ES.next

Amazing New Features In JavaScript

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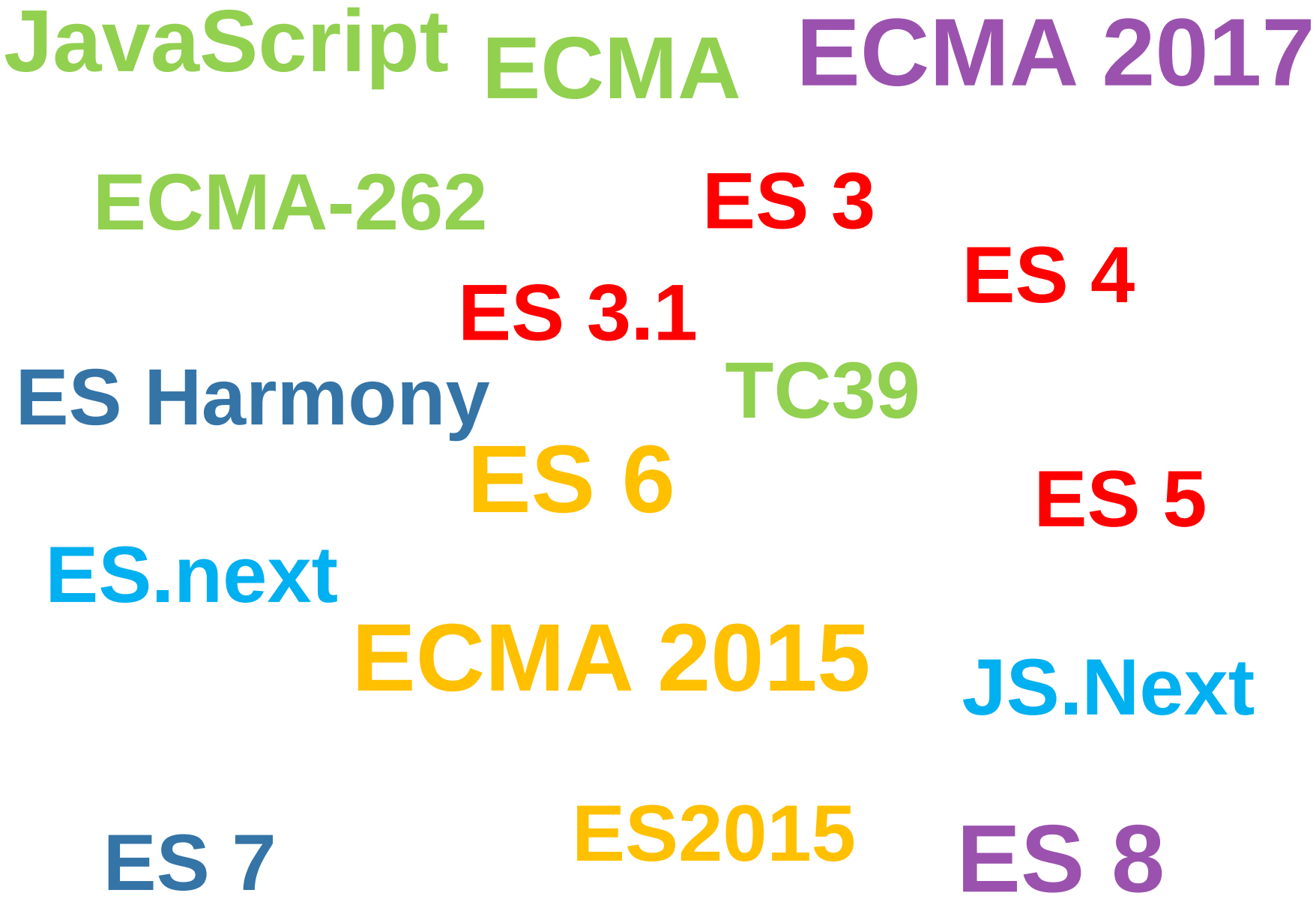
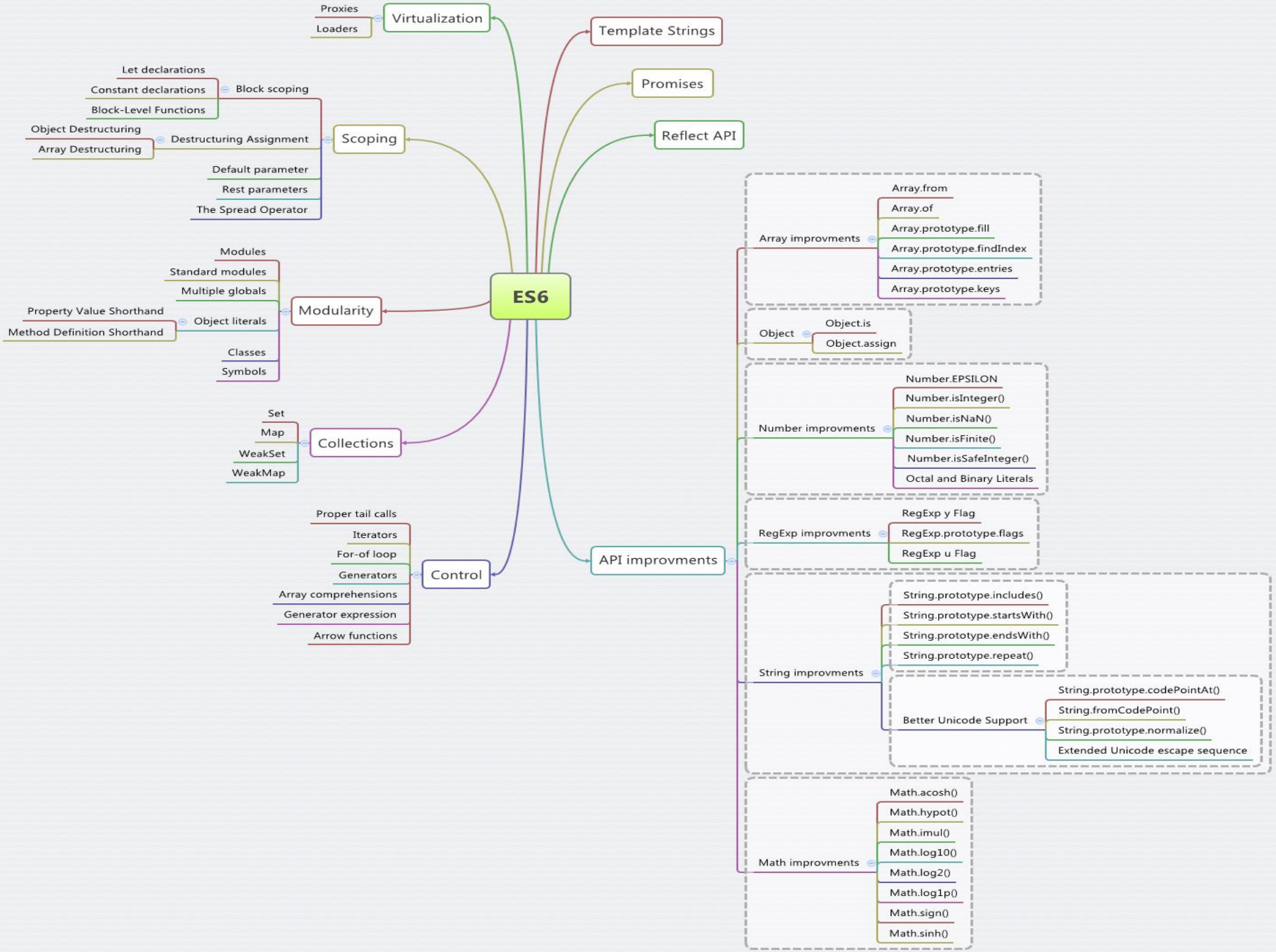
iTi

