DAY 2 JAVA SCRIPT

How to insert java script in html?

There are 3 ways to insert java script in html:

Internal java script

External java script

Inline java script

Internal java script:

- By using the script tag at the bottom of the document.
- The code is directly written within the Html file, typically within the <head> or <body> section.
- The code is written within the <script> tag.
- Here is the example:

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Document</title>
   <script>
      Console.log("hello world");
   </script>
   </head>
<body>
console.log("hello world");
</script>
    </body>
</html>
```

Inline java script:

- Inline java script in an html document, you can use event attributes such as onclick, onload.

Here is the example :

```
<!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>
 <button onclick="alert('hello world')">click me</button>
 </body>
</html>
```

- In this example , the onclick event attribute is used to execute the inline java script code.
- When the button is clicked the java script code within the attribute is triggered , displaying an alert with the message.

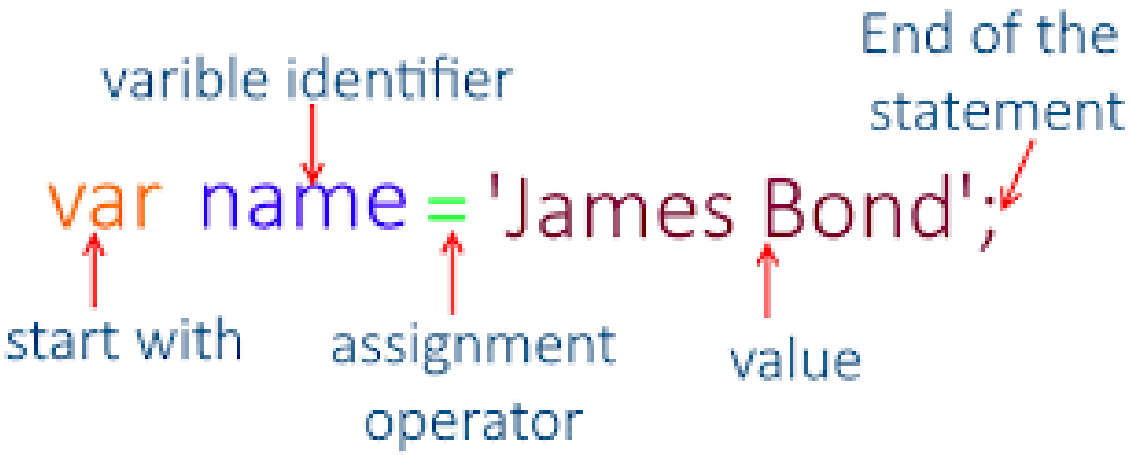
External java script:

- External java script involves storing java script code in a separate external files with .js extension.
- They are linked in a html document by using a <script> tag and 'src' attribute.
- By keeping the JavaScript code in separate files, it promotes code organization and separation of concerns.
- Here is the example:

```
!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 src="demo.js"> </script>
  </body>
</html>
```

Variables:

- Variables in java script are container for storing data values.
- These values can be numbers, string, array, object.
- Java script variables can be declared in 4 ways
    1. Automatically
    2. Using var
    3. Using let
    4. Using const
- Variables can be declared with var, let, const keywords and followed by variable name which is also called as identifier.
- Identifier rules:
- It should start with _, $ and alphabets
- It should not start with number.
- It can contain letters but not var digits.
- It can begin with letter.
- Names are case sensitive.
- Reserved words cannot be used.
- It is used in old browsers.



Console:

You can insert console. log() statements at different points in your code to check variable values, inspect objects, or understand the flow of execution: console. log("variable").

Variable declaration:

- The process of defining a variable in a program using keywords like 'var' in JavaScript.
- Here is the example:

```
Var a;

Console.log(a);
```

Variable intialization:

- Storing a value in variable is called variable intialisation.
- You can do variable initialization at the time of variable creation or at a later point in time when you need that variable.
- Here is the example:

```
Var a=20;

Console.log(a);
```

Variable Assignment:

- The assignment (=) operator is used to assign a value to a variable or property.
- The assignment expression itself has a value, which is the assigned value.
- Here is the example:

```
Var a;
a=10;

Console.log(a);
```

Undefined:

- A variable that has not been assigned a value is of type undefined.
- When declaration is given and the value is not assigned it is undefined.
- Here is the example:

```
Var a;

