JavaScript 101

Data: 9/27/2020

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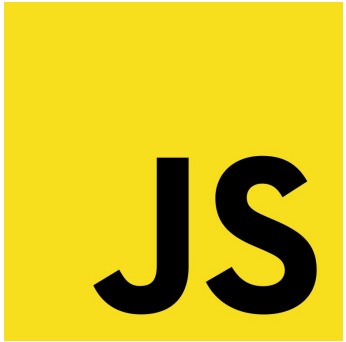
What is JavaScript?

- Interpreted programing language
- Statically typed
- Conforms to **ECMAScript** specification
- Runs on the client/browser as well as on server (Node.js)

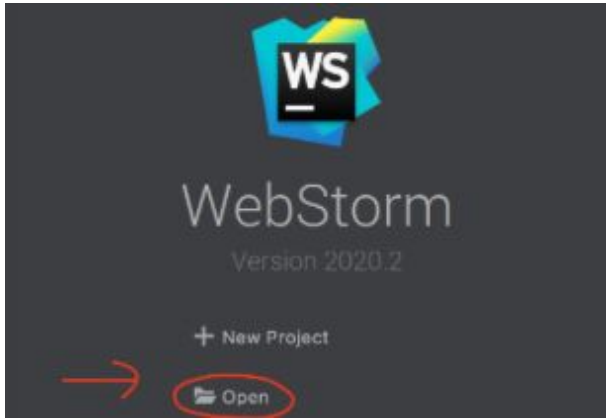


Why Learn JavaScript?

- Programing language of the browser
- Can be used for both front-end (React) and back-end (Node.js)→ **full stack** applications
- Used in **mobile** development (React Native, Ionic)
- Used in **desktop** application development (Electron JS)

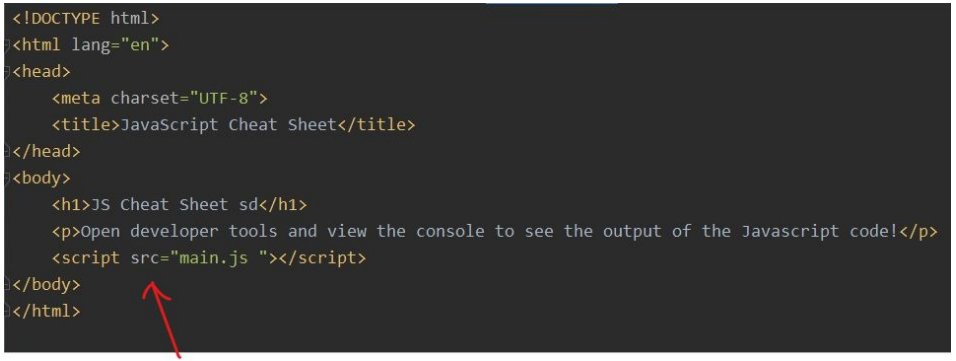
Directions

1. Create a folder on your computer called “**webdvt_workspace**” (if you missed out previous meetings).
2. Then create another folder (inside “webdvt_workspace”) called “**js-cheat-sheet**”.
3. Open up WebStorm (or any text editors of your choosing).
4. Inside Webstorm, open the folder “js-cheat-sheet”.
5. Right click on the folder on your left sidebar. Create an HTML file named “**index.html**”.
6. Create another file called “**main.js**”.



How to run JS?

1. Add <script src=”NAME_OF_JS_FILE.js”></script> tag inside the <body> of your HTML document

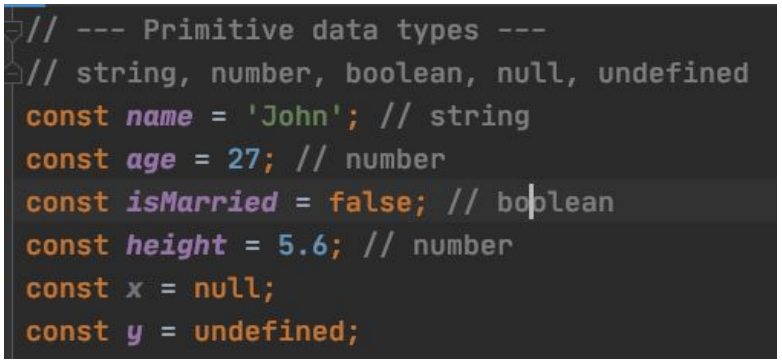


```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>JavaScript Cheat Sheet</title>
</head>
<body>
    <h1>JS Cheat Sheet sd</h1>
    <p>Open developer tools and view the console to see the output of the Javascript code!</p>
    <script src="main.js "></script>
</body>
</html>
```

