**JavaScript**

JS typically refers to JavaScript, a programming language commonly used for web development.

JavaScript is a versatile language that can be used for a variety of purposes, including building interactive websites, web applications, server-side applications, and even mobile applications.

It's one of the core technologies of the World Wide Web alongside HTML and CSS. JavaScript allows developers to add dynamic content, interactivity, and functionality to web pages.

JavaScript (JS) is a high-level, interpreted programming language primarily known for its use in web development.

**Syntax**: JavaScript syntax is similar to other programming languages like Java and C, making it relatively easy to learn for developers familiar with those languages.

**Client-Side Scripting**: JavaScript is primarily used for client-side scripting, meaning it runs on the user's web browser rather than on the web server. This allows for dynamic content and interactivity in web pages.

**Versatility**: While JavaScript is most commonly associated with web development, it can also be used for server-side development (with platforms like Node.js), mobile app development (with frameworks like React Native), game development, and more.

**Libraries and Frameworks**: There are numerous JavaScript libraries and frameworks available to simplify and streamline web development, such as jQuery, React.js, AngularJS, Vue.js, and many more. These libraries and frameworks provide pre-written code and components to help developers build complex applications more efficiently.

**ECMAScript:** JavaScript is based on the ECMAScript standard, which defines the language's syntax and semantics. New versions of ECMAScript are regularly released, introducing new features and improvements to the language.

**Object-Oriented:** JavaScript is an object-oriented language, meaning it uses objects to represent data and functionality. Objects can be defined and manipulated to create complex applications.

**Event-Driven:**JavaScript is event-driven, meaning it responds to events such as user actions (clicks, mouse movements, etc.) and executes code accordingly. This makes it well-suited for building interactive web applications.

**Syntax**

JavaScript syntax refers to the set of rules that define how JavaScript code is written and structured.

Comments: // for single-line, /\* \*/ for multi-line  
Variables: var, let, const  
Data Types: Numbers, Strings, Booleans, Arrays, Objects, Objects, Arrays  
Operators: Arithmetic, Comparison, Logical, etc.  
Functions: function keyword  
Control Flow: if, else, for, while, etc.

**Data Types**

Programming languages all have built-in data structures, but these often differ from one language to another. These can be used to build other data structures.

**Variables**: A JavaScript variable is simply a name of storage location (Like Containers to hold some value in js  
         depending on characteristic of the dat variables types are difened)

An identifier is a sequence of characters in the code that identifies a **variable, function, or property.**

**Data types can be classified in 2 types**  
    1. Primitive Data Types  
    2. Non-Primitive Data Types

**Primitive Data Types**

1. Numbers         ==> Integers and Floats  
2. Strings         ==> '', ``, ""  
3. Boolean         ==> true, false  
4. Null            ==> Empty or no value  
5. Undefined    ==> without a memory location and value  
5. Symbol ==> without a memory location and value

**Numbers**  
let num1 = 30  
let num2 = 30.56544  
const pi = 3.142

**Strings**

let var\_blank = ''  
let var\_space = ' '  
let var\_first\_name = 'Sachin'  
let var\_last\_name = "Tendulkar"  
let var\_team = `Mumbai`  
let var\_age = 40  
let var\_bio1 = 'Sachin Ramesh Tendulkar, is an "Indian" former'  
let var\_bio2 = 'Sachin Ramesh Tendulkar, is an \'Indian\' former'  
let var\_bio3 = "Sachin Ramesh Tendulkar, is an 'Indian' former"  
let var\_bio4 = `Sachin Ramesh Tendulkar, is an 'Indian' former`  
let var\_bio5 = `Sachin Ramesh Tendulkar, is an "Indian" former`  
let var\_bio6 = 'Sachin \n Ramesh \t Tendulkar, \\ is an \'   \" Indian former'

**/\* Numbers \*/**

let age = 20  
let height = 5.7  
const PI = 3.142

// console.log(Math.round(PI))  
// console.log(Math.round(height))  
// console.log(Math.ceil(PI))  
// console.log(Math.pow(4, 3))

**/\* Strings \*/**

let blank = ' '  
let firstName = 'Virat'  
let lastName = 'Kohli'

let bioData = `Virat Kohli (Hindi pronunciation:   
    born 5 November 1988) is an Indian international   
   cricketer and the former captain of the Indian national   
   cricket team who plays as a right-handed batsman for   
   Royal Challengers Bangalore in the IPL and for Delhi   
   in Indian domestic cricket. Widely regarded as one of   
   the greatest batsmen of all time,[4] Kohli holds the   
   records for scoring most runs in T20 internationals   
   and in the IPL. In 2020, the International Cricket   
   Council named him the male cricketer of the decade.   
   Kohli has also contributed to India's   
   successes, including winning the 2011   
   World Cup and the 2013 Champions trophy.`

let fullName = firstName + ' ' + lastName  
// console.log(firstName)  
// console.log(lastName)  
// console.log(fullName)

let something = 'Virat Kohli (\'Hindi\' pronunciation: born 5 November 1988) is an Indian international '

