

Javascript Notes

Traversy Media - JS Crash Course For Beginners - 13/03/2019

Basics

Variables

How to initialise and assign

Data Types

Strings

Arrays

Array Methods

Date:

Object Literals

LOOPS

For Loop

While Loop

Array Loop

If Statement

Switch

FUNCTIONS

Arrow function

OOP Basics

Construction Functions

Classes

Subclasses

THE DOM

Selection

Single element selectors

Multiple element selectors

Manipulating the DOM

EVENTS

Others

Links

Basics

- You add the javascript right before `</body>` tag in your html;
 - `<script src="./js/main.js"></script>`
- You have a Js console in DevTools - you can also run js code there

- you output here with `"console.log('text');"`
 - you clear it with `"clear();"`
 - mdn developer - best doc for js = <https://developer.mozilla.org/en-US/>
 - console → `.log()`, `.error()`, `.warn()` etc.
 - comments: `//` = single line and `/* */` = multi-line comments
-

Variables

How to initialise and assign

- `var` - globally scoped
- `let` - block lvl scope; you can reassign values;
- `const` - block lvl scope; you can't reassign values;
- example: `let age = 30; age = 31;` OR `const gender = 'male';`
- with `const`, you must assign a value, with `let`, you can do: `let age;` (no assign needed)

Data Types

- String, Numbers, Boolean, null, undefined, Symbols
- `const name = 'John';` - string
- `const age = 30;`
- `const rating = 4.7;`
- `const myBool = true;`
- `const x = null; const y = undefined;`
- GET TYPE: `console.log(typeof name);` ⇒ string;
- `let z; console.log(typeof z);` ⇒ undefined

Strings

- concatenation
 - `console.log("My name is " + name + " and i am " + age);`

- Template String
 - `console.log(`My name is ${name} and I am ${age}`);`
 - Properties:
 - `string.length = length`
 - `string.toUpperCase()`
 - `string.toLowerCase()`
 - `string.substring(0,5)` (`string='Hello World! ⇒ 'Hello'`)
 - you can chain string functions: `string.substring(0,5).toUpperCase()`
 - `string.split("")` - splits by the given character; example: `string.split(',')` / `string.split(' ')` etc.
-

Arrays

- `const fruits = ['apple', 'orange', 'pear'];`
- you can have any data type in each array (ex.: `fruits=[1,'apple', 4];`
- `fruits[1] ⇒ orange`
- add: `fruits[3] = 'pineapple'` - not recommended
- `fruits.push('thisIsPushedToTheEnd');`
- `fruits.unshift('thisIsAddedToTheBeginning');`
- `fruits.pop()` ⇒ removes the last element
- `Array.isArray(fruits) = true` (check if an array)
- Get index of a value: `fruits.indexOf('pear');` ⇒ 2
- Array of objects:


```
todos = [
  { id: 1, text: 'Take out the trash', isCompleted: true },
  { id: 2, text: 'Clean your room', isCompleted: false } ]
```

 - to access fields: `console.log(todos[1].text)` - for example
 - you can transform this to a JSON format:


```
const todoJSON = JSON.stringify(todos)
```

Array Methods

- `todos.forEach(function(todo){
console.log(todo.id);
})` ⇒ this parses through each obj in the array and calls a function each object as a parameter
- `let todoText = todos.map(function(todo) {
return todo.text; });` ⇒ `todoText = ['Take out the trash', 'Clean your room']`
↔
array.map returns an array of the result of all the functions
- filter method:
`let todoCompleted = todos.filter(function(todo) {
return todo.isCompleted === true; });`
⇒ returns an array of todo objects
- You can use array methods together `todos.filter(...).map(...);`

Date:

`let myDate = new Date('5-3-1970');`
`myDate.getFullYear();` ⇒ 1970

Object Literals

- basically a dictionary (a key ↔ value pair)
 - `let person = { firstName: 'Tudor', lastName: 'Gulin', age: 21, hobbies=
['sports', 'video games'],
address: { street: 'anasului', city: 'Cluj-Napoca' }
}`
 - you access this by: `person.firstName`
 - `person.address.city`
 - To get the fields as variables (in a way)
`const { firstName, lastName, address: { city} } = person;`
`console.log(city)` ⇒ 'Cluj-Napoca'
 - ADD PROPERTIES:
`person.newField = newValue;`
-

LOOPS

For Loop

- ```
for(let i = 0; i<10; i++){
 //do smth
 console.log('For Loop Number: ${i}');
}
```

## While Loop

- ```
let i =0;  
while(i<0){  
  //do smth  
  i++;  
}
```

Array Loop

- you can do:

```
for(let i = 0; i < todos.length;i++){//do smth}
```
 - ```
for(let todo=ObjectInArray of todos=nameOfTheArray){ //do smth }
```
- 

## If Statement

- ```
if(x === 10 || y < 10){  
  //do smth }  
else if( x > 10 && y ===10){  
  //do smth }else {  
  // do smth else }  
=== → matches data type  
== → doesn't, so '10' = 10  
&& - and  
|| - or
```
- ```
const color = x > 10 ? 'red' : 'blue';
if x > 10 ⇒ color is red, else it's blue
```

