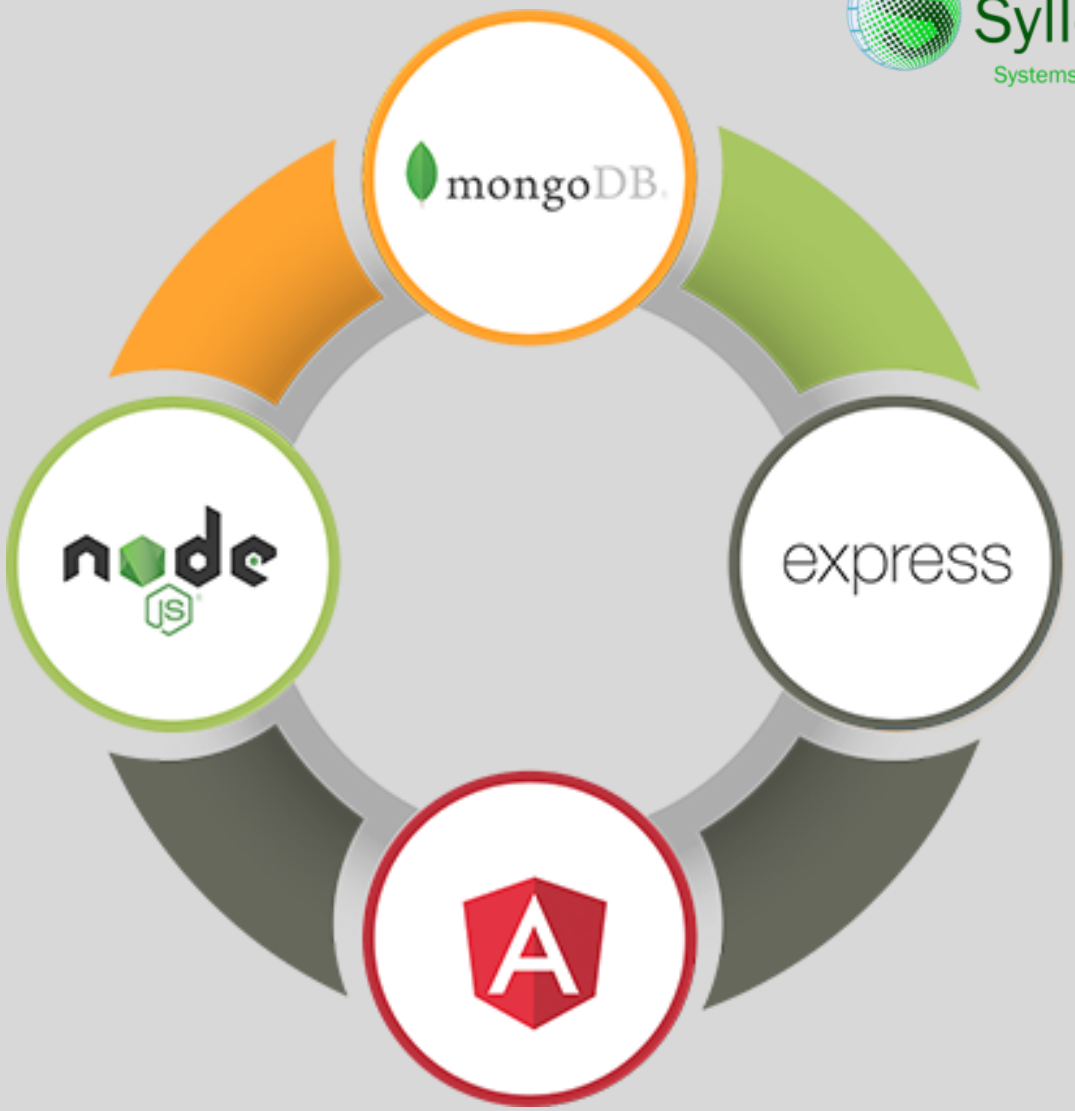

Syllogistek
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MEAN STACK

By Anupam Roy

Javascript

- ✓ What is Javascript?
- ✓ What can we do with Javascript?
- ✓ Javascript vs ECMA Script?

