* NOTES ON JAVASCRIPT *

NAME: NAUSHEEN NAVEED

ROLL No: JS-045

TEACHER: Miss HINA

MENTOR: SIR FURQAN

#techforcepakistan.

20/1/24

Introduction to JS Class 1

- Brendan Eich — 1995
- Netscape 2, became ECMA-262 standard in 1997.

European Computer Manufacturers Association → develops standards in Computers.

ES1 to ES5 (1997 to 2009).

- Major changes in 2015 (EcmaScript / Es2015 / ES6)

- ES6 → standard for JS
Then ES7, ES8, ES10 etc.

- JS is OOPrograming language.
(object oriented)

- Used in form submit, client side validation. popup / event on click

Uses:

- client side execute browsers (JS query, React, JS, angular JS)
- websites Erver side (node js, Express js)
- Mobile develop. (hybrid APP)
- Software develop (Electron js, Ex-vs code) framework etc)

First class Javascript (Js)

Ms. Hina

20/1/2024.

Introduction to Js (Class 1)

- Js was invented in 1995 by Brendan Eich
- ECMA → European computer Manufacturers Association.
- ES6 → standard → ES7, ES8, ES10
- Popup
- website server
- Mobile development
- Software development (Electron js, ...)

[framework, for mobile app react]

Now code: index.html

```
<body>
  <script>
    alert ("hello");
  </script>
</body>
```

live server

hello (popup)

Now

```
<title> First class of js </title>
<script>
    alert ("hello 2");
</script>
</head>
<body>
```

```
<script>
alert("hello1");
</script>
</body>
</html>
```

First hello2 popup → then hello 1 popup.
will appear → it will read line by line b/c in head section.

NewFileJs (link with html).

File → New File → script.js (any name).

Now link → Now remove script file.

```
<title> First class of js </title>.
<script src="script.js"></script>
</head>
<body>.
.
.
.
.
.
.
<script src="script.js"></script>
</body>.
```

inspect
In console window.
error is shown

advisable

<!-- < > --> comment out.

Now alert("Hina");

defer = attribute → last me read krna

<h1> Helloworld </h1>.

X--- End of lecture #1 ---X

Class 2 | 21. Jan. 2024 (Monday)

Javascript variables || Rules | Declaration & Assignment

Variable.
File index.html
Make folder Js tutorials.
variableanddatatype.js

index.html.

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

open console

```
a = 34.
34.
b = 56
56
a+b.
90.
```

<h1> variables </h1>.
↓
Container which stores value.
(In memory, space is reseved).

Press F12 → console will open

```
<h1> variable </h1>
<ul>
    <li>
        var
    </li>
    <li>let </li>
    <li>const </li>
    </ul>
```

old version before 2016 we use var (rejected)
ES → modern JS (let + const)

$\left[\left(-2x^{5}\right)^{3}\right]^{3}$

15
$(5+5+5)$

```
Var a= 6;
```

value 567

a میں store ہوتی ہے

```
Const abc;
 let a=5
 a=10;
 a="hello"
 const

Var a=6
  a=5

const pi =
const abc="nausheen";
```

Now const abc="hello";
abc="hi"; it will give error

let میں بار بار ہم value کو change کر سکتے ہیں

X [const abc="hello";]

```
Let name="hira";
name="sumaira";
console.log(nam);
```

} no error

Now new name (sumaira).

Js file

```
Var a=6;
Var a=5;
 let a=5;
 let a=10;
```

} error (only once let saved)

data types
- number, String, boolean, null, undefined, array, objects, functions.

variable کیسے declare کرتا ہے
'' کا نام کیسے لکھنا ہے

variable rules: case sensitive.

```
const abc= "hello";
let AbC="hi";
```

```
Let aS_$4;
```
[I can declare my variable → small or large, number

کسی variable کو number سے start نہیں کر سکتے -
variable start letter، $، _ سے start ہوتا ہے

| - (underscore)
| $
| alphabet

eg.

```
Let gh;
let $_jh;
let _jh;
let aSddg_$34;
```

ہمارے مخصوص keywords variable نہیں ہو سکتے

* data type
number -

```
let age="45";
console.log("age");
Console.log(age);
```

o/p
age
45

let fullName = "samad"; → string
console.log(fullName);
↳ camelcase

Class 3 24.Jan.2024
Variables, Rules | declaration + Assignment
(Primitive + Non Primitive)

1. Revision Variable scope | Print / display in TS

* Block scope variable
* Global scope "

Variable Rules

alert popup.

