

# COMS/SE 319: Software Construction and User Interface Fall 2018

## LAB Activity 3 – JavaScript

### Task 1: PLAY WITH JAVASCRIPT (GETTING STARTED)

#### Assumptions:

- You already know HTML basics.
- If not – then browse through quickly  
<https://www.w3schools.com/html/default.asp>

HTML is mostly about formatting --- so should be easy to grasp.

#### Learning Objectives:

- **Students will:**
  - learn how to embed js in html files
  - learn how to debug js code on browser
  - learn about variable types

#### Resource:

All the links shown in the snapshot below have a wealth of information. Please read first.

About JS in general: <https://www.w3schools.com/js/default.asp>

About JS variables: [https://www.w3schools.com/js/js\\_variables.asp](https://www.w3schools.com/js/js_variables.asp)

#### Step 1:

READ [https://www.w3schools.com/js/js\\_where\\_to.asp](https://www.w3schools.com/js/js_where_to.asp)

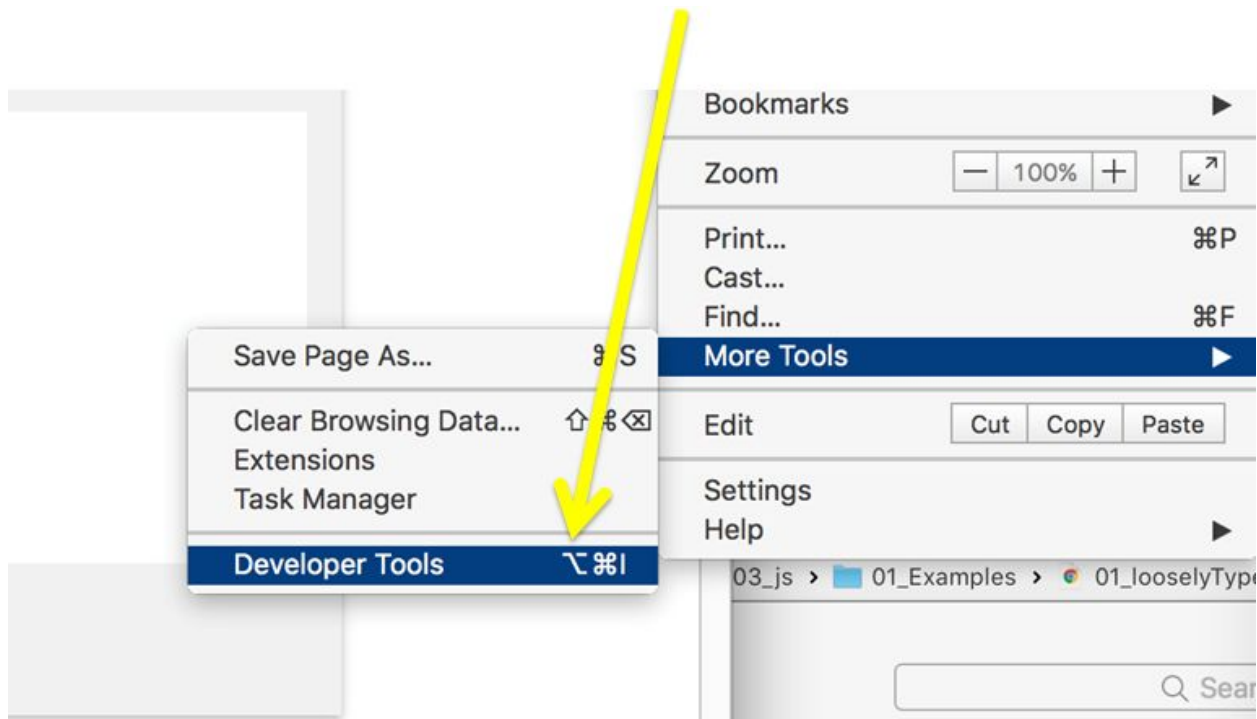
### **Step 2:**

- READ 01\_looselyTyped.html (provided inside zip folder)
- Double click on it (should run file in browser).
- We will assume you are using Google Chrome.

NOTE: Since browser can interpret js (i.e. js runs on client side), we do not need to have a server to play with js.

### **Step 3:**

Start the debugger. Click on settings, more tools, and then developer tools (or use the shortcut)



### **Step 4:**

Play with the different tabs of the debugger. In particular (Elements, Console, Sources, and Network).