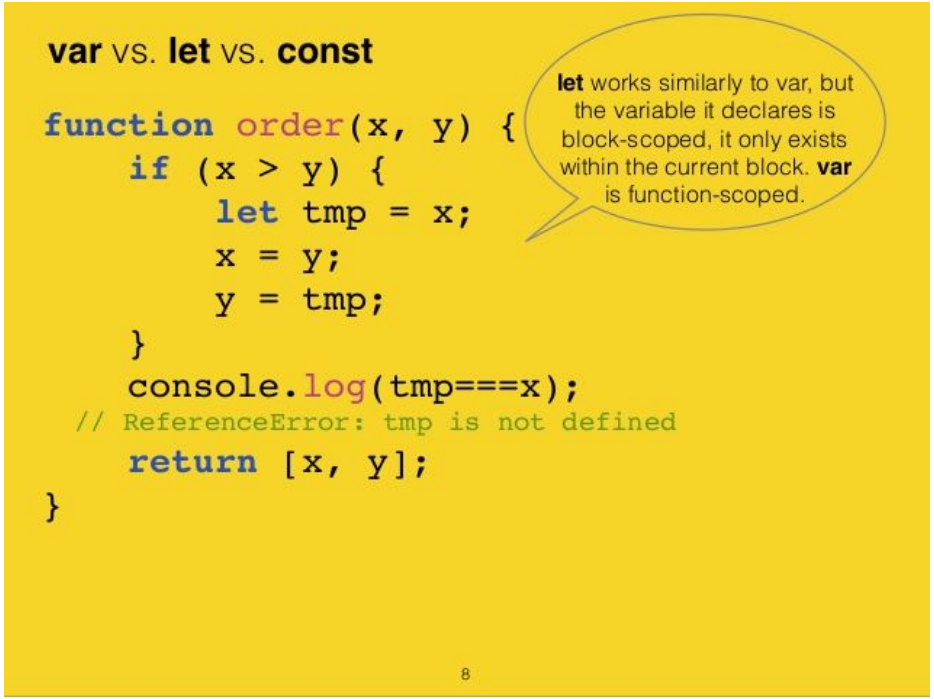
2. Open the HTML document in browser
3. Right-click on the page and select “inspect”
4. Go to the “console” tab
5. Refresh your web page
6. You should see the output from your JS code

Variables & Data Types

- Var, let, const
  - Var is the old standard for declaring variables
  - Let is the new standard
  - Const - value cannot be changed
- Data types
  - String
  - Number
  - Boolean
  - Null
  - Undefined
  - Object

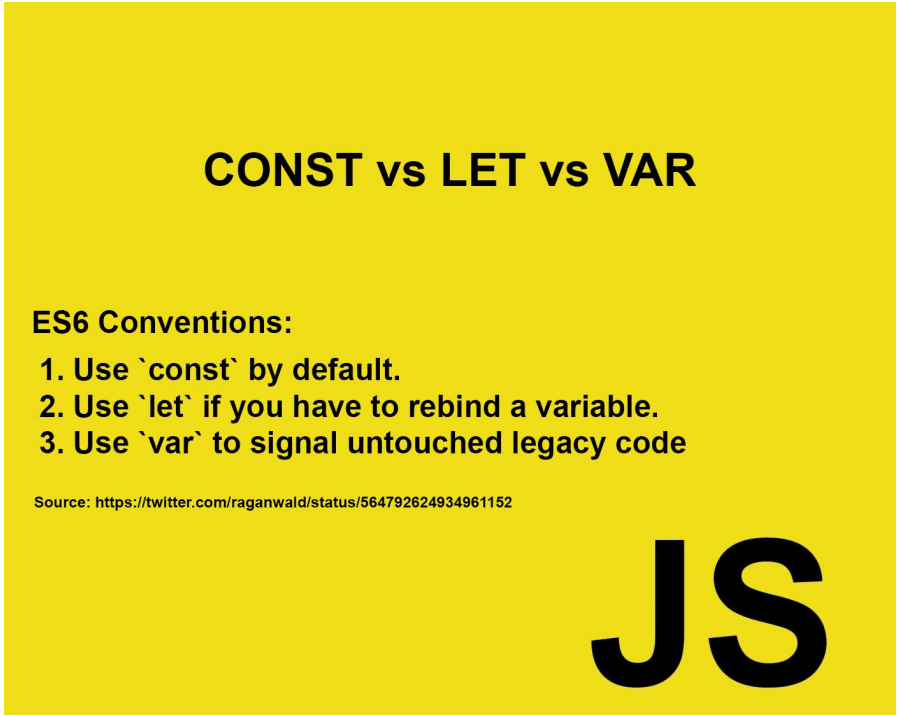


Var vs. let and const?