Comments in TS
- single line //
- multiline /* */

Ctrl + /

Coding

window.document.write("hello world"); // Browser
document.write("world");
console.log("Hiii"); → browser webview
window.alert("hena");

Variables + data types (1)

```
console.log("Nausheen");
```

Variables are containers for data

```
fullName = "Tony";
console.log(fullName);
age = 24;
price = 100;
radius = 16;
a = null;
y = undefined
isFollow = false
console.log(isFollow);
```

Boolean (True or False)

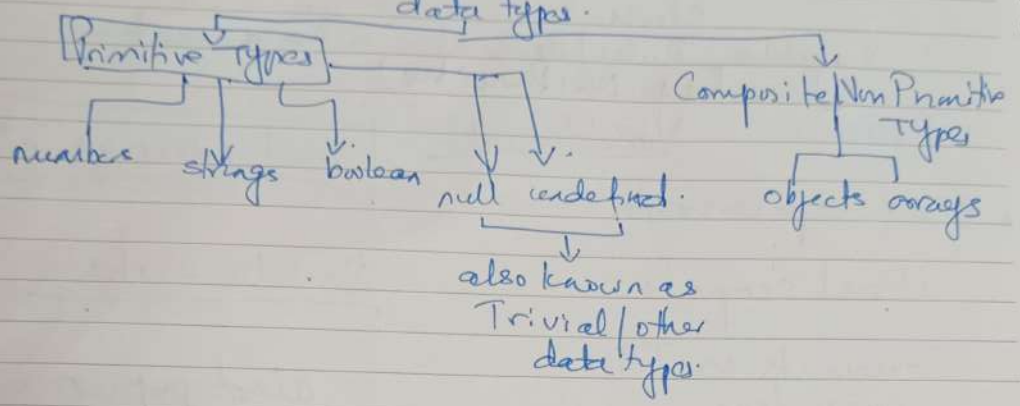
Variable Rules:

- Variable names are case sensitive; "a" + "A" is different
- only letters, digits, underscore and $ is allowed.
- only a letter, underscore, or $ should be first character.
- Reserved names cannot be variable names.

Class 4 (Friday) - 26 Jan 2024

Operators in JS

Variables + data types in Javascript



Operators in JS

Arithmetic, Assignment, Comparison, logical, conditional

```
<body>
    <h1> Variable rules
    </h1>
    <script src = "          ".
    </body>.

let item = {
    name: "lipstick",
    price: 250,
    tahag: 4,
    available: true,
    offer: 20,
}
console.log(item);
let arr = ["ma", "ggh", "gghhh"];
```

```
console.log(typeof arr);
let a=4;
let b=6;
console.log("a=b",!b a);
```

Now:

```
function welcome()
{
  document.write("welcome");
}
function sum(a,b)
{
  let c=a+b;
  return c
}
```

~~function~~ + , a+b, "</br>"); //14.
- a-b, "</br>");
* a*b;

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

addition, subtraction, *, /, %., increment, decrement (Unary operator)

```
let a=9;
let b=5;
dw(a,"+",b,"=",a+b);
dw(a,"-",b,"=",a-b,"</br>");
dw(a,"**",b,"=",a**b,"</br>");
```

o/p
9+5=14

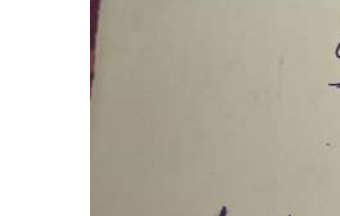
Operators in JS. Class 4.

Used to perform some operations on data.

Arithmetic Ope -

+, -, *, /

- Modules, exponentiation, Increment, decrement.




```
Let a = 5;
Let b = 4;
console.log("a+b");
```

OR.

```
console.log("a + b = ", a+b);
```

JS (class 5)

29/Jan/2024.

Operators:

Comparision, Logical, Conditional.

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

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

>

>=

<

<=

```
let a = 2; //number
let b = "2"; //string
a == b  true
a === b  false.
```

JS (class 6)

31/Jan/2024.

Marksheet assignment.

