JavaScript

JavaScript is the world’s most popular programming language.

JavaScript is easy to learn.

JavaScript is used for: -

* Front end Web Development
* Mobile app Development
* Desktop app Development
* Server-side programming etc.

According to Stack Overflow survey JavaScript is number 1 programming language.

Installation

Editor (VS code)

Node.js (JavaScript runtime environment)

Optional to run code directly -- > Code runner(vs extension)

File should be saved with .js extension.

Code will be executed line by line. If you have error in any line in js, before that line whatever code is there that will be executed.

Output in JS

In JS to display any output we will use console.log(“Hello Ankita”); -🡪 semicolon can be used or not it will give same effect i.e. ; is not mandatory.

Open terminal 🡪 Node and file name

Node demo.js

JS is case sensitive language.

Variable in JS

Container to store the data is nothing but variable.

Syntax: -

There are four syntax to declare var in JS

1. var (before 2015 only var was used so if your browser is old-one then use var only)

🡪var age; (variable name is also called as identifier)

* var age=23;

rules to declare variable name: -

it should not start with numbers

It can consist of alphabets, \_ , $ and numbers.

Keywords cannot be variable name.

In JS if you are using var to create variable then you can declare same variable name multiple times i.e we can do redeclaration of variable.

Ex; var x=10;

var x=20;

var x= ”Ankita” //you can store different type of data.

How to check which type of data variable is containing

Using typeof we can

Ex. console.log(x, typeof x);

Var is global level variable.

1. let

let x=10;

It is somewhat similar to var but using let you can not redeclare the same variable.

Let is block level variable

1. Const

const x=10;

console.log(x);

you can not change the value of variable. Because it is constant. If you try to change the value it will throw error.

1. Nothing

If variable is declared but not initialized then output will be undefined.

Without var also you can declare variable in js.

Ex. x=10

Console.log(x);

Hoisting: -Hoisting in JavaScript is a process that moves variable, function, class, or import declarations to the top of their scope before the code is executed. This allows the user to use these declarations before they are officially declared in the code.

Hoisting will work in case of var but not in let.

Operator in js

Operator’s are used to perform operations.

Types of operator in js

1. Arithmetic

+: - addition

-: - Subtraction

\*: - Multiplication

\*\*: - base ex. 5\*\*2=5^2=25

/: - devide ex. 5/2==2.5

%: - modulus🡪 reminder

++: - work on single operand i.e. incremented

--: - decrement operator

Here if you take string var and then use increment or decrement operator then that string will be automatically converted into number.

1. Assignment

=, +=, -=, \*=, /=, %=, \*\*=

1. Comparison

1. Logical
2. Bitwise
3. Conditional
4. Type operator(type of)

**Data Types**

JavaScript has dynamic typing, meaning a variable can hold different data types. Common types include:

* **Primitive types**: Number, String, Boolean, Undefined, Null, Symbol, BigInt.
* **Non-primitive types**: Objects (arrays, functions, etc.).

**Functions**

* A block of code designed to perform a particular task, executed when "called."

function functionName(parameters) {

// function body

}

**Objects**

Objects are collections of properties, defined as key-value pairs.

const person = {

name: "John",

age: 30,

greet: function() {

return "Hello";

}

};

**Object Properties**

Properties are the values associated with a JavaScript object.

* Example: person.name returns "John".

Methods are functions stored as object properties.

* Example: person.greet() would invoke the greet function in the person object.

### ****Object Constructors****

A constructor function is used to create objects.

function Person(name, age) {

this.name = name;

this.age = age;

}

const person1 = new Person("John", 30);

**Events**

JavaScript events are actions that occur in the web browser (like a user clicking a button).

* <button onclick="alert('Hello!')">Click me</button>

### ****Strings****

Strings are sequences of characters used for textual data.

let text = "Hello World!";

**String Methods**

String methods perform actions on strings, such as:

* length: Returns the length of a string.
* toUpperCase(): Converts to uppercase.
* concat(): Joins strings.

text.toUpperCase();

**String Search**

JavaScript provides various methods to search for a substring within a string:

* indexOf(): Returns the index of the first occurrence.
* includes(): Checks if a string contains a substring.

let name = "John";

let greeting = `Hello, ${name}`;