Java Script

① JS fundamentals

- writing JS code in HTML page
  <script type="text/js">
  </script>

- embed external JS into html
  <script src="script.js">
  </script>

- Comments in JS
  Single line.
  we use double slashes
  Eg: // this is the comment

  Multiline
  we use slash and asterick
  Eg: /* This is multiline
  Coments in JS */

② Variables in JS (and Datatypes).

Primitive Datatypes

String	Number	Undefined	Bool	BigInt	NULL ~~Symbol~~
eg: "hello"	eg: 100	represents undefined values	results either true/false	to store large integers	represents NULL values no value at all

Non Primitive / Composite Datatype

Object
represents through which we can access members
Eg → Function, RegExp, Math Date, Error, Map, Set. Typed Array etc.

Array
represents group of similar values.

- One Dimentional Array
  Const arr = [1, 2, 3, 4, 5];
- Multi-Dimentional Array (2-D) (3-D)
  Const A = Array(4).fill(Array(4).fill(0));

  A[1][2] = 10;

  [[0, 0, 10, 0],
  [0, 0, 10, 0],
  [0, 0, 10, 0],
  [0, 0, 10, 0]]

★ Loops

- For loop

```
for(var i =0 ; i<10; i++){
document.write(i+":"+i*5+"<br/>");
}
```

- while loop

```
var i = 1;
while(i<100){
  i = i*2;
document.write(i+"_");
}
```

- Break statement

```
for(var i=0; i<10, i++){
if(i==5){break;}
document.write(i+"_");
}
```

- Do-while loop

```
var i = 1;
do{
  i*=2;
document.write(i+"_");
}while(i<100)
```

- Continue Statement

```
for(var i=0; i<10; i++){
  if(i==5){continue;}
document.write(i+"_");
}
```

★ Operators

```
a+b  // addition
a-b  // subtraction
a*b  // multiplication
a/b  // division
a%b  // get remainder
```

Bitwise Operators

&	AND	5 & 1	// 1
|	OR	5 | 1	// 5
~	NOT	~5	// 10
^	XOR	5 ^ 1	// 4
<<	Left Shift	5 << 1	// 10
>>	Right shift	5 >> 1	// 2
>>>	zero fill Right shift	5 >>> 1	// 2

★ Numbers and Maths Σ

```
var pi = 3.141;
pi.toFixed(0);
pi.toFixed(2);
pi.toPrecision(2);
pi.valueOf();
Number(true);
Number.MAX_VALUL,
Number.POSITIVE_INFINITY
```

Math.

```
var pi = Math.PI;
Math.round(4.4);
Math.pow(2,8);
Math.sqrt(49);
Math.ceil(4.14);
Math.floor(8.22);
Math.sin(0);
Math.cos(Math.PI);
Math.log(1);
Math.exp(1);
```

★ Dates

```
var d = new Date();
Number(d)
Date("2024-03-31");
Date("March 31 2024");
```

Times

```
var d = new Date();
a = d.getDay();
```

```
getDate();
getDay();
getHours();
getTime();
getMonth();
getMinutes();
getSeconds();
getFullYear();
```

☆ Global Functions()

eval();
String(23);
(23).toString();
Number("23");
decodeURI(enc);
encodeURI(uri);
isFinite();
isNaN();
parseFloat();
parseInt();

if else

```
if ((age >= 14) && (age < 19)) {
    status = "Eligible";
} else {
    status = "Not Eligible";
}
```

☆ Events in Java Script

Mouse → onclick, ondblclick, onmousedown, onmouseup, onmouseout, onmouseover.

Frame
onabort, onbeforeunload, onscroll, onunload.

Drag
ondrag, ondrop, ondragover, ondragstart, ondragend

Keyboard → onkeydown, onkeypress, onkeyup

Form
onblur, oncharge, onfocus, onsubmit, onselect, onreset.

Animation
animationstart, animationend, animationiteration.

Miscellaneous → transitionend, onmessage, onmousewheel, ononline, onoffline, onshow, onstorage, onwheel, ontouchcancel, ontouchend, ontouchmove, ontouchstart.

☆ Errors in Java Script

```
try {
    undefinedFunction();
}
catch (err) {
    console.log(err.message);
}
```

Throw error

```
throw "My Error";
```

eg:

```
var x = document.getElementById("mynum").value;
try {
    if (x == "") throw "Empty";
    if (isNaN(x)) throw "Not a number";
    x = Number(x);
    if (x > 10) throw "To high";
}
catch (err) {
    document.write("Input : " + err);
    console.error(err);
}
finally {
    document.write("<br/> Done");
}
```

eg: Error names Values

RangeError → outofRange
SyntaxError → wrong syntax
TypeError → type error occured
URIError → encodeURI Error
ReferenceError → illegal Reference