Day 1

Amazing New Features In JavaScript


JavaScript
ECMA
ECMA 2017
ECMA-262
ES 3
ES 4
ES 3.1
ES Harmony
TC39
ES 6
ES 5
ES.next
ECMA 2015
JS.Next
ES2015
ES 7
ES 8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ES6 Features

- let + const
- default Parameters
- rest parameters
- spread operator
- Destructuring (array/object)
- Arrow Functions
- Enhanced object literals
- Template strings
- for..of
- Data Structure/Collection
  - map
  - set
  - weakmap
  - weakset
- Binary and Octal literals
- Classes
- iterators
- Generators
- Symbols
- Proxies
- Modules
- Module loaders
- Promises
- math API
- number API
- string API
- array API
- object API
- etc…

http://es6-features.org/#Constants

https://github.com/lukehoban/es6features

https://kangax.github.io/compat-table/es6/

ES6 Keywords

- break
- case
- class
- catch
- const
- continue
- constructor
- debugger
- default
- delete
- do
- else
- export
- extends
- finally
- for
- function
- get
- if
- import
- in
- instanceof
- let
- new
- null
- return
- set
- super
- static
- switch
- this
- throw
- try
- typeof
- var
- void
- while
- with
- yield
- **etc…**

let & const

- ES6 represents block scope via let, const.
  - Block starts by { and ends by }
- Variables declared with let and const don’t hoist.
- Variables defined by let can be reassigned
- Variable defined by const cant be reassigned

let & const Example

```
function closureTest() {
    var arr = [];
    for (var i = 0; i < 3; i++) {
        arr.push(function () {
            console.log(i);
        });
    }
    return arr;
}
```

```
const pi=3.14;
```

```
function closureTest() {
    var arr = [];
    for (let i = 0; i < 3; i++) {
        arr.push(function () {
            console.log(i);
        });
    }
    return arr;
}
```

