Introduction to JavaScript:

1. JavaScript is dynamic, object oriented, very powerful client-side scripting language.
2. It is developed by Brendan Eich in 1995
3. JavaScript is mainly used for Enhancing the interaction of a user with the webpage.
4. In other words, you can make your webpage more lively and interactively, with help of JavaScript.
5. JavaScript was previously used mainly for making WebPages interactive such as form validation, animation, etc.
6. Nowadays, JavaScript is also used in many other areas such as server-side development, mobile app development, Machine learning and so on.
7. Because of its wide range of applications, you can run JavaScript in several ways:
    1. Using console tab of web browsers
    2. Using Node.js

Why JavaScript?

1. HTML- To define the content/structure of webpages
2. CSS – To specify the layout/prrsentation/style of webpages
3. JavaScript-To program the behavior of webpages.

Applications of Javascript:

1. Client-Side Validations
2. Dynamic drop down menus
3. Display date and Time
4. Display pop-up windows and dialog boxes

Features:

1. It is open source scripting language
2. It is a platform Independent
3. Client-Side Validations
4. It is Case-Sensitive Language
5. Functional Style(C, java language structure)
6. Dynamic typing

Advantages:

1. It is supported by most of the web browsers.(Eg: All browers)
2. It is simple to learn and implement
3. Javascript pages e executed client side
4. It perform the operations very fast.

Dis-Advantages:

1. It cannot be used for Networking Applications.
2. It doesn't have any multithreading and multiprocessing capalities.
3. It has a security issues being a client-side scripting language

1. How to write your first JavaScript Program?

1. To start with JavaScript you need to have a web browser and a code editor

Lets start Learning of JavaScript:

1. alert("Welcome to Javascript World");
2. document.write("Welocme to Javascript world");
3. onsole.log("Welcome to javascript Console");

2. What is Variable in Javascript?

- Variables are used to store data.
- It is like a container, where we use to store things at home.

1. Var: 2. let: 3. const:

1. var Keyword: used to store any kind of data types

Eg:

```
var x=30;
var x="Hello World";
var x="Hello World"; // Both are different
```

2. let Keyword: Used to declare a block-scoped variable.

This means that the variable is only visible within the block in which it is declared.

Eg:

```
let x=10;
If(x>5)
{
let y=20;
console.log(y);
}
Console.log(y) // will get Error
```

3.const keyword: Is used to declare a constant variable

This means that the variable cannot be reassigned to a new value.

Eg:

```
Const a=4;
Console.log(a);
Coonst a=5;
Console.log(a);// will get an Error
```

Scope in Javascript:

It refers to the visibility of the variables and functions in javascript.
In Javascript – There are three types fof scipes:

1.Global scope: Variables and functions are declared in the global scope are visible from anywhere in the program

Eg:

```
var x="Hello";
function example()
{
console.log(x);
}
example();
console.log(x);//outside function
```

2.function scope:variables and functions declared in a function's scope are visible within that function.

Eg:

```
function example1()
{
var fs="Hello";
console.log(fs);
}
example1();
console.log(fs);//will get an Error
```

3.Block scope: Variables and functions declared in a block's scope are visible only withi that block
Block of code is a group of statement that are enclosed in curly braces({}).

Eg:

```
function BScope()
{
if(true)
{
let bv=”HellO”:
console.log(bv);
}
console.log(bv);//Will get an Error
}
BScope();
```

Data Types of JavaScript:

Primitive	Reference
1. String	1. Object
2.Number	2.Array
3.Boolean	3.Function
4.Null	
5.undefined	
6.Bigint	
7.symbol	

1. String Data Type:

- String is sequence of zero oo more characters.
- A string starts with either a single quote(‘) or a double quote(“)
- strings are for storing and manipulation text.

Eg:

```
let firstName=”Elon”;//double quote
let lastName=’Musk’;//single quote
console.log(firstName);
console.log(lastName);
```

2. Number Data Type: Number represents integer and floating point numbers.

Eg:

```
let num=96.0;
console.log(num);//convert into integer
console.log(type of num); //shows-which type it belongs
```

3. Boolean Data Types:

The Boolean type has two values: true and false

Eg:

```
let learning =true
Let completed=false;
console.log(learning); //true
console.log(typeof completed) // Boolean
```

Eg2:

```
let x=20>10;
console.log(x);//true
let x=20<10;
console.log(x);//true
console.log(typeof x); // Boolean
```

4. Undefine Data Type:

- If a variable is declared but the value is not assigned, then the value of that variable will be undefined.
- And data type is also undefined

Eg:

```
let age;
Console.log(age);//undefined
Console.log(typeof age);//undefined
```

5. null Data Type:

Null is a special data type that represents empty or unknown value.
In javascript null is equal to undefined.

Eg:

```
 let num=null;
console.log(num);//null
console.log(typeof num);//null
console.log(null==undefined)//true
```

Reference Data Types:

1.Object:

An object is a collection of properties-where each property is defines as a key-value pair.

Eg:

```
let person={};
console.log(person);//{}
console.log(typeof person); // Object
```

Eg2:

```
let person={
FName='Flon',
LName='Musk',
Age=35
};
console.log(person);
console.log(typeof person);//Object
```

2. Array:

It is type of object that stores a collection of values

Eg;

```
let number=[1,2,3,4,5];
console.log(number);//1,2,3,4,5
console.log(typeof number);//Object
```

Eg:2

```
let number=[1,2,3,4,5];
console.log(number);//1,2,3,4,5
console.log(typeof number);//Object
```

3. Function Data Type:

Function are type of objects that can be used to execute code

Eg:

```
function msg()
{
console.log("Hello');
}
console.log(typeof msg);//function
msg(); //Hello
```