https://www.slideshare.net/francjohny/ecmascript-6-and-beyond

How should you declare variable in JS?



https://codeburst.io/part-2-var-vs-const-vs-let-69ea73fe76c1?gi=97f4cf4650f9

JS Template Literal

Template literals are **string literals** allowing embedded expressions.

Template literals are enclosed by the **backtick** (` `) character instead of double or single quotes.

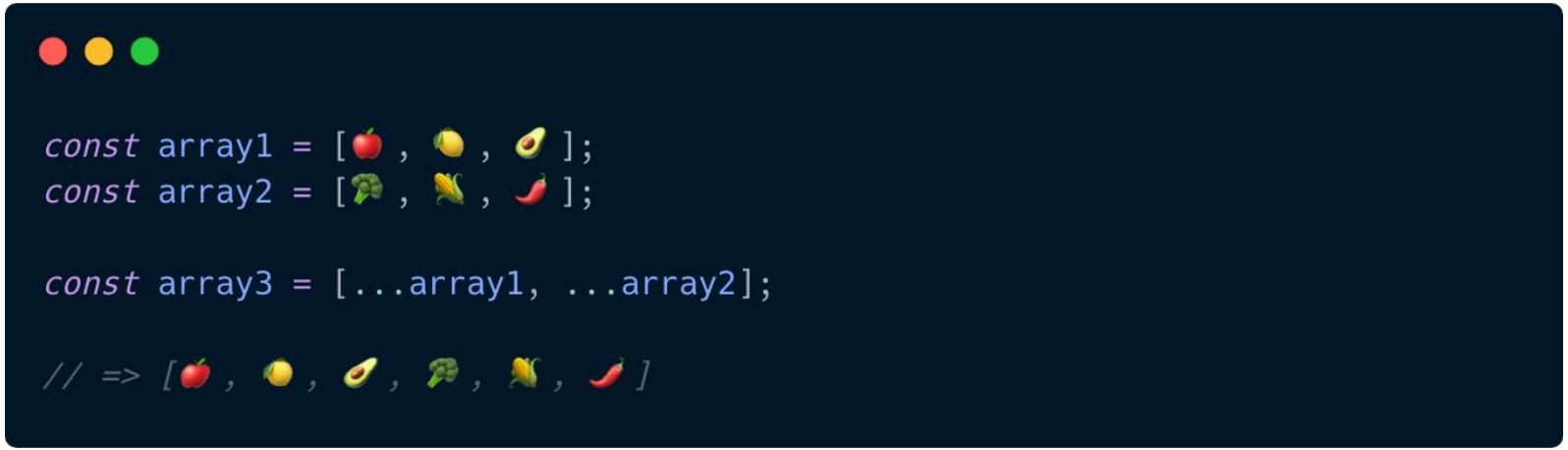
```
const name = 'John';
const age = 27;

// String concatenation
console.log("My name is " + name + " and I am " + age + " years old.");
// Template Literal: lets you to inject variables & logic directly into a string
console.log(`My name is ${name} and I am ${age} years old.`);
// Both logs: "My name is John and I am 27 years old."
```

Arrays

- Type of object
- Single variable used to store multiple elements
- Can store elements of different data types
- Elements are accessed by passing index

```
const fruits = ['apples', 'oranges', 'bananas', 'mangoes'];
```

Spread Operator with Array



https://medium.com/openmindonline/js-monday-02-the-formidable-spread-operator-f2d9177350ca

