ESX - The basics

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Agenda

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What is ES9

> ES9 is the latest version of ECMA

> ECMA international

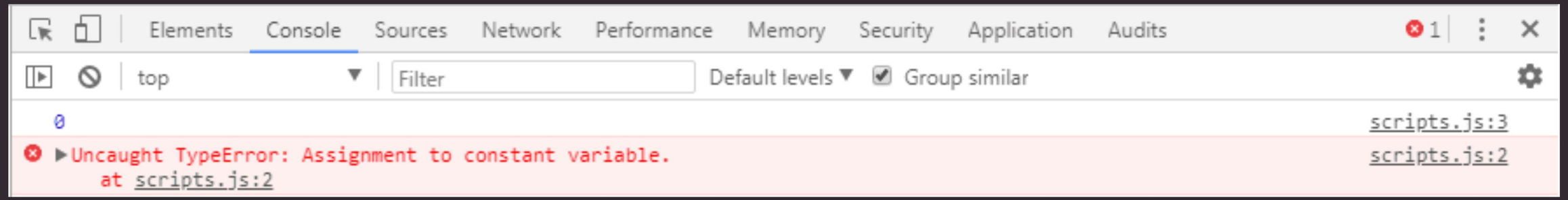
> ES6, ES2015 and harmony are used to mean almost the same thing.

> Know the code and dont concentrate on the version`

https://codeburst.io/javascript-wtf-is-es6-es8-es-2017-ecmascript-dca859e4821c

Appreciate the error

```
> A console error is a good thing.`
```



Let Vs. Const

> Declaring variables in ES5 was done using the var keyword

> The keyword const is used for values that you don’t intend to change

> In the old convention, we used to name constant values in all caps`

```
var PI = 3.14
```

Let Vs. Const

> Let is used for values that you intend to change a lot (In loops and re-asigns)

> The main difference between var and let is that let is scoped to the block {} while var is scoped to the function

```
let x = 4;

if (x == 4 ) {
  let x = 3;
  console.log(x);
}

console.log(x);
```

Template Literals

```
> If we had an array of names :`

  const Names    = [‘Ahmed’,‘Shehab’,‘Ramy’]

> and we want the output to be like that: `

Ahmed said: “I want to go on a trip with ‘Shehab’ and ‘Ramy’
```

Template Literals

> They are strings that include in them some variable you want to embed

> They are written between back quotes not ‘’ or “”

> The expression you want to write will be written inside ${some variable}`

> An awesome alternative to extensive concatenation with a lot of single and double quotes`

Destructuring

> Destructuring is the act of extracting values from arrays and objects in just a single step. (Very commonly used)`

```
const names = [‘ahmed’, ‘shehab’, ‘ali’];

let name_1 = names[0];
let name_2 = names[1];
let name_3 = names[2];
```

Destructuring (Arrays)

```
const names = [‘ahmed’, ‘shehab’, ‘ali’];

const [name_1, name_2, name_3] = names;

> This will do the same as the previous example`

> I can skip an index in case I didn’t want to destructure all the array`

const [name_1, , name_2] = names;
```

Destructuring (Objects)

>This can also be done to objects but with a very small twist.`

```
const person = {
      name: “Shehab”,
      age: 26
     };

const {name, age} = person;
```

> The variable names you choose must be the same as the name of the properties inside the object you are destructuring

Destructuring (code)

```
const arr = [1,2,3,4];

const item1 = arr[0];
const item2 = arr[1];
const item3 = arr[2];
const item4 = arr[3];

let [x,y,z] = arr;

console.log(x);
console.log(y);
console.log(z);
```

Destructuring (code)

```
const car = {
 fast: true,
 color: 'red',
 wheels: 4
}

var color = car.color;
var wheels = car.wheels;
var fast = car.fast;
```

```
const car = {
 fast: true,
 color: 'red',
 wheels: 4
}

const {fast, color, wheel} = car;
```

Spread Operator

> The spread operator, written with three consecutive dots (...), is new in ES6 and gives you the ability to expand, or spread, iterables into multiple elements.

```
const arr = [1,2,3,4];
console.log(...arr) // 1 2 3 4
```

Spread Operator continued

```
//spreading an array

const myArray1 = [1,2,3];
const myArray2 = ['Ahmed', 'Mohamed'];

const myNewArray = [...myArray1, ...myArray2];

// using spread operator as function params

function sum (a,b,c) {
  return a + b + c;
}

sum(...myArray1); // 6
```