What is Javascript?

Javascript was initially created to make web pages interactive. It is one of the most popular programming languages in the world.

The programs in this language are called *scripts*

Older days Javascript used to run only on browser but now javascript can run on server in fact in any where which has something called *Javascript Engine*

What (Browser)Javascript can do?

The browser Javascript can do the following –

- ✓ Add new HTML to the page, change the existing content, modify styles.
- ✓ React to user actions, run on mouse clicks, pointer movements, key presses.
- ✓ Send requests over the network to remote servers, download and upload files
- ✓ Get and set cookies, ask questions to the visitor, show messages.
- ✓ Remember the data on the browser

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Javascript vs ECMA Script

ECMA script (ES) is a specification for general purpose scripting language

ECMAScript provides the rules, details, and guidelines that a scripting language must observe to be considered ECMAScript compliant.

Javascript is a general purpose scripting language conforms to ECMA script specification.

Writing your first javascript code

To include javascript on your code you need to use <script> tag

Ways to output values in Javascript

There are 3 ways through which you can output in javascript

console.log(‘Hi There’)

document.write(‘Hi There’)

alert(‘Hi There’)

Javascript Variables and Constant

You can declare a variable in javascript with the following keywords

var
let

You can declare a constant in javascript using the keyword

const

Types

Javascript is a loosely typed language. Though the values stored in variables and constant have certain types

1. Number
2. BigInt
3. String
4. Boolean
5. Null
6. undefined

Input in (Browser)Javascript

With the help of prompt() function we can take input in javascript

result = prompt(title, [default]);

title – Text to show to the user
default – Initial value of input

Template Literals

Prior to ES6, you use single quotes (‘) or double quotes (“) to wrap a string literal.

To enable you to solve more complex problems, ES6 template literals provide the syntax that allows you to work with strings in a safer and cleaner way.

Template literals are string literals allowing embedded expressions.
You can use multi-line strings and string interpolation features with them.

```
`string text`

`string text line 1
 string text line 2`

`string text ${expression} string text`

tag`string text ${expression} string text`
```

Conditional Branching

```
If(condition){
        Code runs….. if the condition is true
}
```

```
If(condition){
        Code runs….. if the condition is true
}else{
        Code runs….. if the condition is false
}
```

Nested if else

```
If(condition){
        Code runs….. if the condition is true
}else if(condition ){
        Code runs….. if the condition is true
}else if(condition){
        Code runs….. if the condition is true
}….

….
}else{
        Code runs….. if the all the condition above are false
}
```

Conditional Operator

JavaScript also contains a conditional operator that assigns a value to a variable based on some condition.

variablename = (*condition*) ? *value1*:*value2*

Loops

for - loops through a block of code a number of times

for/in - loops through the properties of an object

while - loops through a block of code while a specified condition is true

do/while - also loops through a block of code while a specified condition is true

Functions

A function is a group of reusable statements which performs a certain task.

It helps programmers in writing modular codes. Functions allow a programmer to divide a big program into a number of small and manageable functions

Syntax:

function *name*(*parameter1, parameter2, parameter3*) {
  // code to be executed
}

Function Calls

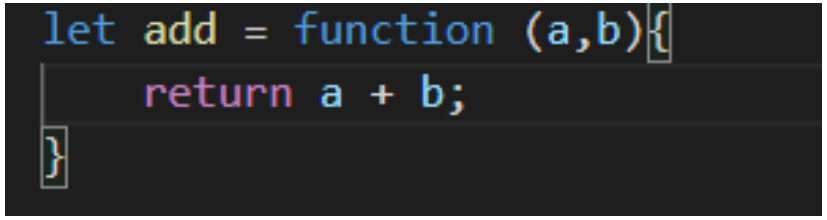
Function call

Syntax:

function_name(parameter 1, parameter 2, parameter 3….)

