

ECMAScript 6

classes, generators, iterators, inheritance etc.

JavaScript OOP

Telerik Software Academy

<http://academy.telerik.com>

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JavaScript History

JavaScript History

- ◆ JavaScript is a front-end scripting language developed by Netscape for dynamic content
 - Lightweight, but with limited capabilities
 - Can be used as object-oriented language
 - Embedded in your HTML page
 - Interpreted by the Web browser
- ◆ Client-side, mobile and desktop technology
- ◆ Simple and flexible
- ◆ Powerful to manipulate the DOM

Using JavaScript.next

Running JS next today

Using JavaScript.next

- ◆ There are a few ways to use JavaScript.next today
 - ◆ Enable tags in Chrome and Firefox
 - ◆ Compile to JavaScript 5 using Traceur or Babel
- ◆ A compatibility table for ES6 support can be found at <https://kangax.github.io/compat-table/es6/>

ES6 Variables

- ◆ ES6 introduces new ways to declare variables:
 - ◆ **let** – creates a scope variable
 - ◆ Accessible only in its scope

```
for(let number of [1, 2, 3, 4]){
    console.log(number);
}
//accessing number here throws exception
```

- ◆ **const** – creates a constant variable
 - ◆ Its value is read-only and cannot be changed

```
const MAX_VALUE = 16;
MAX_VALUE = 15; // throws exception
```

ES6 Variables

Live Demo

for-of loop

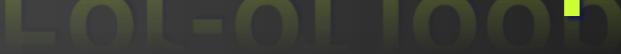
- ◆ The for-of loop iterates over the values
 - ◆ Of an array

```
let sum = 0;  
for(let number of [1, 2, 3])  
    sum+= number;
```

- ◆ Of An iterable object

```
function* generator(maxValue){  
    for(let i = 0; i < maxValue; i+=1){  
        yield i;  
    }  
}  
let iter = generator(10);  
for(let val of iter()){  
    console.log(val);  
}
```

For-of loop



Live Demo

Templated String

Templated Strings in ES6

- ◆ ES6 supports templated strings
 - ◆ i.e. strings with placeholders:

```
let people = [new Person('Doncho', 'Minkov'), ...];
for(let person of people){
  log(`Fullname: ${person.fname} ${person.lname}`);
}
```

- ◆ Templates escape the strings
 - ◆ They do not call eval

Classes and Inheritance

The way of OOP in ES6

Classes and Inheritance in ES6

- ◆ ES6 introduces classes and a way to create classical OOP

```
class Person extends Mammal{
    constructor(fname, lname, age){
        super(age);
        this._fname = fname;
        this._lname = lname;
    }
    get fullname() {
        //getter property of fullname
    }
    set fullname(newfullname) {
        //setter property of fullname
    }
    // more class members...
}
```

Classes and Inheritance in ES6

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Constructor of the class

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    // more class members...  
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```

Constructor of the class

Getters and setters

Classes and Inheritance in ES6

Live Demo

Arrow Functions

Also called LAMBDA expressions

- ◆ Arrow functions
easify the creation
of functions:

Arrow Functions

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```
numbers.sort(function(a, b){  
    return b - a;  
});
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Arrow Functions

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of functions:

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Becomes

```
numbers.sort((a, b) => b - a);
```

Arrow Functions

- ◆ Arrow functions
easify the creation
of functions:

```
var fullnames =  
  people.filter(function (person) {  
    return person.age >= 18;  
}).map(function (person) {  
  return person.fullname;  
});
```

```
numbers.sort(function(a, b){  
  return b - a;  
});
```

Becomes

```
numbers.sort((a, b) => b - a);
```

Arrow Functions

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  people.filter(function (person) {  
    return person.age >= 18;  
}).map(function (person) {  
  return person.fullname;  
});
```

```
numbers.sort(function(a, b){  
  return b - a;  
});
```

Becomes

```
numbers.sort((a, b) => b - a);
```

Becomes

```
var fullnames2 =  
  people.filter(p => p.age >= 18)  
  .map(p => p.fullname);
```

Arrow Functions

Live Demo

Object Literals

- ◆ ES6 adds a new feature (rule) to the way of defining properties:

- ◆ Instead of

```
let name = 'Doncho Minkov',
    age = 25;
let person = {
    name: name,
    age: age
};
```

- ◆ We can do just:

```
let name = 'Doncho Minkov';
let person = {
    name,
    age
};
```

Object Literals

Live Demo

Destructuring Assignments

Destructuring Assignments

- ◆ Destructuring assignments allow to set values to objects in an easier way:
 - ◆ Destructuring assignments with arrays:

```
var [a,b] = [1,2]; //a = 1, b = 2
var [x, , y] = [1, 2, 3] // x = 1, y = 3
var [first, second, ...rest] = people;
```

- ◆ Swap values: `[x, y] = [y, x]`
- ◆ Result of method:

```
function get(){ return [1, 2, 3]; }
var [x, y] = get();
```

Destructuring Assignments

- ◆ Destructuring assignments allow to set values to objects in an easier way:
 - ◆ Destructuring assignments with objects:

```
var person = {  
    name: 'Doncho Minkov',  
    address: {  
        city: 'Sofia',  
        street: 'Aleksander Malinov'  
    }  
};  
  
var {name, address: {city}} = person;
```

Destructuring Assignments

Live Demo

Maps and Sets

- ◆ ES6 supports maps and sets natively
 - ◆ They do pretty much the same as associative arrays, but in cleaner way:

```
let names = new Set();
names.add('Doncho');
names.add('Nikolay');
names.add('Ivaylo');
names.add('Evlogi');
names.add('Doncho'); // won't be added
```

Maps and Sets

Live Demo

ES6 Modules

- ◆ ES6 supports modules
 - ◆ A way to write JavaScript in different files
 - ◆ Each file has its own scope (not the global)
 - ◆ Each file decides what to export from its module
 - ◆ Export the objects you want from a module:

```
module.exports = {  
    Person: Person,  
    Mammal: Mammal  
}
```

persons.js

- ◆ To use the module in another file:

```
import classes from './persons'  
import {Mammal, Person} from '.persons'
```

ES6 Modules

Live Demo

Questions?