innerHTML = "Hello";  
and this will change name.
```

⇒ see code for more details

————— # ————— # —————

⑦ comment

// used to comment out data in javascript

⑧ Javascript variables

numbers, string
datatype in java:

In JS variables are one who store data

let a = 10 ; or let b = "string";
here you don't have to use specific variable specific datatype

type(variableName) ⇒ to know about datatype of variable
typeof(variableName) (typeof) function

In javascript you can add different datatype O/P

Ex. 10 + " " + "Hello world" + true ⇒ [10 Hello world true]

⑨ Javascript uses camel casing

your variable name can be start with \$

var \$ghansham = "Hello"; such like that

→ Variable name never start with number.
→ Also can't use keywords as variable name
⇒ Variables are case sensitive

var Score; var score; → Both are different

⇒ { = } ⇒ assignment operator.

⇒ var e; → the variable which not defined any value has value "undefined"

multiple variables can initialised with comma separator

var a, b, c; //multiple initialisation

to print quote

[" " " "] in single braces
[" " "] in double braces used

④ Operators and assignment

let a = 400
↑ assignment operator

+ ⇒ addition ÷ ⇒ division
- ⇒ subtraction javascript use
* ⇒ multiplication float division

to perform integer division in javascript

const m = Math.floor(13/3);
a++ Post increment, +^{pre}a Pre increment

a-- Post decrement, --a Pre decrement

⇒ % modulo $20 \% 3 = \boxed{2}$

$a += b$ i.e. $a = a + b$ $a -= b$ $\Rightarrow a = a - b$

$a == b$ ⇒ comparison operator with datatype check

$a === b$ ⇒ comparison operator with no datatype check

return boolean ~~operator~~ → operator i.e.

True
False

$>$, $<$, \geq , \leq \Rightarrow these all are comparison operators and gives boolean output

Javascript function

gives us ability to run particular lines of code several times & also return some info to

Keyword "function" used to create a function

\Rightarrow

function [function name] (set of parameters comma) {
 function body
 | || Code ||
 | return something
 | function return value
 | }
 | this is JS funcn

\Rightarrow we can able to create actions which will get invoked on some event say

`<button onclick="functions()">click</button>`

and we can do whatever in function & manipulate html

\Rightarrow functions, the variables inside it are local & out function are global

\Rightarrow in console we can only fetch global variables

\Rightarrow we can use function declared in javascript code inside

Javascript object class

⇒ a single variable can have multiple attribute & each attribute can have own datatype and value and we can do this with use of java script class

⇒ class is prototype / blueprint of object

You can directly create obj

Ex:

```
obj = { name: "grs",
         branch: "comp",
         mis: 111903033 }
```

: colon is use to
assign value to

attribute

```
class student {
```

```
constructor(name, branch, mis) {
```

```
    this.name = name;
```

```
    this.branch = branch;
```

```
    this.mis = mis
```

```
}
```

```
} → new object
```

```
const st = new student ("grs",
                        "comp", 111903033)
```

⇒ to fetch attribute in class we use .(dot) operator

Properties

```
obj.name = "grs"
```

⇒ while class declaration you just have insert a constructor in it and assign value in constructor function

⇒ to create object from class [new] keyword is used
say (classname=) Next

```
const obj = new Next()
```

⇒ classname should start with capital letter

Also we can add extra properties simply

```
obj.newproperty = Value;
```

& that will add new property

another way to declare fun

```
var abc = function() {};
```

abc will be function
name

Var mpt = () => { -code } → this also function with name
mpt

→ so in classes we can add function

class Ghanstam {}

constructor (name, value + ~~display~~) {

this.name = name;
this.value = value;

function keyword is
not important
here

} function name() { - }
function name() { -- }] → just name

}

and access it ↗

const grs = new Ghanstam ("sham", 10)

grs.functionname() ⇒ access functions easily

javascript arrays In js we can insert any

var array = [] ; datatype inside same array

array.length ⇒ giving length of array

array [index] ⇒ will give value of at index in array

Var array = ["Hello", true, 11190303]
str bool num any datatype in
Same array

also update value

array [1] = false and this will update value.

Say add new value to array last present index

array [array.length] = 10 → so - (array.length - 1)
& we are adding new
value to next index of it.

Array methods (Search in mozilla website)

It contains built-in functions and we can use them

- ① array.push(value) ⇒ It will add value at end of array
also push will return this value
- Val m = array.push(10) • Var m value will be 10
index of addition, index at which
- ② array.pop() ⇒ return last value from array & decrement array also → index value

- ③ shift() ⇒ remove first value from array

- ④ unshift() ⇒ add a value at 1st index of array
find index of a value

array.indexOf(value) ⇒ this will return index

array.sort() ⇒ to sort array

array.reverse() ⇒ reverse the array

II we can delete a value by

array.~~splice~~ (array.indexOf(value), 1)
to delete

this will delete specific value from array

⑤ Conditional statements

if (condition) {
 if true
}
}

Same as
C++ & Java

if (condition) {
 if true
} else {
 if false

}

IF (condition 1)?
 if true
 condition 1,
} else if (condition 2)?
 if ~~true~~ condition 2
 true
} else?
 if condition 1 &
 condition 2
 false
?

In Condition we use comparison operations.

⇒ You can do check multiple conditions with

`&&` or `||` ⇒ adding multiple conditions

④ function need conditional statements and loop & make them more versatile

Q) write function for prime no. or not.

⑤ switch block

if we have multiple if else block it is good idea to use

switch case let m = 10;

switch(m) {

case 1 : → some condition
action

break

case 2 : → some con

action

break

default:

- code ; break

}

loops

run a same command / code multiple time

for (let i; condition; increment) { } while (condition) { }

Code ↴

{ }
call at one place

Code:

{ }
}

In white loop

we have to manage the
increment/decrement externally
↑

can lead to infinite loop

⇒ for loop is much easy &
useful

You can iterate through object with loop

```
myobj = { first: "some", last: "some" }
```

```
for (var i in myobj){}
```

console.log(~~(i)~~ myobj[i]) → you can do it
for loop

↳ i

★ i is index for array & property name for the object.

do while loop (runs at least one time)

```
do {  
    code
```

```
} while (condition);
```

#String methods

```
str = "ghansham"
```

it also calculate spaces

$\boxed{str.length}$ → will give string length

also find a word or character using indexOf

$\boxed{str.indexOf("s")}$ or $\boxed{str.indexOf("sham")}$.
only find first appearance

⇒ to search from last use lastIndexOf function

$str.lastIndexOf("word")$ ⇒ this will search "word" from last

⇒ Also you can pass starting of search in (indexOf())

$str.indexOf("a", 4)$ → Start search from 4th index

⇒ indexOf & lastIndexOf will return negative value if that word is not found in string

ES6 JS

new version of js has let & const and used to initialise variable

=> for using variable prefer to use let → short lived variables

* => const s=10; so after you can't redefine or change value of variable

=> use let & const preferably in working with Java

— # — # — # — # —

* Dom (document object mode)

you have keyword document play around with it & it will give a large info about page

like document.location,

document.body, document.URL

I can create elements, see html & many more.

=> document is basically a object which stores a huge amount of data related to the html page and we can able to manipulate it with javascript

Event listeners

It used to provide interaction b/w user & website & can be done with event listeners.

we use addEventListener function to add a event listener say a button

<button id="some"> we want to add event

in JS

let m=document.querySelector("#some")

m.addEventListener("click", func)

=> in func() → you write what actions to be taken when event happens

↑ event ↑ function which trigger when event happens