Anonymous Function

A function can be declared in javascript without having the name of the function. This type of function is called anonymous function. Anonymous functions are heavily used in javascript for different purposes



Arrow Function

In javascript there is another way of writing functions and which now a days is very popular way of writing functions is arrow function

Syntax
Multiple parameters

(param 1, param2,….) => function code goes here

One parameter
param => function code goes here

```
// let add = function (a,b){
//     return a + b;
// }

let add = (a,b) => a + b;
```

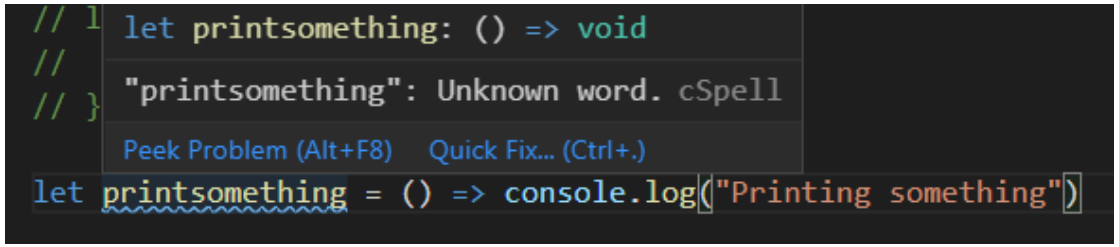
```
// let area = function (r) {
//     return 3.14 * r;
// }

let area = r => 3.14 * r;
```

Arrow Function

Syntax
No parameter

() =>function code goes here

Multiline Arrow function
  (param1,param2)=> {
        function code goes here
}



Array

JavaScript arrays are used to store multiple values in a single variable.

Javscript arrays can store different types of values

In Javascript you can create array in 2 ways

Syntax :

const *array_name* = [*item1*, *item2*, ...];
Or
const array_name = new Array(*item1*, *item2*, ...)

Some Important Array Functions

push(item) : adds an element at the end of the array

unshift(item) : adds an item at the beginning of the array

pop() : deletes an item from the end of the array

shift() : deletes an item from the beginning of the array

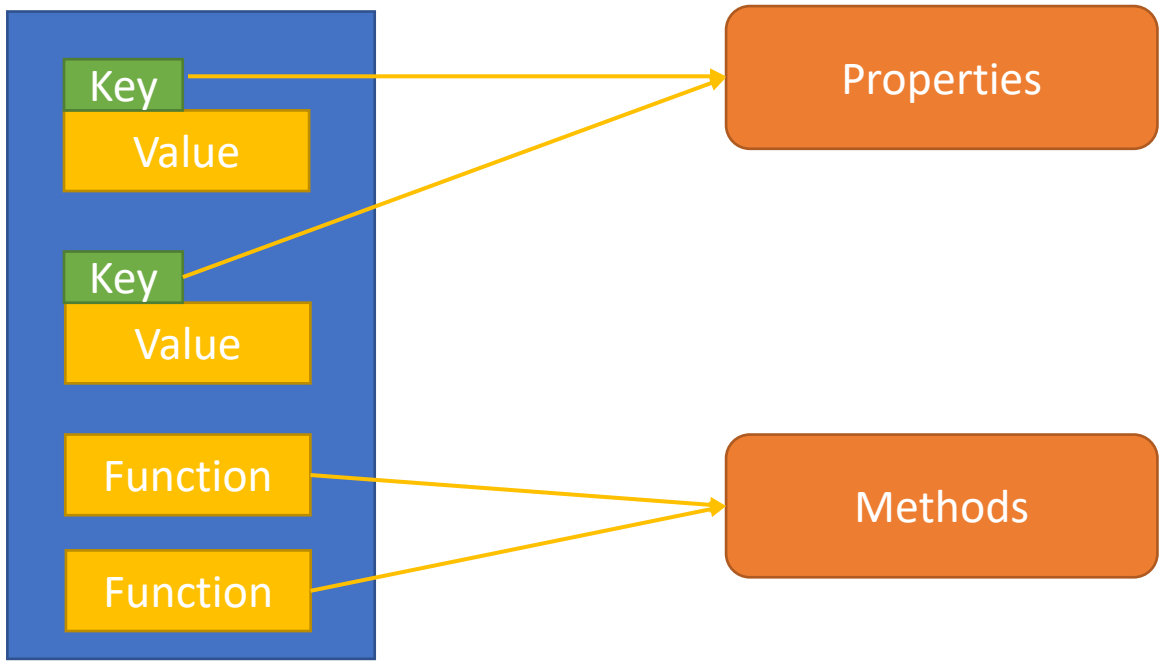
splice(starts_from, no of items to delete) : This function is used to delete multiple items from the array from a specified position