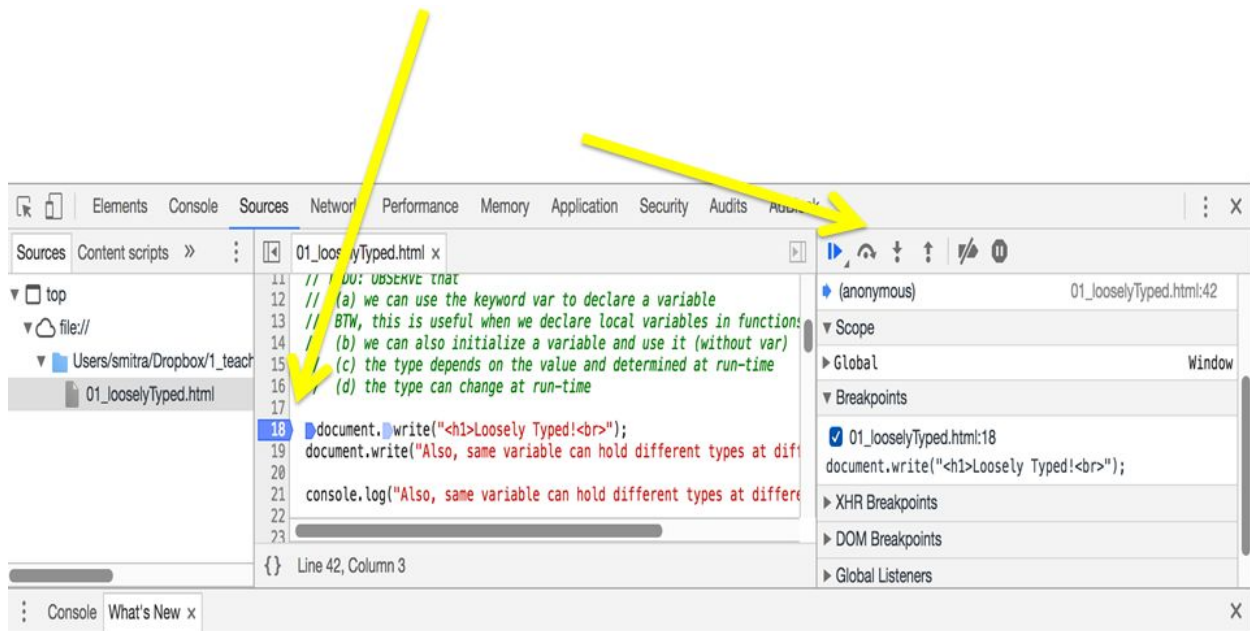
### **Step 5:**

- Run the 01\_looselyTyped.html (provided) by double clicking on it.
- What is the difference between document.write and console.log?
- What are the different types of data that are demonstrated in this example.
- How to find the type of a data item?

### **Step 6:**

Run the code in debug mode by

1. inserting a breakpoint (click on line number)
2. refreshing the browser (to reload the program)
3. stepping over statement



## **Task 2: PLAY WITH JAVASCRIPT VARIABLES**

### **Learning Objectives:**

- **Students will:**
  - learn about var, let, and const

## **Resource:**

All the links shown in the snapshot below have a wealth of information. Please read first.

About JS variables: [https://www.w3schools.com/js/js\\_variables.asp](https://www.w3schools.com/js/js_variables.asp)

About var, let, and const: <http://wesbos.com/javascript-scoping/>

More about let and const: <http://wesbos.com/let-vs-const/>

## **Step 1:**

- Read about var, let, and const: <http://wesbos.com/javascript-scoping/>
- Read more about let and const: <http://wesbos.com/let-vs-const/>

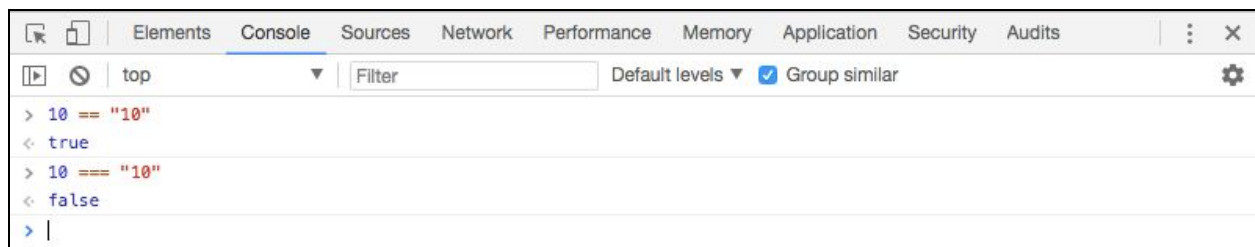
## **Step 2:**

- READ 02\_varsDeclarations.html (provided)
- Double click on it (should run file in browser).
- What do the following scopes mean?
  - Global
  - Function
  - Block
- How do var, let, and const differ from each other?

## **Step 3:**

- READ 03\_equality.html(provided)
- Double click on it (should run file in browser).
- What is the difference between == and ===?

Note that you can type in JavaScript in console window and see results!



### **Task 3: Play with Javascript FUNCTIONS**

#### **Learning Objectives**

- Students will:
  1. learn about js functions:
    - function declarations vs function expressions
    - declaration hoisting
    - function names as pointers to function objects

#### **Resource:**

All the links shown in the snapshot below have a wealth of information. Please read first.

About JS functions: [https://www.w3schools.com/js/js\\_functions.asp](https://www.w3schools.com/js/js_functions.asp)

Also, function scope: [https://www.w3schools.com/js/js\\_scope.asp](https://www.w3schools.com/js/js_scope.asp)

#### **Step 1:**

1. Read 04\_funcs\_declaration.html
2. Run it by double clicking on the file
3. What are the two ways that functions can be declared?
4. What are the differences between the two in how they behave?
5. What happens on lines 36 and 37?

#### **Step 2:**

1. READ 05\_funcs\_hoisting.html (provided)
2. Double click on it (should run file in browser).
3. What if function declaration hoisting mean?
4. Does functions declared in function expressions get hoisted?

**Step 3:**

1. READ 06\_funcs\_pointers.html (provided)
2. Double click on it (should run file in browser).
3. Explain what happens on line 34?
4. Explain what happens on line 48 and why that is different from line 34.

*If you have finished this lab activity and submitted **Lab Attendance Quiz** in **Canvas**, you can work on HW2.*

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