Rest parameter

> The rest parameter, also written with three consecutive dots (...), allows you to represent an indefinite number of elements as an array.

```
const order = [89, 15, 'bigmacs', 'fries', 'pepsi'];

const [total, taxes, ...mealItems] = order;
```

Useful String functions

```
"string".startsWith(‘value’, start_index);

"string".endsWith(‘value’, start_index);

"string".includes(‘value’, start_index);
```

> A string function that searches in a string and check if it includes a certain value, returns a boolean`

For...Of

```
> In ES5 we used to loop over arrays with simple for loops
  or more complicated for…in loop`

  let names = [‘ahmed’,’mohamed’, ‘Ibrahim’]

  for (index in names) {
    console.log(names[index])
  }

This will get us each name.`
```

For...Of

> In ES6 the For…Of loop was introduced to handle interables and its syntax was much simpler by dropping the index`

```
let names = [‘ahmed’,’mohamed’, ‘Ibrahim’]

for (name of names) {
   console.log(name)
}
```

This will get us each name.

For...Of

> The For…Of can also deal with strings, in that case it goes through each letter at a time.`

```
let string = ‘OK’;

for (letter in string) {
   console.log(letter);
}
```

Default params

> ES6 make it possible to assign default parameters to functions to get a value instead of undefined`

```
function greet (greeting = ‘hello’) {
      console.log(greeting)
}

greet() //hello
```

Default params cont.

> Default parameters must come at the end of the params list

```
function multiply (a,b, c = 2) {
    return a * b * c;
}

console.log(multiply(5,6)) // 5 * 6 * 2 = 30

function multiply2 (x=2 , y ,z) {
    return x * y * z
}

console.log(multiply2(5,6)) // 5 * 6 * undefied = NAN
```

Default params cont.

> Default parameters are available to later default parameters

```
function complain (name='Ahmed', complain_body= `I hate ${name}`) {
  console.log(complain_body);
}

complain('Ramy');
```

Arrow functions

- ES6 introduces a new kind of function called the arrow function
- It can replace any other ES5 function by doing some steps and changing the syntax a bit.

```
const getName = () => ‘name’;
```

Expressions vs. declaration

```
// Declaration function

function sayHello () {
 console.log('hello');
}


// Expression function

const sayHello = function () {
 console.log('hello');
}
```

Arrow functions

> Arrow functions can only be used as an expression and cannot be used as a declaration

`- You can store them in variables
 - You can pass them as a callback function`

Arrow functions (steps)

```
Arrow function are expressions only
`
1- remove the function keyword
2- remove the return keyword
3- remove the semicolon
4- add an arrow ( => ) between the parameter
   list and the function body`
```

Arrow functions

```
> If the function takes one parameter we can
 remove the brackets ()`

 const myFunc = name => {
    console.log(name);
 }
```

Arrow functions

> If the body of the function is one statement only, we can remove the curly braces {} and in that case we don’t need a return keyword`

```
const myFunc = () => 'my name is Shehab Elhariry';

const es5Square = function (num) {
  return num * num;
}


// tada!
const es6Square = num => num * num;
```

Arrow functions examples

> No paramater, no returns

> No parameter, returns.

> 1 paramter, returns

> Callback function (Filter)

Babel

> Not all features of ES6 are supported by all browsers at the moment.

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

> We need transpilers that takes the new easier ES6 that we are learning and convert it to ES5 (old JS) That all browsers understand.

https://babeljs.io/repl/

Lab 1

1- In the js file, you will find a “”web designer” object.
change the “Your Name” placeholder to your name

2- Write a getAge() function that takes the years alive array and returns your age, save the value you return in a const of name age

3- Divide the web designer skills into 2 variables ‘designSkills’ and ‘developmentSkills’ (using ES6)

4- Uncomment the newSkills array and merge the developmentSkills array with the newSkills array in a new array ‘updatedDevSkills’

Lab 1

5- Destructure the diet array and using new ES6 write a function (getDrinks) that takes the newly created drinks variable and returns drinks that contain the letter ‘t’,
call that function and save the returned values in a variable ‘tDrinks’

6- Uncomment the function buildID().

In the return part f the function you will find a template literal. Replace the placeholder data with your actual data:

```
name => name
age => age (from getAge)
design Skills => designSkills
dev skills =>  updatedDevSkills
food => food
drinks => tDrinks
```

Lab 1

7- Add the HTML Fragment you created to the div with the class “card”

Hint* innerHTML