Topic:Programming, Basis Js, variable and Data types

What is Programming ?

What is use of Programming ?

Why is Important ?

Programming ?

Programming refers to a technological process for telling a computer which tasks to perform in order to solve problems. You can think of programming as a collaboration between humans and computers, in which humans create instructions for a computer to follow (code) in a language computers can understand

Programming...?

- The act of writing computer programs is called computer programming

- Java
- C
- C++
- Python
- PHP
- Perl
- Ruby

Computer can understand …

- A computer can only understand two distinct types of data: on and off. In fact, a computer is really just a collection of on/off switches (transistors). Anything that a computer can do is nothing more than a unique combination of some transistors turned on and some transistors turned off.

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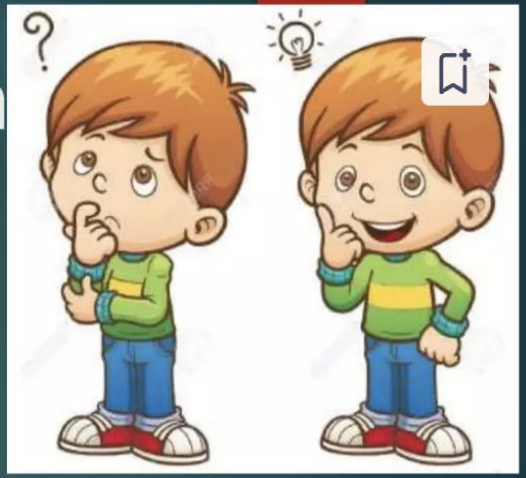
Why need of programming langua



- The programing language enables us to write efficient programs and develop online solutions such as- mobile applications, web applications, and games, etc. Programming is used to automate, maintain, assemble, measure and interpret the processing of the data and information.

What Are Programming Translator ?

- 1.Compilers.
- 2.Interpreters.
- 3.Assemblers.

PARAMETERS	COMPILER	INTERPRETER	ASSEMBLER
Conversion	It converts the high-defined programming language into Machine language or binary code.	It also converts the program-developed code into machine language or binary code.	It converts programs wr the assembly language machine language or bi
Scanning	It scans the entire program before converting it into binary code.	It translates the program line by line to the equivalent machine code.	It converts the source c the object code then co into the machine code.
Error Detection	Gives the full error report after the whole scan.	Detects error line by line. And stops scanning until the error in the previous line is solved.	It detects errors in the f after fixation the secon starts.
Code generation	Intermediate code generation is done in the case of Compiler.	There is no intermediate code generation.	There is an intermediat code generation.
Execution time	It takes less execution time comparing to an interpreter.	An interpreter takes more execution time than the compiler.	It takes more time than compiler.
Examples	C, C#, Java, C++	Python, Perl, VB, PostScript, LISP, etc...	GAS, GNU

Why programming languages …?

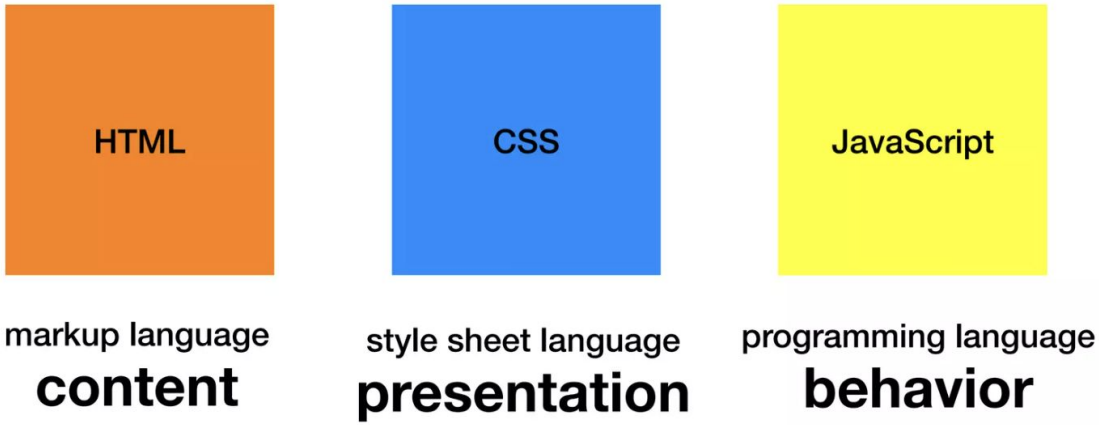
- Binary code is the representation of these combinations as 1s and 0s, where each digit represents one transistor. Binary code is grouped into bytes, groups of 8 digits representing 8 transistors. For example, 11101001. Modern computers contain millions or even billions of transistors, which means an unimaginably large number of combinations.
- But one problem arises here. To be able to write a computer program by typing out billions of 1s and 0s would require superhuman brainpower, and even then it would probably take you a lifetime or two to write.

Discuss About JS !!

