Announcements

- Check class announcements daily
- You must implement programming projects by yourself
For Loop

- Iteration statement
- General form

\[
\text{for (initialize; test; expression)} \\
\phantom{=\text{for (initialize; test; expression)}}\text{statement}
\]

basically equivalent to

\[
\text{Initialize} \\
\text{while (test) } \{ \\
\phantom{=\text{for (initialize; test; expression)}}\text{statement}
\phantom{=\text{for (initialize; test; expression)}}\text{expression}
\}
\]

- If more than one statement use \{ \}
- Semicolons are required
- Beware of infinite loop if semicolon after )
- **Example:** ForLoop.html
- **Example:** ForLoopVariations.html
Nested Loops

- You can combine if, while and do while statements in several ways
  - You can have an several nested if statements
  - You can have if statements within while statements
  - You can have while statements within if

**Example:** NestedLoops.html

**Example:** MultiplicationTable.html
One-Dimensional Arrays

- **Problem** → You need to keep track of the scores of students in a class
  - Declaring and handling 50 variables is not an easy task
  - Arrays come to the rescue
- **Array** → Collection of values that can be treated as a unit or individually
  
  ```javascript
  var a = new Array(4)
  ```
  - You can visualize an array as a set of variables one after another
  - **Indexing** → We access an element using [ ]
    - First element associated with index 0 (e.g., a[0])
    - An element of an array can be of any type and an array can hold different types of elements
  - The length property represents the length of the array (e.g., a.length)
  - We can print the contents of an array by using alert
- **Example**: ArrayEx.html
Definition of One-Dimensional Arrays

- Via array literal → comma separated list of elements within square brackets
  var a = [2, 3, 5];
  var b = []; // empty array
- Specified in the Array constructor
  var c = new Array();
  var e = new Array(4); // defines array of size 4
Handling ERRORS

- We can detect errors by using `window.onerror`
- **Example**: `ErrorHandler.js`, `Error.html`
- Let’s introduce some errors in `Error.html`
Top-Down Design

- What is Top-Down Design?
- Let’s go over an example
  - Video Store Software
- Bottom-Up Design