(. . . . . { } .

```
<script>
var name = prompt ("Enter your name");
"  roll = "                "  roll number
"  class =                  class
"  math =                   maths marks
    Urdu
    Physics
    Chemi
    english
</script>
var obtained_marks = parseInt (math) + parseInt(urdu)
% + % parseInt(physics) % + . . . ;
document.write (name % + % "<br/>");
                roll
                class
                obtained_marks % + % "<br/>");
```

```
if (percentage >= 80).
{
  document.write (" Your Grade is: A-1 ");
}
else if (percentage >= 70)
{
  document . . . ( . . . . A " );
}
```

>= 60 B

```
const myNumber = number(13);
console.log(myNumber);
```

Class 6 Marksheet 31/Jan/2024

```
let m1, m2, m3, m4, sum, avg.
m1 = 80
m2 = 90
     98
     98
m5 = 84
sum = m1 + m2 + . . + m5
console.log("total marks", sum)
avg = sum / 5
cons.log("average", avg)
if (avg >= 90) {
    console.log("Grade A")
}
else if (avg >= 80) {
    cons.log("Grade B")
}
else if (avg >= 70) {
    cons.log("Grade C")
}
else if (avg >= 60) {
    cons.
}
else {
    console.log("fail")
}
```

Revision (Class 7)

String creation & manipulation:

Template literal – introduced with ES6. They give more flexible way to work with JS.

\n → next line
\t → tab → 4 to 5 spaces.
\\ → then single slash(\) will run.

let str = 'Hello';

dw(str).

coding

```
let str = 'Hello';
let num = 5;
dw('hello ${num}');
```

o/p

```
Let str = "Hello! how are you?";
let l = str.length;
  dw(l);
dw(str[18]); // ?
```

o/p

19.

Now concat (Join 2 strings)

```
let str = "Hello! how are you?";
let str2 = "I am learning Javascript";

dw (str + str2);
```

o/p

Hello! how are you? I am learning Javascript

OR

```
dw(str + " " + str2)
```

```
let str =
let str2 =
let str3 = "world";

let newvar = str.concat(str2 + str3);
dw(newvar);
```

Let str = " I am learning Javascript";

More

str.trim() → To remove space from start + end.
str.trimstart()
str.trimend()
str.upperCase()
str.lowerCase()
str.replace("javascript", "html") search word & replace case sensitive.

str.includes("is") search word is / if not found return -1, false. (True or false).

dw(str.trim());

dw(str.replaceAll("learning", "reading"));

JS Seventh class Class 7.

2 Feb 2024

strings, loops.

String Manipulations

```
let str1 = "I am learning JS"; // double
let str2 = 'I am ... ... '; // single
let str3 = `I ... ... string template`;
// adjacent literal (adjacent to one
   Template
   key in keyboard)
```

Switch, string, loop

JS Class 8

5 feb 2024

```
Let rollno = 56;
let nam = "hina";
dw (`my roll no is ${rollno} my name is ${nam}`);
```

O/P

my roll no is 56 my name is hina

Loops

- To execute a piece of code again & again
- finite + infinite
- ↓ ↓ not end
- ending

```
for (i=1 ; i<=50, i++)
  { dw(" Hello"); }
        OR
    dw(i, "<br>");
```

(Javascript)

practice2.html → name Nawaboon 20 Times
→ 10,9,8,7 ... 1

assignfirst Switch.js (Table)

```
<script>
Let table = prompt ("Enter Table No:");
for (let i=1; i<=10 ; i++)
  {
    dw (table + "x" + i + " = " + table* i + "<br>");
  }
</script>
```

loops :

```
for(let i=0; i<10; i++){
    cl(" Name");
      }
```

Class 9 → 16 Feb 2024

Loop + Array

```
Let arr = [34, "Sadia", "Java"];
for (let i=20; i>=1 ; i--)
  { dow("<hr>", i); }
```

20
19
18
.
.
.
1

arr.unshift("css"); add item in start

push("html"); ~~item~~ insert item in end.

shift() remove ~~add~~ item ~~in~~ start from

Remove 3rd item & add 2 item in its place.

.pop() remove item from end

add any item in last of array

Remove item from end.

dw (arr.length);

book.indexOf("Urdu") // to find any words position in array.

book.slice(start ind, end inde); // don't change in original array // return a stic piece of array.

