The JavaScript Language

An introduction

What can you do with JavaScript

- A lot:
  - Process (limited) user input, get data from external source (databases and more), do any calculations, generate HTML (from previous slides)
- Most importantly, for our class:
  - Access and modify a web page (both content and HTML markup)
  - Do that as the user is viewing the page

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Select text, elements, or attributes on an HTML page

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4. REACT TO EVENTS

Tell a script to run in response to some event that occurred

What you will need to learn

1. Programming concepts:
    - How to organize your ideas about sequences of tasks)

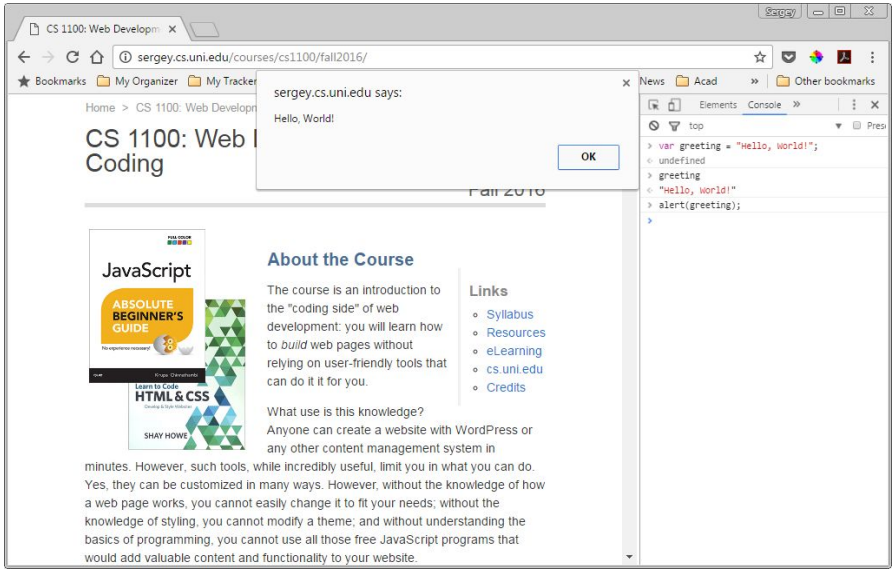
2. The JavaScript language:
    - How to express these ideas using the language vocabulary, syntax, and grammar

* You will also benefit greatly from looking at how this is done:

- Look at examples of code
- Study tutorials
- Use stackoverflow.com

Where to write your JavaScript code

- In your favorite text editor - just like you did with HTML and CSS
- You may use the browser console for trying out code



Where to place your JavaScript code

a. Inside the browser:
   - inside <script> </script> tags
b. In a separate file (preferred approach):
   - use any name with a ".js" extension
   - do NOT include the <script> tags in your .js file
   - link to your HTML using this tag: <script src="path-to-your-.js-file">
c. Both (only if you really need to)

* Make sure to place your <script> tag close to the bottom of your HTML file

JavaScript statements

- Each “step” in a program is a statement
- A statement is code that performs a task
- Statements are terminated with a semicolon:
  - var message;
    message = “Hello, World!”;
  - var x; x = 42;
  - **recommended style: one line = one statement (or partial statement)**
- There are different types of statements; today we take a closer look at assignment statements

Variables

1. Declaring a variable
2. Naming a variable
3. Assigning a value to a variable (assignment statement)

```
var quantity;
```

```
var quantity;
```

KEYWORD

```
var quantity;
```

VARIABLE NAME

Naming variables

- JavaScript is case-sensitive: message <> Message <> MESSAGE
- Naming variables:
  - start with a character, “$”, or underscore
  - do not use spaces
  - do not use keywords (var, for, if, else, function, etc...)
  - use camelCasing when name consists of more than one word
  - use descriptive names,
    - that are short

```
quantity = 3;
```


quantity = 3;
VARIABLE NAME

```
quantity = 3;
```

ASSIGNMENT OPERATOR

```
quantity = 3;
```

VALUE

Assignment statement

- Declaring and assigning variables:
  - var message;
    message = “hello!”;
  - var message = “hello!”;
- Assignment statement:
  - [variable] = [expression]
    - a = 1;
    - a = 1 + 2;
    - b = 2;
    - a = b;
    - a = a + 1;
- Assignment operator IS NOT the same as equality operator:
  - a = b <> a == b <> a === b (more on this later!)

The browser as context

- Use any simple web page
- Use the console in your browser to write your code
- use document.querySelector(“**your-selector**”) to access elements in your HTML
- assign these elements to variables
- use **your-variable**.innerHTML = “new value” to modify each variable