JavaScript

Intro

```
In 1995 - Birth of JavaScript (Mocha > LiveScript > JavaScript):
Netscape needed a lightweight scripting language for web browsers.
Brendan Eich, working at Netscape, created it in 10 days.
It was initially called Mocha, then LiveScript, and finally renamed J
avaScript to ride the wave of Java's popularity (despite being unrelated).

Microsoft created JScript, its own version of JavaScript,
to use in Internet Explorer. This caused compatibility issues.

1997 - ECMAScript is born:
To standardize the language, Netscape submitted JavaScript to
ECMA(European Computer Manufacturers Association) International,
which created the ECMAScript standard (ECMA-262). JavaScript, JScript,
and ActionScript were all ECMAScript-compliant dialects.

Evolution of ECMAScript (ES):
ES3 (1999): Widely adopted.
ES5 (2009): Major update after a long pause.
ES6 / ES2015: Huge leap with let, const, classes, arrow functions, etc.
After that, annual updates (ES2016, ES2017, ..., ES2024).
```

What is Javascript?

Javascript is an non blocking asynchronous concurrent language.

It is an client-side scripting language as well as server-side when nodejs is use.

It is an interpreted language.

What can JavaScript do?

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Dom manupilation
Show or hide content (like dropdowns or pop-ups)
Validate forms (check if you typed your email correctly)
Load new data without refreshing the page (via AJAX or fetch)
Build games or animations in the browser
Create full apps (with frameworks like React, Vue, or Angular)
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What are datatypes in js?

In JavaScript, data types define the kind of value a variable can hold.

JavaScript has two main categories of data types:

- Primitive Datatype
    1. String:String are collections of characters
       they are written in single quote(' ') or double quote(" ")
    2. Numbers: Numbers (integers or floats) like 1,2,3.. or 12.5
    3. Booleans: true or false
    4. undefined: A variable that has been declared but not assigned a value.
    5. null: Represents intentional absence of any object value.
- Non-Primitive Datatype
    1. Arrays
    2. Objects

To write code in js

You will need to add <script> tag in your html page

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
```

```
<body>


    <script>
        code here
    </script>
</body>
</html>
```

Variable declaration

do's	don't
var fname;	var f name;
const num1;	const 1num;
let last_name;	let last-name;

How to declare variables in js?

To declare varibales in javascript there are some keywords.They are :

1. var
   It can be redeclare and can be reassign.
   // declaration
   var fname
   // initalization
   var fname="sam" // to print fname there are two methods
   document.write() (it will print on browser) & console.log() (it will print in console) in inspect tool
   console.log(fname)
   output:sam in your console example:

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
```

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>JavaScript</title>
</head>
<body>

<script>
    var fname;
    var fname="sam";
    console.log(fname)

    var fname="john";
    console.log(fname)
    output:sam
    output:john
</script>
</body>
</html>
```

2. let
   let is new in es6 let can be use to resassign but cannot redclare

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>



<script>
let fname;
fname="sam";
```

```
console.log(fname);
output:sam

let fname="john";
console.log(fname);

let fname="sam"; // it will throw error cannot redeclare blocked-scope variable 'fname'
console.log(fname);
</script>
</body>
</html>
```

3. const
   const cant be redclare nor reassign

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Document</title>
</head>
<body>

<script>
const fname;
fname="john";
console.log(fname); // error Uncaught SyntaxError: Missing initializer in const declarationUnderstand this error
</script>
</body>
</html>
```

How to check the type of variable?

```
<script>
var fname="john";
console.log(typeof(fname)); // it will give you string

var num=100;
console.log(typeof(fname)); // it will give you number

var numOne=true;
console.log(typeof(numOne)); // it will give you Boolean

var num2;
console.log(typeof(num2)); // it will give you undefined

var num3=null;
console.log(typeof(num2)); // it will give you object

</script>
```

Now lets write a program for addition of two nos

```
<script>
var num1 = 10;
var num2 = 20;
var result = num1 + num2;
document.write(result)
// output 30
// in this case we dont know what exactly 30 is?

// now lets print the variable
// concatination(joining with string) can be done with +(plus) operator and by ,(comma)
console.log("the addition of "+a +" & "+b +" =",res);
console.log("the addition of ",a ,"&",b ,"=",res);
//  backtics(``) below escape button-> it is called template literal
```

```
console.log(`the addition of ${a} & ${b} = ${res}`);

// final output
the addition of 10 & 10 = 20
the addition of 10 & 10 = 20
the addition of 10 & 10 = 20
</script>
```