Console.log(a);
```

Not defined:

- It occurs when your JavaScript code attempts to access a variable that hasn't been declared or is not in the current scope.
- Here is the example:

```
Console.log(a);
```

Redeclaring variable:

- In non-strict mode, you can redeclare a variable using var in the same scope without getting an error, which is not allowed with let and const.
- Here is the example:

```
Var a =20;

Var a = 30;

Console.log(a);
```

Reassignment:

This allows multiple assignments to be chained in order to assign a single value to multiple variables.

Here is the example:

```
Var a;

a=20;

a=30;

Console.log(a);
```

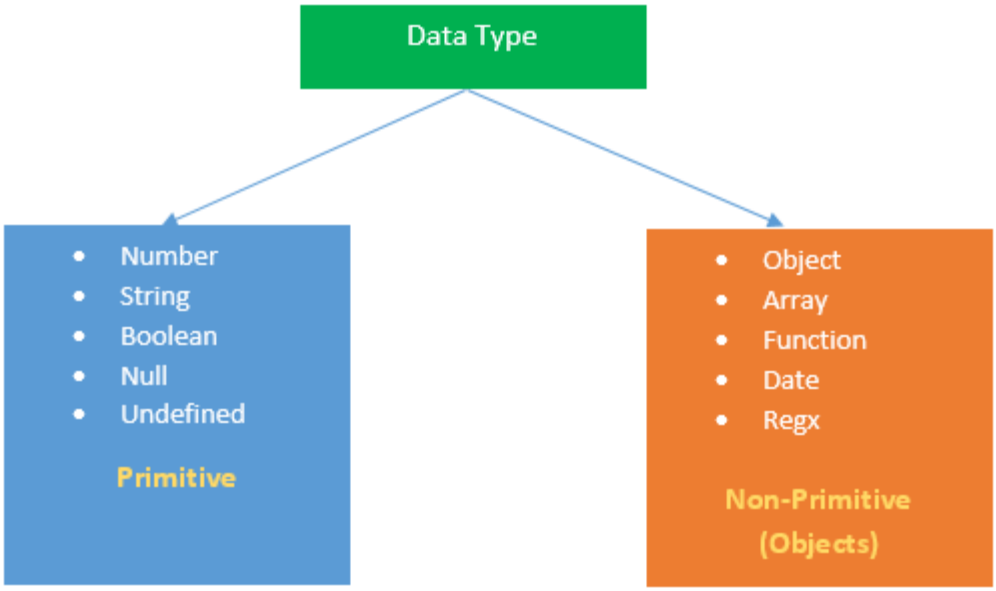
Dynamic typing:

- Java script can hold values with different data types in the same variable during run
- Time.
- It means you don't have to specify the data type of a variable when declaring it.
- The data type of the variable is determined automatically due to run time.

Data Types:

- Data types in JavaScript define the data type that a variable can store.
- JavaScript includes
    1. primitive data type
    2. non-primitive data type

Primitive data type	**Non primitive data type**
1.It stores data in stack	1.It stores data in heap
2.It holds a single value	2.It holds multiple values
3.it is immutable	3.It is mutable
4.It calls by value and pass by value	4.It calls by reference and pass by reference



JavaScript Data Type

Primitive data types:

Number: Represents numerical values and it can be integers, floats, etc.

String: It is a sequence of characters used to represent text.

Boolean: They are logical entities and can only have two values: true or false.

Undefined: It implies that no value has been assigned to a variable.

Null: It denotes that a variable has no value or no object. It is deliberately assigned to a variable.

Symbol:

They are used to represent unique values that can be used as identifiers or keys in objects. Introduced in ECMAScript 6 (ES6), the Symbol data type represents a unique and immutable value, often used as object property keys. Symbols help avoid name collisions

Non-primitive data types:

Object: The Object data type is a versatile container that can hold key-value pairs, making it suitable for complex data structures. Objects can store functions and other objects, making them a fundamental part of JavaScript.

Array: The Array data type is a specialized form of an object used to store ordered lists of values. Arrays can store elements of different data types and are accessed by numerical indices.

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Function: Functions are also objects in JavaScript. They can be assigned to variables, passed as arguments, or returned from other functions.

Date: The Date data type represents dates and times and provides methods for working with them.

RegExp: It represents a regular expression in JavaScript**.**