**JavaScript Variables and Data Types**

Variables

* Variables: named memory locations (15 m.)
  + Draw a picture of memory
  + **Example**: Hello somebody (10 m.)
    - Simplest version (not very useful)  
       document.write("<p>Hello world!</p>");
    - Add a variable, now you can change the name, but you need to change the source code ☹  
       var name = "world"; // can change to “other names”  
       document.write("<p>Hello " + name + "!</p>");
    - Add an input prompt, now it’s sort of useful!   
       var name = prompt(“Please enter your name”);  
       document.write("<p>Hello " + name + "!</p>");
    - Add a second variable, and prompt  
       var first = prompt("Please enter your first name");  
       var last = prompt("Please enter your last name");  
       document.write("<p>Hello " + first + " " + last + "!</p>");
  + Side bar – Two meanings for +   
    (it’s an overloaded operator)
    - *addition* when used with numbers
    - *concatenation* when used with strings
  + Side bar – Quotes: two kinds, you can only nest one kind inside the other
    - Example:  
      document.write("Who said, 'Brevity is the soul of wit'? <br />");  
      document.write('Tamil proverb: "Even elephants do slip"');
  + Side bar – write vs. writeln
    - Repeat the example above, but put the script block inside a <pre> block. The writeline doesn’t generate a <br /> but it does generate a newline, so we need to put it inside a preformatted block.
* Data Types (15 m)
  + Primitive Types:
    - string
    - number
    - boolean
    - undefined
  + Examples:  
    var words = "this is a string";  
    var number1 = 1234;  
    var truth = false;  
    var stuff;  
      
    document.writeln(typeof words);   
    document.writeln(typeof number1);   
    document.writeln(typeof truth);   
    document.writeln(typeof stuff);
  + Mixing data types, what is happening here?  
    - A statement with two numbers

var number2 = 6;

var sum = number1 + number2;

document.writeln(sum);

* A statement with a number and a string

var result = number1 + words;

document.writeln(result);

* statement with a number and a boolean

truth = true; // true is equal to 1, false is 0

result = number1 + truth;

document.writeln(result);

* statement with a string and a boolean

result = words + truth;

document.writeln(result);