What is JavaScript ?

What is a JS used for ?

JavaScript History



Js is a Client-side Language

Variable ?

A variable is a “named storage” for data. We can use variables to store goodies, visitors, and other data.

To create a variable in JavaScript, use the let keyword.

Variables

JavaScript Variables can be declared in this ways!

- Using var
- Using let
- Using const

Lets see some examples !

- let message;
- Now, we can put some data into it by using the assignment operator =

– let message;

message = ‘Hello’; // store the string ‘Hello’ in the variable named message.

A real-life analogy

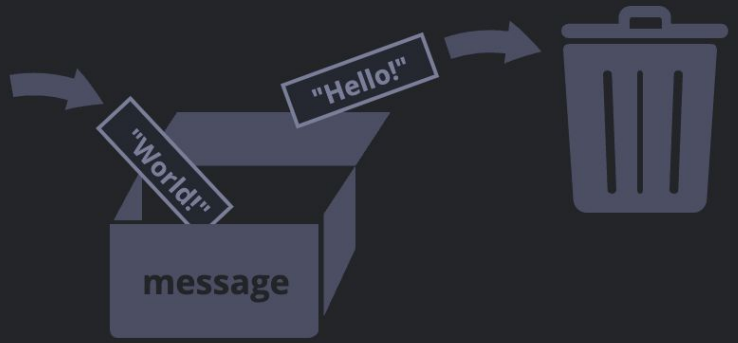
We can easily grasp the concept of a "variable" if we imagine it as a "box" for data, with a uniquely-named sticker on it.

For instance, the variable `message` can be imagined as a box labeled `"message"` with the value `"Hello!"` in it:

We can put any value in the box.

We can also change it as many times as we want:

When the value is changed, the old data is removed from the variable:



We can also declare two variables and copy data from one into the other.

```
let message;

message = 'Hello!';

message = 'World!'; // value changed

alert(message);
```

```
let hello = 'Hello world!';

let message;

// copy 'Hello world' from hello into message

message = hello;

// now two variables hold the same data

alert(hello); // Hello world!

alert(message); // Hello world!
```

Variable naming

There are two limitations on variable names in JavaScript:

The name must contain only letters, digits, or the symbols $ and _.

The first character must not be a digit.

```
1.  let  userName;
2.  let  test123
```

Correct variables:

We can use $ dollar sign and even _ underscore can also used in names.

```
let $ = 1; // declared a variable with the name "$"

let _ = 2; // and now a variable with the name "_"

alert($ + _); // 3
```

Incorrect variables names :

let 1a; // cannot start with a digit

let my-name; // hyphens '-' aren't allowed in the name.

Note : In let we can change variable value many times .

Constants : {const}

To declare a constant (unchanging) variable, use const instead of let.

const myBirthday = ‘01.01.1997’;

Variables declared using const are called “constants”. They cannot be reassigned. An attempt to do so would cause an error.

const myBirthday = ‘01.01.1997’;

myBirthday = ‘20.11.2001’; // error,can’t re assign the constant !

.

Var :

The var declaration is similar to let. Most of the time we can replace let by var or vice-versa and expect things to work.

```
var message = "Hi";

alert(message); // Hi
```

On the other hand, it's important to understand differences when migrating old scripts from **var to let**, to avoid odd errors.

"var" has no block scope

Variables, declared with var, are either function-scoped or global-scoped. They are visible through blocks.

for ex.

