Announcements

• Quiz #3 on Wednesday
• Please bring laptops on Friday
• My office hour tomorrow is cancelled
Local vs. Global Variables

Local Variables
— Declared inside a function using “var”
— Created while function is running
— Destroyed when function is over
— Cannot be accessed outside the function

Global Variables
— Declared outside of any function
— Can be declared inside function if you don’t use “var” – don’t do this!
— Can be accessed anywhere

Exception: Parameters are local variables (even though they don’t use “var”)

Example: VariableScope.html
Event Driven Programming

(How Graphical User Interfaces are implemented)

**Traditional Programming:**
- Start at beginning
- Execute statements until the program ends

**Event Driven Programming:**
- Start at beginning
- Draw page and setup Graphical Controls
- Attach “Event Handlers” (functions) to the controls
- Sit back and wait...
- And wait...
- If an Event is triggered, run the handler
- Now go back to waiting for another event...

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Example of “Event”

Mouse clicks can trigger function calls:

```html
<p onclick="..."> Click this </p>
```

Example: SimpleClickEvent.html
Mouse Events

onclick – user clicks element
ondblclick – user double-clicks element
onmousedown – mouse button has been pressed (but not released)
onmouseup – mouse button has been released
onmouseover – mouse cursor passes over element
onmousemove – mouse cursor has moved while over element
onmouseout – mouse cursor has been moved off element

Example: MouseEvents.html
Events we will use later with “Forms”

onkeypress – key has been pressed and released
onkeydown – key is held down
onkeyup – key is released

onchange – the state of a “control” has been changed (like a checkbox or radio button)
Dynamic Updates to Elements

We can easily modify an existing HTML element, as long as it has an identifier.

We can use Javascript to modify HTML elements in three ways...
Dynamic Updates to HTML attributes

```
<img id="Joe" src="flower.jpg" alt="flower"
    height="50" />
```

We can change attributes at any time with Javascript

```
Joe.src="dog.jpg";
Joe.height="100";
Joe.width="50";  // Yes, this works!
```

Example: DynamicAttributeChanges.html
Dynamic Updates to Style

<p id="Joe">Hello!</p>

In Javascript, we can change the style at will:

```javascript
Joe.style.color = "green";
Joe.style.fontFamily = "arial";
Joe.style.textAlign = "center";
```

Caution: Property names don’t always match with CSS names!

For example: fontFamily vs. font-family

Also: Need the quotation marks around the values.

Example: DynamicStyleUpdates.html
Dynamic Updates to “Inner HTML”

<p id="Joe">Hello!</p>

In Javascript, we can change what’s between the tags at will:

    Joe.innerHTML = "Goodbye!";

Example: DynamicInnerHTMLUpdates.html
World’s Dumbest Game