## Switch

- ```
switch(color){  
  case 'red':  
    //do smth
```

```
        break;
    case 'blue':
        // do smth
        break;
    default:
        //default
        break;
}
```

FUNCTIONS

```
function addNumbers(num1 = 1, num2 = 1){ // num1=1 ⇒ default value is 1
    const result = num1+num2;
    console.log(result);
    return result;
}
addNumbers(1, 7); // call the function
```

Arrow function

```
const addNumbers = (num1 =1, num2 = 1) ⇒ {
    return num1 + num2;
}
console.log(addNumbers(4,3)); ⇒ 7
```

OOP Basics

Construction Functions

```
function Person( firstName, lastName, email, dateOfBirth){
    this.firstName = firstName;
    this.lastName = lastName;
    this.dateOfBirth = new Date(dateOfBirth);

    this.getBirthYear = function () { // create functions inside a person
        return this.dateOfBirth.getFullYear();
    }
    this.getFullName = function(){
```

```

        return `${this.firstName} ${this.lastName}`;
    }
}
// To Instantiate an Object:
const person1 = new Person('Petrisor', 'Cornelache', '4-20-1969');
-----
Person.prototype.getBirthDay = function(){
    return this.dateOfBirth.getDay();
}

```

Classes

it's the same as the above, but it's similar to OOP in other pr languages

```

class Person {
    constructor(firstName, lastName, dateOfBirth){
        this.firstName = firstName;
        this.lastName = lastName;
        this.dateOfBirth = new Date(dateOfBirth);
    }
    getBirthYear(){
        return this.dateOfBirth.getFullYear();
    }
    getFullName(){ return `${this.firstName} ${this.lastName}`; }
}

```

Subclasses

```

class Parent extends Person{
    constructor( firstName, lastName, dob, noKids){
        super(firstName, lastName, dob);
        this.noKids = noKids;
    }
    getBirthYear(){ super.getBirthYear();}
    getNoKids(){ return this.noKids;}
}

```

THE DOM

window object - the parent of the browser; the very top level!!!

document - to select

Selection

use `querySelector` and `querySelectorAll` mainly

Single element selectors

`const myElement = document.getElementById('enter-id');` ⇒ you get the element in your html

with the given ID

`querySelector`:

`const myContainer = document.querySelector('.container');`

`const myHeader = document.querySelector(h1');`

- if there are more than 1 h1 or .container(tag w the class container)

it will select only the first one

Multiple element selectors

`const allItems = document.querySelectorAll('.item');`

⇒ all elements with the class of item

(older ones: `document.getElementsByClassName('item');`

`document.getElementsByTagName('h3');`)

Manipulating the DOM

`const ul = document.querySelector('.items');`

REMOVES:

`ul.remove();` ⇒ the ul is removed

`ul.lastElementChild.remove();` ⇒ the last element is removed

EDIT:

`ul.firstElementChild.textContent = 'New Text';`

`ul.children[1].innerText = 'New Inner Text';` (this gets the element with the index of 1(2nd)

`ul.lastElementChild.innerHTML = '<h2>New Text</h2>'` ⇒

you edit the html of whatever

EDIT THE CSS:

`const btn = document.querySelectorAll('.btn');`

`btn.style.background = 'red';` // this changes the background (css) to red of the btn class

EVENTS

example:

```
const btn = document.querySelectorAll('.btn');
btn.addEventListener('click', (e) => {
  console.log('clicked');
  e.preventDefault(); => this prevents the default of that event
});
```

the event object (e in the above case)

has a few usefull properties:

`e.target.className` => gets you the class clicked obj

`e.target.id` => gets you the id of the clicked obj

- `btn.addEventListener('click', (e) =>{
 e.preventDefault();
 document.querySelector('body').classList.add('newClass');
 document.querySelector('.items').lastElementChild.innerHTML='<h2>this
 changes when
 you click the btn</h2>';`
- hover event = `mouseover`
- `mouseout` - you enter the obj and then you leave the obj(with the cursor)

Others

- to see if a field is empty: `nameInput (input html).value===''`
- to make smth only last a certain amount of time:
`setTimeout(() => //remove what you want to remove, 3000 = 3 seconds);`
- `let age = prompt('Enter your age: ');`
- Restructuring:
`let name = ...;
let height =...;
let myF = function(){...}
let person = {name, height, myF};` => person is an obj w the 2 fields and the function

- ... Operator:
let l1=[1,2,3,4];
let l2=[5,6];
let l3 = [...l1, ...l2]; ⇒ l3 = [1,2,3,4,5,6];
!!! This works with objects as well !!!
 - rest Operator:
let l1 = [1,2,3,4];
let [first, second, ...rest] = l1;
first =1 , second = 2, rest = [3,4]
- works for objects as well
-

Links

<https://www.youtube.com/watch?v=hdl2bqOjy3c&t=650s&pp=ygURamF2YXNjcmlwdCBjb3Vyc2U%3D>