//console.log(something)

let num1 = 200  
let num2 = 100  
//console.log("The sum of "+ num1 + " and "+ num2 + " is  "+ sum)  
//console.log(`The sum of ${num1} and ${num2} is ${num1 + num2}`)

//console.log(lastName)  
//console.log(lastName[lastName.length-2])  
//console.log(lastName.length)

//console.log(lastName.toUpperCase())  
//console.log(bioData.length)  
//console.log(bioData.substr(663,17))  
//console.log(lastName.length)  
//console.log(lastName[5])

//console.log(lastName)  
//console.log(lastName.substring(2, 3))

let team = "Royal Challengers Bangalore"  
//console.log(team.split('Challengers'))  
let someText = "          Challengers            "  
//console.log(someText.trim().length)

console.log(bioData.includes('runs'))

**Operators**

Operators in JavaScript are symbols or keywords used to perform operations on variables or values. They are an essential part of any programming language and allow you to manipulate data in various ways. Here are some important JavaScript operators:

**Arithmetic Operators:**

* **+** (Addition): Adds two numbers.
* **-** (Subtraction): Subtracts the right operand from the left operand.
* **\*** (Multiplication): Multiplies two numbers.
* **/** (Division): Divides the left operand by the right operand.
* **%** (Modulus): Returns the remainder of the division of the left operand by the right operand.

**Assignment Operators:**

* **=** (Assignment): Assigns a value to a variable.
* **+=**, **-=**, **\*=**, **/=**, **%=** (Compound Assignment): Performs an operation and assigns the result to the variable.

**Comparison Operators:**

* **==** (Equal to): Checks if two values are equal.
* **!=** (Not equal to): Checks if two values are not equal.
* **===** (Strict equal to): Checks if two values are equal in value and type.
* **!==** (Strict not equal to): Checks if two values are not equal in value or type.
* **>** (Greater than): Checks if the left operand is greater than the right operand.
* **<** (Less than): Checks if the left operand is less than the right operand.
* **>=** (Greater than or equal to): Checks if the left operand is greater than or equal to the right operand.
* **<=** (Less than or equal to): Checks if the left operand is less than or equal to the right operand.

**Logical Operators:**

* **&&** (Logical AND): Returns true if both operands are true.
* **||** (Logical OR): Returns true if at least one operand is true.
* **!** (Logical NOT): Returns the opposite Boolean value of the operand.

**Unary Operators:**

* **++** (Increment): Increases the value of a variable by 1.
* **--** (Decrement): Decreases the value of a variable by 1.

**Ternary Operator (Conditional Operator):**

* **condition ? expression1 : expression2**: A shorthand way to write an **if-else** statement.

**String Operators:**

* **+** (Concatenation): Combines two strings.
* **+=** (String Concatenation Assignment): Appends a string to an existing one.

**Conditionals                                                                              
/\*                                                                                                                           
/\*                                                                                                                           
/\*  Candidtionals are the statements used to make                   
/\*  decisions based on different conditions                                     
/\*                                                                                                                            
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**/\* Conditions can be implemented in the following ways**  
**1. IF**  
**2. IF, ELSE**  
**3. IF, ELSE IF, ELSE**  
**4. Switch**  
**5. Ternary**  
**\*/**  
**/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/**

// Syntax  
// if (<condition>)  
// {  
//     <decision>  
// }

let x = 10  
let y = 0  
let result = "Invalid"

// if (y != 0)  
// {  
//     result = x/y  
// }

// console.log(result)

// if (y > 0 )  
// {  
//     console.log("Y is positive")  
// }  
// else if  (y == 0 )  
// {  
//     console.log("Y is Neutral")  
// }  
// else {  
//     console.log("Y is Negative")  
// }

let no\_of\_wheels = 1

// if (no\_of\_wheels == 1 )  
// {  
//     console.log("Its just a wheel")  
//     no\_of\_wheels = 2  
// }  
// else if (no\_of\_wheels == 2)  
// {  
//     console.log("Its a Bike")  
// }  
// else if (no\_of\_wheels == 3)  
// {  
//     console.log("Its an Auto")  
// }  
// else if (no\_of\_wheels == 4)  
// {  
//     console.log("Its a Car")  
// }  
// else{  
//     console.log("Its a Big Vehicle")  
// }

// month = 11  
// switch(no\_of\_wheels)  
// {  
//     case 1:  
//             console.log("Its just a wheel")  
//             break  
//     case 2:  
//             console.log("Its a bike")  
//             break  
//     case 3:  
//             console.log("Its auto")  
//             break  
//     case 4:  
//             console.log("Its Car")  
//             break  
//     case 5:  
//             console.log("Its Jeep")  
//             break  
//     case 6:  
//             console.log("Its Truck")  
//             break  
//     default:  
//             console.log("Enter valid Input!!")

// }

// let score = 33

// score > 35   
//     ? console.log("Pass!!")   
//     : console.log("Fail")

let xx = 100

if (xx==99)