Closure & its Conflicts

- Reminder: Closure is a local variable for function that kept in memo even after function is returned
- Closure’s conflicts happen when using for loop
- We used to solve closure’s conflict via IIFE
- Nowadays we can use let to overcome closure problem with loops

Arrow Function

- Arrow functions bind to the scope of where they are defined, not where they are called.
  - AKA lexical binding
  - Unlike functions, arrows share the same lexical this as their surrounding code.
  - It finds this from its enclosing scope.

```
var closureConstructor = {
    m: "hello",
    disp: function () {
        var that = this;
        setTimeout(function () {
            console.log(that.m)
        }, 1000)
    }
}
```

```
var closureConstructor = {
        m: "hello",
        disp: function () {
            setTimeout(() => {
                console.log(this.m)
            }, 1000)
        }
    }
```

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        var that = this;
        setTimeout(function () {
            console.log(that.m)
        }, 1000)
    }
}
```

```
var closureConstructor = {
        m: "hello",
        disp () { //Method initialization shorthand
            setTimeout(() => {
                console.log(this.m)
            }, 1000)
        }
    }
```

…rest Parameter

- Used in function definition and must be the last parameter in function definition
- It gathers all remaining arguments into an array element.

```
function displayNames(p1, ...arr) {
    for (let i in arr) {
        console.log(arr[i])
    }

}

var fruits = ["apple", "strawberry",
      "banana", "orange", "mango"];

displayNames(10, fruits)
```

...spread Operator

- Used in function invocation

```
function dis(f, n) {
    console.log(f + "" + n)
}
var rest = ["ahmed", "ali"]
dis(...rest)
```

- Used also in Array

```
var fruits = ["apple", "strawberry", "banana", "orange", "mango"];

var newFruits = ["kiwi", ...fruits]
// ["kiwi", "apple", "strawberry", "banana", "orange", "mango"]

var anotherNewFruits = ["kiwi", ...fruits, "others"]
// ["kiwi", "apple", "strawberry", "banana", "orange", "mango", "others"]
```

Destructuring Assignment

- Array Destructuring

```
let users = ["ali", "nour", "kareem"];
let [a, b, c] = users;
console.log( a, b, c );
```

- Object Destructuring

```
var User = function (id, firstName,
lastName) {
    return {
        id: id,
        firstName: firstName,
        lastName: lastName
    };

}
```

```
var me = new User(10,”Ahmed”,”Ali”)
console.log(me.firstName)
```

```
var {id,firstName} = new User(10,”Ahmed”,”Ali”)

console.log(id)
console.log(firstName)
```

Order doesn’t matter

Must be with the same name of the object properties

Object shorthand literal creation

```
var User = function (id, firstName, lastName) {
    return {
        id: id,
        firstName: firstName,
        lastName: lastName
    };

}
```

```
var User = function (id, firstName, lastName) {
    return {
        id,
        firstName,
        lastName
    };

}
```

String API Improvements

Method name
endsWith()
startsWith()
includes()
repeat()
search()
trim()
trimRight()
trimLeft()

```
var str = “ES6 ”;

str.repeat(5);
// “ES6 ES6 ES6 ES6 ES6”;
```

```
var str = “Hi ES6”;

str.includes(“ES6”);//true
```

Template Strings

- Template strings are string literals allowing embedded expressions using `` and ${}

```
function User(first, last,){

let fullName = `${first} ${last}`;
console.log(fullName);

}
```

Array API Improvements

- These methods are a JavaScript extension to the ECMA-262 standard.

Name	Example
every(testingfn)	Tests every element similar to &&; It returns true if all elements meet the testing function
some(testingfn)	Like every() but it applies the manner of ||; It returns true if one element meets the testing function
map(callback)	Creates a new array with the results of executing the callback function on array elements
filter(testingfn)	Creates a new array with the arrays elements that pass the testing function
find(callback)	Search for an element inside calling array object
forEach(callback)	Calls a callback function on each element in the array, similar to for loop

Example

```
[1, 2, 3, 4].find(num => num === 2);

let fruits = ["apple", "strawberry", "banana",
          "orange", "mango"];

fruits.forEach(val => console.log(val));

fruits.map((val) => {
    return "i like " + val
});
```

Assignments