JavaScript 101 #2

Data: 10/11/2020

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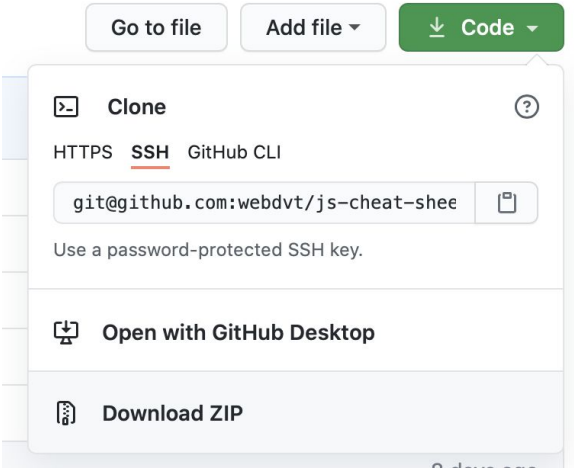
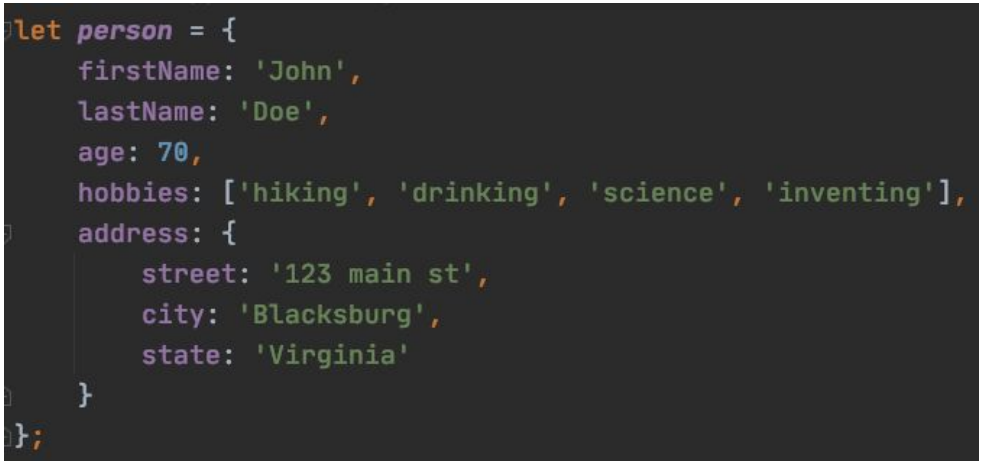
Directions

1. Visit “https://github.com/webdvt/js-cheat-sheet”
2. Download the repository as a zip file by clicking on the green dropdown button that says "code", and then select "download ZIP".
3. Unzip the downloaded file.
4. Open the folder “**js-cheat-sheet**” in WebStorm.



Object Literals

- A set of key-value pairs that make up properties for an object (similar to dictionary in python)
- Key: value
- JSON (JavaScript Object Notation) is derived from Object Literals



JavaScript Object Literal

Object Literal Notation

```
// create a person object
var person = {};
person.firstName = "Joe";
person.lastName = "Jones";
person.address = {};
person.address.street = "123
    main";
person.address.zip = "12345";
person.address.state = "MO";
```

```
// same thing in object literal notation
var person = {
   firstName: "Joe",
   lastName: "Jones",
   address: {
      street: "123 main",
      zip: "12345",
      state: "MO"
   }
};
```

https://www.slideshare.net/MetaThis/javascript-literacy

JS Object Destructuring

```
const developer = {
  name: "Mitch",
  age: 24,
  languages: {
    favorite: "Haskell",
    mostUsed: "JavaScript"
  }
};

const { name, age, languages: { favorite, mostUsed } } = developer;

const bio = `${name} is a ${age} years old developer.\n`
          + `He codes in ${mostUsed} but prefers ${favorite}`;

console.log(bio);

// => "Mitch is a 24 old developer.
//     He codes in JavaScript but prefers Haskell"
```

https://miro.medium.com/max/2720/1*mUcxSZsz3xwfKPrWR1yYEw.png

How to copy object properties?

→ Use Spread Operator!

```
// How to merge arrays or object literal?
const person1 = {
    firstName: 'John',
    lastName: 'Doe',
    age: 27
};

const job = {jobTitle: 'developer', company: 'companyX'};

const person1Merged = {...person1, ...job};
/* person1Merged = {
    firstName: 'John',
    lastName: 'Doe',
    age: 27,
    jobTitle: 'developer',
    company: 'companyX'
}; */
```

