Announcements

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- Check class announcements daily
Review

- Let’s review some of the concepts we saw last time
- **Example**: JavaScriptTable.html, Variables.html
Reserved Words

- Reserved words – words you cannot use as identifiers
- Some of them are:
  - break
  - do
  - If
  - catch
Spaces, Semicolons, and Comments

- JavaScript ignores spaces, tabs, and newlines between tokens
- Use spaces to create nicely indented code
- The rules are usually one tab for indentation or three spaces. **You need to satisfy this requirement in programming assignments**
- A semicolon is generally used to mark the end of a statement and is optional when a statement appears on a separate line. For example, the following two set of statements are equivalent
  
  ```
  x = 1;
  y = 2;
  x = 1
  y = 2
  ```

- In this course we will always use a semicolon to mark the end of a statement
Comments

Comments in JavaScript
- Used to provide information to the programmer
- Used to identify sections in your code
- Ignored by the JavaScript interpreter

Two types of comments
- Inline comment - // This is a comment until the end of the line
- Block comment
  /* The following is a comment
     that spans several
     lines */
- We can use a block comment for a single-line comment
- Block comments cannot be nested
JavaScript (Dialog Boxes)

- We can perform input and output via dialog boxes
- Input via `prompt`.
- **Example:** InputOutput.html
  - Notice we can define several variables at the same time
  - `prompt` is a function that displays a dialog box with the specified title. It can be used to read any data
  - You can read numbers and strings via `prompt`
- `prompt` returns a string
- If you need to perform some mathematical computation you might need to explicitly convert the value read it into a number
Strings

- You can use ‘ ‘ or “ “ for strings although we will use “ “ in this class
- You can determine the number of characters in a string by accessing the length value
  - var s = “Hello”;
  - var x = s.length;
- Some functions you can use with strings:
  - toLowerCase()
  - toUpperCase()
  - substr(start, length) → Copies segment of the source string beginning at start and continuing for length characters
Conversions

- In JavaScript you don’t specify the type of variables
- Most of the time implicit transformations will take care of transforming a value to the expected one
- Example:
  ```javascript
  var age = 10;
  var s = “John Age: “ + age;
  ```
- Sometimes you might need to explicitly transform a value
- Mechanism to transform values:
  - **Converting number to string**
    ```javascript
    var stringValue = String(number);
    ```
  - **Converting string to number**
    ```javascript
    var number = Number(stringValue);
    var number = parseInt(stringValue);
    var number = parseFloat(stringValue);
    ```
- **Example**: Conversions1.html, Conversions2.html
Math Functions/Constants

- Math.abs() → Absolute value
  - Example: Math.abs(-10)
- Math.max() → Maximum of two values
  - Example: Math.max(10, 20)
- Math.sqrt() → Square root
  - Example: Math.sqrt(4)
- Math.random() → Random value between 0 and less than 1
  - Example: Math.random()

Constants
- Math.PI – Mathematical constant pi
Boolean Type

- We have seen integer, float, and string values
- New type: boolean type
- Assumes the value *true* or *false*
- Variable declaration and initialization
  - `var found = true;`
  - `var attending = false;`
JavaScript (Comparisons)

- You can compare values by using the following operators
  - `===` → Returns true if the values are equal, false otherwise (e.g., `x === y`)
  - `!==` → Returns true if the values are different, false otherwise (e.g., `x !== y`)
  - `==` → Not as strict as the previous equality operator
  - `!=` → Not as strict as the previous inequality operator

- Relational Operators
  - `<` → Less than returns true if left value is less than right value (e.g., `x < y`)
  - `>` → Greater than
  - `<=` → Less than or equal
  - `=>` → Greater than or equal

- Example: Comparison1.html, Comparison2.html
JavaScript (If Statement)

- If statement – Control statement that allow us to make decisions
- First Form
  \[
  \text{if (expression)} \\
  \quad \text{statement} // \text{executed if expression is true}
\]

- Example: IfStm1.html

- Second Form
  \[
  \text{if (expression)} \\
  \quad \text{statement1} // \text{executed if expression is true} \\
  \text{else} \\
  \quad \text{statement2} // \text{executed if expression is false}
\]

- To execute more than one statement use a set of { }
- Example: IfStm2.html