forEach(function(currentValue, index, arr){ function code}) : loops through the array

map(function(currentvalue,index,arr){ function code}) : creates a new array with the results of calling a function for every array element.

filter(function(currentValue, index, arr)){ function code}) : creates an array filled with all array elements that pass a condition (provided as a function)

Objects and Object Literals



let user = new Object()
let user = {}

Objects

Javascript Objects can be considered as special type of variable which can store multiple values

Values get stored in a Javascript object using name:value pair

Syntax :

```
{
   name 1 : value 1,
   name 2 : value 2,
   name 3  : method1()
}
```

Example :

```
const user = {  name: “John Doe”,
                    email: “ john@example.com”,
                  phone : “+91-124-230-3452”,
                  hi : function(){
                            return “Hi” + this.name
                   }
                }
```

Creating Object

There are different ways you can create objects in Javascript

- Define and create a single object, using an object literal.
- Define and create a single object, with the keyword new.

```
let user = new Object()
let user = {}
```

Object Literals

Using an object literal, you both define and create an object in one statement.

An Object literal is a list of name:value pairs inside curly braces

```
const  user = {
                    fname:”john” ,
                    ”lname”:”Doe”,
                    email:john@example.com”
              }
```

Using New Keyword

```
const person = new Object();
person.firstName = "John";
person.lastName = "Doe";
person.age = 50;
person.eyeColor = "blue";
```