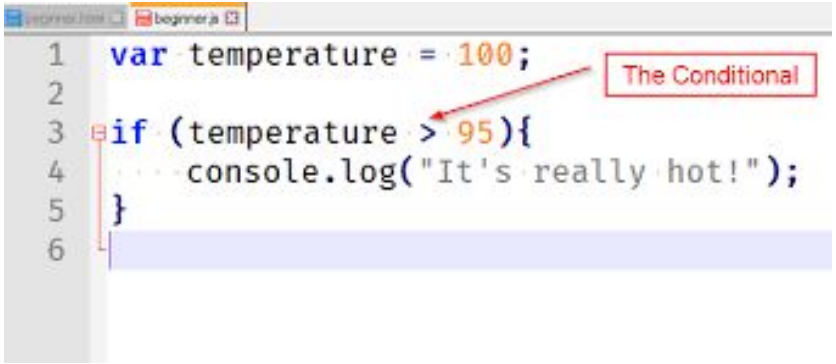
Object Destructuring & assigning new name

```
let john = {
    name: 'John',
    age: 40
}

const employee = john;

let { name: n, age: a } = employee;
// n = employee.name
// a = employee.age
```

https://learnwebtutorials.com/wp-content/uploads/2016/11/destructuring-objects.jpg

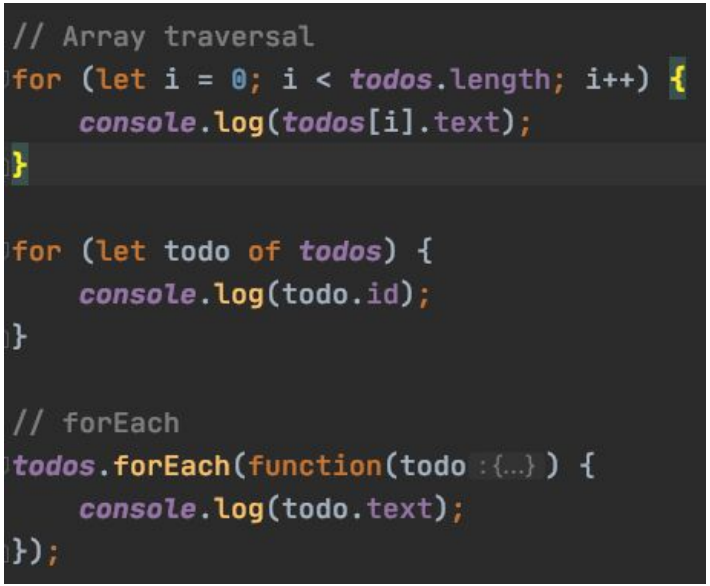
Conditionals

- If-else if-else
- Used for decision branching
- Equals in comparison context
    - Always use triple equals (===)
        - Compares data types of the left hand and right hand value



Loops

- Loops are common structures among programming languages
- Main types
  - For
  - For each
  - While
  - Do while
- Allows for repetitive actions and array traversal

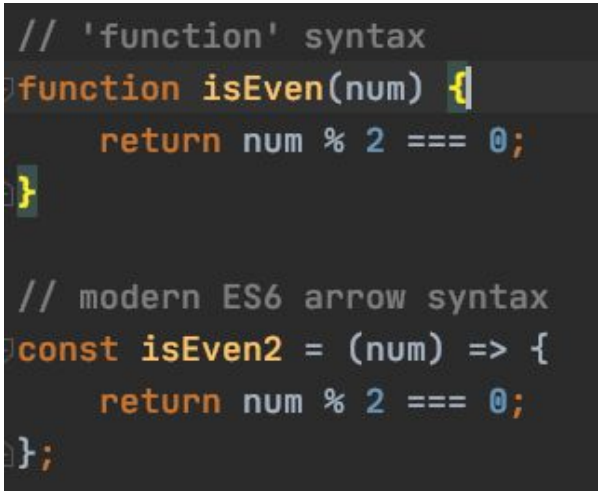


Array map

```
const users = [
    { firstName: 'John', lastName: 'Doe'},
    { firstName: 'Sarah', lastName: 'Smith'},
    { firstName: 'Sam', lastName: 'Williams'},
];

// Array map --> creates a new array by calling a function on each element in the input array.
const firstNames = users.map(function(user : {firstName: string, lastName: string} | ... ){ return user.firstName});

console.log({firstNames});
// firstNames = ['John', 'Sarah', 'Sam']
```

Functions

- Block of code that is essential for completing certain task
- Helps keep code clean and readable
- Makes code reusable



Coding Activity

1. I will split you guys into breakout rooms to work on some fun coding problems.
2. We will come back to the main room in 10 min or so and discuss our solutions.
3. Feel free to reference the cheat sheet and talk with each other while coming up with your solution.
4. Good luck!