1 : if (true) {

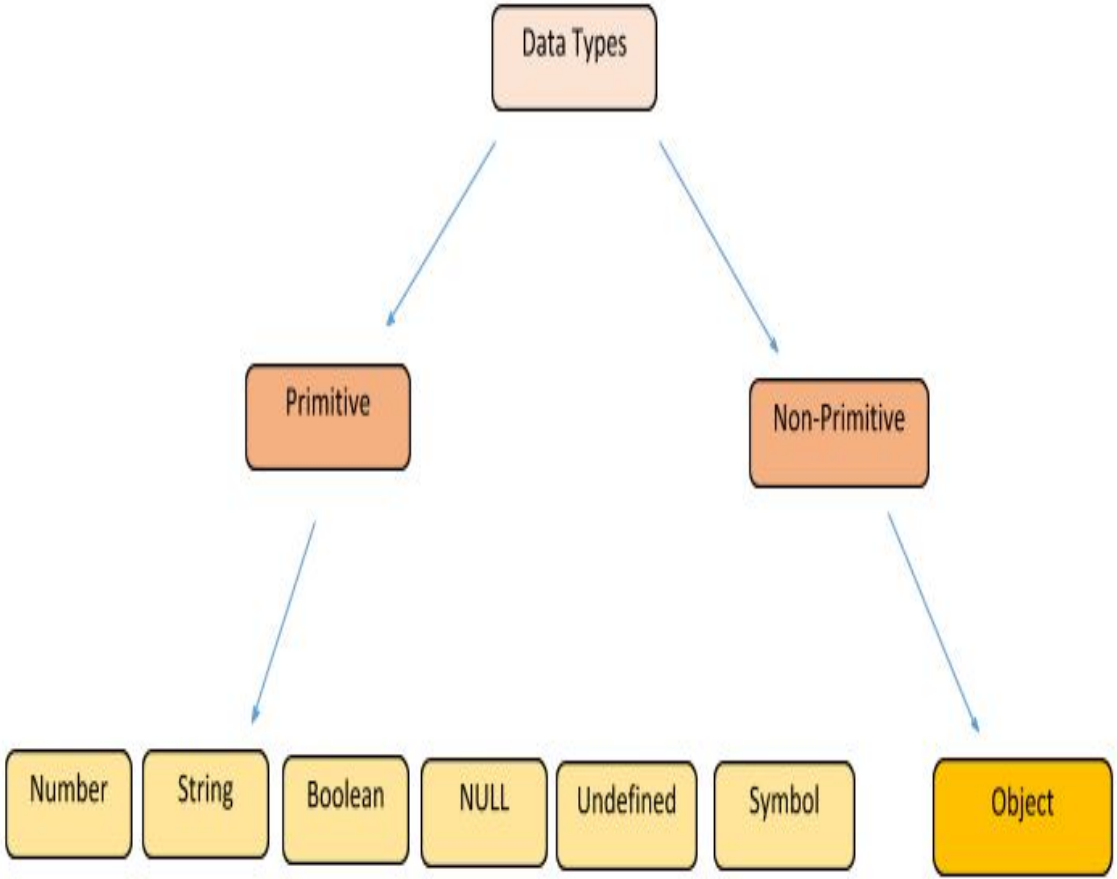
var test = true; // use "var" instead of "let"
}
alert(test); // true, the variable lives after if

As var ignores code blocks, we've got a global variable test.
If we used let test instead of var test, then the variable would only be visible inside if:

2 : if (true) {

let test = true; // use "let"
}
alert(test); // ReferenceError: test is not defined

Data Types


Data Types
Primitive
Non-Primitive
Number
String
Boolean
NULL
Undefined
Symbol
Object

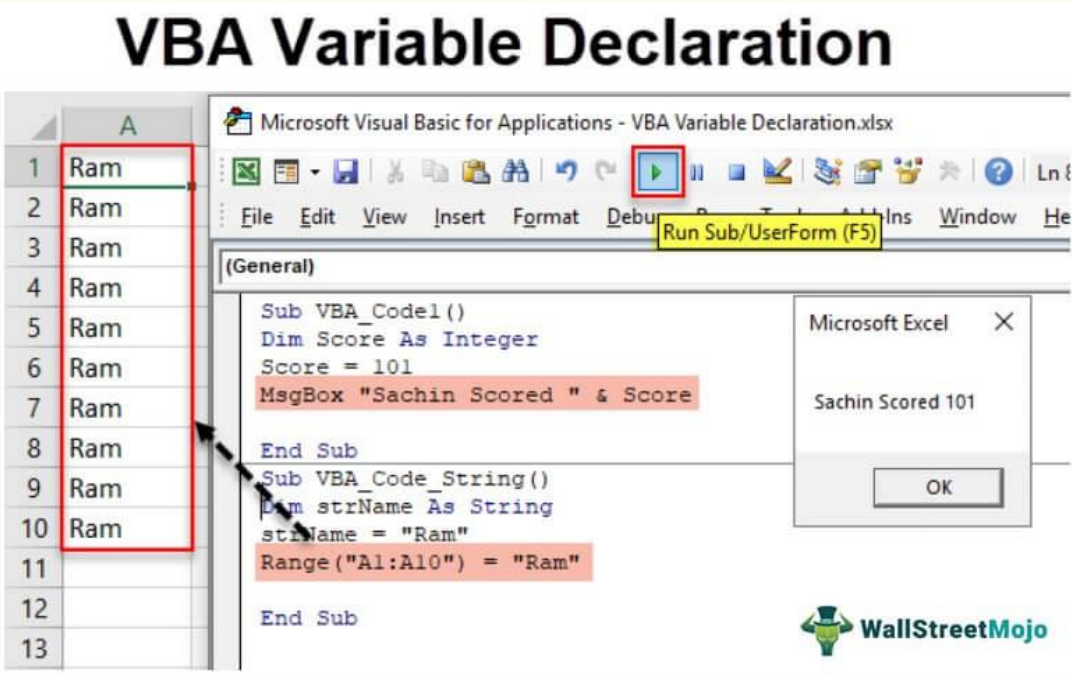
Why its Imp ?

Data types in JavaScript describe the different types or kinds of data that you will be working with and storing in variables. It's important that you learn each of these data types because otherwise data can get stored in an improper format which will result in issues in your code later on.

Variable declaration?

Memory allocation ?

Variable definition ?



let VS const VS var