# https://encrypted-tbn3.google.com/images?q=tbn:ANd9GcTLAZpQzmzAPnXtyNCq1onsRE4y0bvoWlMvd3YA8Lt715oLXEJxWAIT 5443 Web Technologies Study Guide **Module 4: JavaScript**

# Prepared by Jack G. Zheng, Last Updated by Zhigang Li

## Overview and learning outcomes

JavaScript is a programming language mainly used at the Web client side, interpreted and executed by browsers. It provides rich processing capabilities such as manipulating HTML, calculation, user input processing, communication with servers, etc. It has been one of the most popular language for web and mobile development in recent years.

The syntax of JavaScript is similar to Java. You should have completed the first programming class so you are familiar with the basic programming techniques and logic. The only thing is that you need to pay more attention how JavaScript works with HTML. In this module we begin by some language basics:

1. Explain what JavaScript is and what it can do.
2. Practice and apply basic language elements of JavaScript, including:
   1. Script structure and its position in an HTML page
   2. Statements and expressions
   3. Variables and data types
   4. Operators
   5. Basic control flow: if, switch, for, while
   6. Array
   7. Function
3. Create basic JavaScript applications:
   1. Generating simple dynamic HTML content, string manipulation.
   2. Calculation
   3. Processing simple user input using textboxes and buttons.
4. Use browser tools for some basic script debugging.

This module is related to course level learning outcomes 2.

## Task list

1. Follow the core online learning materials listed in learning materials to learn and practice basic JavaScript. The video will get you some quick start but do complete the readings for more details.
2. Review and research:
   1. JavaScript is executed on the client side within the browser. What kind of task or applications do you think is best to be executed completely on the client side, without communicating with the server? Give an example.
3. Lab exercise: follow the lab guide (no submission; practice until you feel comfortable and confident to complete the project)
4. Complete quiz #2 (CSS and JavaScript)

## Learning materials

1. Core online learning materials.
   1. What is JavaScript
      1. <http://html.net/tutorials/javascript/lesson1.php>
      2. <https://javascript.info/intro>
   2. <https://www.w3schools.com/js/> - w3schools tutorials are simple, concise, and direct to the point, with plenty of live exercises. Read the following sections (menu on the left). Follow the tutorial and complete the hands-on examples (“Try it yourself”) as your read these webpages.
      1. JS Tutorial: “JS Home” to “JS Functions”, “JS Strings”, “JS Numbers”, “JS Arrays”, “JS Conditions”, “JS Loop For”, “JS Loop While”, “JS Mistakes”.
   3. Tutorial videos.
      1. EJ Media <https://www.youtube.com/playlist?list=PLr6-GrHUlVf96NLj3PQq-tmEB6woZjwEl> (from #1 to #17)
      2. JavaScript debugging: <https://www.youtube.com/watch?v=-PxVBVyJJHU>
2. JavaScript lab guide: “lab4-js.docx”
3. Examples and references
   1. JavaScript examples “lecture and lab example.zip” provided by the instructor.
   2. More examples: <https://www.w3schools.com/js/js_examples.asp>
   3. JavaScript references: <https://www.w3schools.com/jsref/default.asp>
4. Additional readings and resources
   1. Mozilla Learning:
      1. <https://developer.mozilla.org/en-US/docs/Learn/JavaScript/First_steps>
      2. <https://developer.mozilla.org/en-US/docs/Learn/JavaScript/Building_blocks>
   2. <https://javascript.info>
      1. <https://javascript.info/getting-started>
      2. <https://javascript.info/first-steps>
   3. <http://html.net/tutorials/javascript/>: lesson 1 to 13
   4. <http://eloquentjavascript.net> chapter 1 to 4
   5. <http://itwebtutorials.mga.edu/js/default.aspx> chapter 1, 2, 4, 5, 6