Class in Javascript

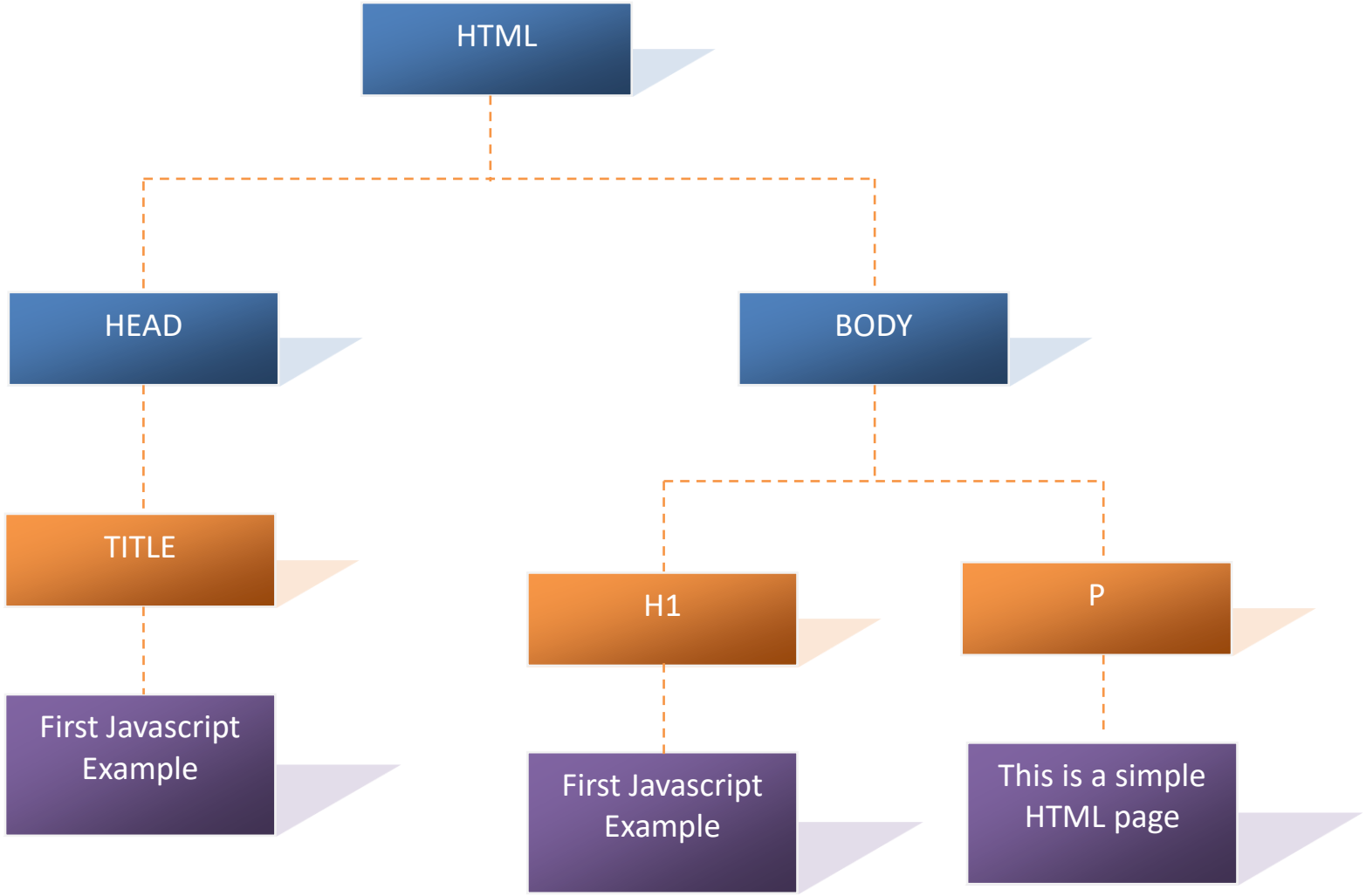
Classes can be considered as templates /datatypes which has certain properties and methods

Syntax :

```
class MyClass {
  property 1;
  property 2;
  property 3;
  // class methods
  constructor() { ... }
  method1() { ... }
  method2() { ... }
  method3() { ... }
  ...
}
```

```
class User{
    name;
    email;
    phone
    constructor(n,e,p){
        this.name=n;
        this.email=e;
        this.phone=p;
    }

    sayHi(){
        console.log("Hi "+this.name);
    }
}
```

Document Object Model



Accessing DOM

To access the root of DOM the we will use **document** object.

It has got many properties and methods

Some Important Methods of document object

write("string")	writes the given string on the document.
getElementById()	returns the element having the given id value.
getElementsByName()	returns all the elements having the given name value.
getElementsByTagName()	returns all the elements having the given tag name.
getElementsByClassName()	returns all the elements having the given class name.

Some More Methods related to DOM

querySelector()	This method returns the first element that matches a specified *CSS selector(s)* in the document
querySelectorAll()	This method returns all elements in the document that matches a specified CSS selector(s), as a static NodeList object.

Common HTML Events

Event	Description
onchange	An HTML element has been changed
onclick	The user clicks an HTML element
onmouseover	The user moves the mouse over an HTML element
onmouseout	The user moves the mouse away from an HTML element
onkeydown	The user pushes a keyboard key
onload	The browser has finished loading the page