• book.splice(start index, del count, next); // add, remove & replace.

eg:

Let arr = [1, 2, 3, 4, 5, 6, 7];

arr.splice(2, 2, 55, 56);

arr.splice(3, 0, 44);

arr.splice(2, 3); // don't add only delete items 2 index se 3 items delete.

Class 10 12 Feb 2024

Method + loop / for in / while / do while loop.

Let array = [2, 3, 56, "hena", 78, 65, 23, 89];

// dw (array.length);

dw (array.slice(1,6));

~~dw (slice(3));~~

o/p

o/p
8

o/p

3, 56, hena, 78, 65

dw(array.splice(2, 2, 4));

Object

store multiple value.

```
const student = {
                  name: "hina",
                  rollno: 36,
                  class:
```

for of / for in loop

print odd no of this array = [. . .] by using for loop.

Class 11
(Functions)

14 Feb 2024

```
dw("hina", toUpperCase());
```

OR

```
function abc() {
dw("hina");
dw( " " )
 dw( " " )
  dw( " " )
  dw( " " );
}

abc();
```

We can call function in html

```
<body>

<button onclick=
"abc()"> click me
</button>
```

o/p

hina hina hina hina hina

Class 11

```
abc();
function abc(){
    dw("hena"+" ");
    dw
    dw
    dw
    dw
}
abc();
```

o/p

hena hena hena - - - - - hena
(10 times)

JS function is block of code designed to perform particular task. It is execute when "something" invokes (call)

Function define

```
function frame()
{
  block of codes
}
```

function calling (call)

```
frame();
```

Class 11 — 14 Feb 2024

Function definition (parameters)

```
function frame(p1,p2)
 {
  dw (p1+p2);
 }
 function sum(p1+p2)
 {
  ans=p1+p2;
  return ans;
```

Function call

frame(arg1, arg2)
or
frame(2,3)

Let ans= sum(2,3);
cl(ans);

(eg)

```
abc(5,7);
function abc(p1,p2){
   dw(p1*p2);
}
```

// 35

OR

Now if you don't want to print but return it.

eg

```
let a=6;
let b=8;
//call
let ans = mult(a,b);
function mult(p1,p2){          //function define
let ans=p1*p2;
return ans;
}
dw(ans);
```

(A)

Also we can declare several times.

```
// function define
function mult(p1,p2){
let ans=p1*p2;
return ans;
}

let a=6;
let b=8;
//call
let ans=mult(a,b);
dw(ans);

let abc=mult(a,b);
dw(ans);
}
```

O/P

4848

O/P
4828.

Repeat A

```
let abc=mult(7,4);
dw(abc);
```

Arrow function (ES6)

```
Const fname=()=>{
        block
          of
        code
}
```

friend

```
Cons mult=(p1,p2)=>{
  let ans=p1*p2;
  return ans;
}
  let a=9;
  let b=8;
let ans=mult(a,b);
dw(ans);
```

72

Class 12 — 17 Feb 2024.

I: Practice Questions

vowels: ① let string = " ... ";

② vowe(string);

```
function vowe(str)
{
let i=0; // i used for counting vowels
for (let char of str)
{
if (char === 'a' || char === 'e' || char === 'i'
|| char === 'o' || char === 'u')
{
dw (char, "<br>");
i++;
}
}
dw (i);
}
```

for of loop one by one ka o/p

a
e
i
o
u

6.

II: Table

```
function table(num)
{
for (let i=1; i<=10; i++)
{ dw (`${num} x ${i} = ${num*i}`)
dw ("<br>");
}
}
prompt("enter table no.");
table(tableno);
```

let tableno = prompt tableno

III - object

```
const student = {
  name: "Hina",
  rollno: 41,
  class: 7,
  isPass: true,
};

for (let key in student)
  {
    dw (key, "<br>");
  }

dw (key, ":", student[key], "<br>");
```

IV: Array:

```
let cit = ["Karachi", "L", "P", "O", "S", GB
dw (cit.length);
for (let value of cit)
  {
    dw (value, "<br>");
  }
```

o/p

7
L
P
O
S
GB
K

V

```
dw(cit.pop(), "<br>");
dw(cit);
dw(cit, "<br>");
dw(cit.shift(), "<br>");
dw(cit, "<br>");
```