

6/5/24

Variable: Variable is a container which is used to store the data & manipulate the data

Statically-typed: A statically-typed language is a language (such as Java, C, or C++) where variable types are known at compile time

[We know which type of data in variable]

Dynamically-typed: Dynamically-typed languages are those like (JavaScript) where the interpreter assigns variables a type at runtime based on the variables value at the time.

Variable Declaration: Key word followed by an identifier ends with semicolon (;) is called Variable Declaration.

Syntax:

Keyword identifier ;

Ex: Var a;

Keyword: Keyword are special words & every word as used in lower case.

Keyword types in JavaScript:

Var

Let

Constant

Var → It is a Global Scope Variable

* Var can declared and accessed globally.

let → let is used when we need to create a Variable that should be only accessed inside the block.

const → const is used when we need to create a Variable that should only be accessed inside the block, and the value of the variable remains unchanged.

Identifiers:

* identifier is a name given by a developer.

Rules of identifier:

1) identifiers can have A-Z, a-z, 0-9, \$, -

2) identifiers can start with Alphabet or Symbol but

Should not start with Number

Ex: Sai Piyatham (X)
Sai 10 Sai @ Piyatham (X)
10 Sai (X) # Sai (X)
\$ Sai
-demo

3) Variable name should follow the Camel casing

Camel casing: 1) if there is single letter or word lower case

Ex: Sai

2) if there are multiple words first word should be in lower case, from second word first letter should be Capital

Ex: Sai Piyatham

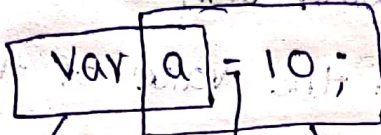
Assignment: By using `=` operator Assign the data to the variable.

Ex: `Var a = 10;`

Assignment Operator

Variable Initialization: Process of assignment of a value to a variable.

`a = 10;`



Variable Declaration

Variable Initialization

Assignment operator

Re-initialization: Variable name = value;

Ex: `a = 20`

Debugging: finding the errors in Program & its help to rectify it.

Hoisting: In JavaScript, hoisting refers to the built-in behaviour of the language through which declaration of variable moved to the top of their scope - all before code execution.

Type script: We tell which type of data.

JavaScript: We cannot mention the type simply we write, `Var` it is dynamical.

ECMAScript:

* JavaScript was invented by Brendan Eich in 1995, and became an ECMA Standard in 1997. ECMA Script is the official name of the language. ECMAScript version have been abbreviated to ES1, ES2, ES3, ES5 & ES6.

Data types: It defines the type of values that can be used & manipulated in a program.

* Every variable has a data type that tells what kind of data is being stored in a variable. There are three types of data types in JavaScript.

- 1) Primitive data types
- 2) Composite data types / non-Primitive data types.
- 3) Special data types.

① Primitive Data type:

* The predefined data types provided by JavaScript language are known as Primitive data types.

* Primitive data types are also known as in-built data types.

[The primitive data types that store single values and are stored in stack order]

Stack: last in - first out

* They are immutable, meaning their values cannot be changed.

* PD stored directly in memory

② Number:

Number data type in JavaScript can be used to hold decimal values as well as values without decimals.

Let $x = 250$;

Let $y = 40.5$;

`console.log(x)` — 250

`console.log(y)` — 40.5

② String: combination of characters surrounded by single or double quotes.

Ex: Let str = "Sai";

let str = "Sai";

console.log(str); → Sai

console.log(str); — Sai

③ Boolean: The boolean data type can accept only two values: i.e. true and false.

Ex: Boolean b = true;
console.log(b) → true

④ BigInt: The datatype can represent numbers greater than $2^{53} - 1$ which helps to perform operations on large numbers. The number is specified by writing 'n' at the end of the values.

Ex: Let bigNum = 1234567778889999n
console.log(bigNum);

* Primitive data types are

Pass by value get by value

var a = 10; console.log(a) ⇒ 10

Value of a is 10 and console.log(a) returns 10.

let x = 10;
let y = x;
console.log(x) → 10
console.log(y) → 10

Non-Primitive data-types:

Non-Primitive data-types also known as reference data types on the other hand, include Object, Arrays & functions and can hold multiple values due to their dynamic behaviour.

① Object: [Store multiple data stored in heap] ^{reference variable}
NPD are mutable can change values stored in

An object in JavaScript is an entity having Properties and methods. Everything is an Object in JavaScript.

[Collection of ^(data) values separated by value comma (,) enclosing with { }

The data which have key's & value

```
{ subject: "HTML",  
  name: "sai",  
  age: 24  
};
```

Ex: Let details = {
 first name: "Sai",
 last name: "Priyatham"
};

console.log(details.firstname);
console.log(details.lastname);

② Array: Array is a special variable which can hold more than one value.

Ex: const cars = ["Saab", "Volvo", "BMW"];

* With the help of Array we can store more than one element under a single name

Ex: Let a = new Array(1, 2, 'sai', true); (console.log)

Non-Primitive data-types:

Pass by reference get by reference.

```
let a = { name: "sai"
};
```

```
console.log(a.name);
```

```
out: // sai
```

Special data types:

① Undefined: The meaning of Undefined is value is not assigned.

Ex: `var a;` → Undefined

`console.log(b);` → not defined

[not declare variable]

② Null: This data type can hold only one possible value that is null.

Ex: `var n = null;`

③ Symbol: This data type is used to create objects

which will always be unique. these objects

can be created using Symbol constructor.

Ex: `let sym = Symbol("Hello");`

`console.log(sym);` → Hello