JavaScript Variables and Data Types

<u>Variables</u>

- 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'?
");
          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);
    ```