Special Guests

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- Marshall Bjerke, Senior, Informatics

Programming

- Why is programming fun?
  - Second is the pleasure of making things that are useful to other people. Deep within, we want others to use our work and to find it helpful. In this respect the programming system is not essentially different from the child's first clay pencil holder "for Daddy's office."

Source: Frederick P. Brooks, Jr. *The Mythical Man-Month: Essays on Software Engineering.*

Announcements

- Change in deadline:
  - Labs 7 and 8 will be due a week from Tuesday
  - You may want to do lab 8 before lab 7

Screen Input and Output

The form of <form>

JavaScript and HTML

- HTML is markup for Web content
- Web browser interprets HTML and displays the page
- JavaScript responds to user actions
  - Click button: onclick event
  - Hover over link: onmouseover
  - Enter data in forms: onsubmit
  - Change value in a form field: onchange

A short form

```
<body style="background-color: #cccccc; margin-left: 20px;">
<h1>For example</h1>
<form>
  <p><input type="button" value="Press">
 for good results</p>
  <p>Enter data here: <input type="text" name="x" size="20"> <br />
   Radio buttons:
   <input type="radio" name="y" value="right">
   right or
   <input type="radio" name="y" value="left">
   left</p>
</form>
</body>
```

A short form

```
<body style="background-color: #cccccc; margin-left: 20px;">
<h1>For example</h1>
<form>
  <p><input type="button" value="Press"
 for good results</p>
  <p>Enter data here: <input type="tex
   Radio buttons:
   <input type="radio" name="y" value=
   right or
   <input type="radio" name="y" value=
   left</p>
</form>
</body>
```

Demonstration

- The short form:

Forms

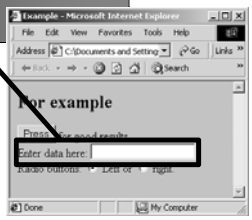
Input & Output in JS are given in forms

```
<form>
  <input type="button" value="Press"> for good results<br>
        ...
</form>
```

* Inside <form> tags
* Notice
  - **type**
  - **value**
  - relationship to text

More Forms

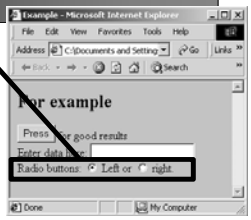
```
<form>
        ...
  Enter data here:
        <input type="text" name="x" size=20> <br>
        ...
</form>
```



* Notice
  - type
  - name
  - size
  - relationship to text

Radio Control

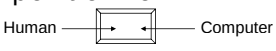
```
<form>
        ...
  Radio buttons:  <input type="radio" name="y"> Left or
                  <input type="radio" name="y"> right.
</form>
```



* Notice
  - type
  - name (common)
  - relationship to text

Input/Output

Text boxes are input or output based on your point of view ...



* Programming uses computer's view
  - It's obvious that buttons are inputs
  - Text boxes are inputs, but if the computer puts information in them, they're outputs

Forms define the type of I/O and the processing

Events Cause Processing

After drawing a page, browsers sit idle waiting for something to happen … when we give input, it cause *events*

- Processing the input is the task of an *event handler*
  - Event types
    - onClick
    - onChange
    - onMouseOver

In the <input …> tag, an event handler gives the processing needed for the task using JavaScript

Demonstration

- Smileys…

Asian Emoticons

(^_^)	Laughing	(???)/	Joyful
(>_<)>	Troubled	(???;)	Surprised
(^_^;)	Troubled	(#^.^#)	Shy
(ToT)	Crying	(*´?`*)	Infatuation
m(_ _)m	Apologising	(??;)	Worried
(^^;)	Shy	(*^?^*)	Joyful
(???)	Grinning	(^?^)	Laughing

Rightside up

Emoticons = Emotional Icons

:-)	Smile or Happy	:-p	"Raspberry" or 'tongue in cheek'
:-(	Frown or Sad	:-S	Confused
;-)	Winking	:-/	Doubtful or confused
:-D	Laughter	:-|	Blank
:-C	Very, very sad	O:O_O	Surprised or shocked
D-:	Annoyed, shocked or scared		

Observe Actions

'onClick' Event for Buttons

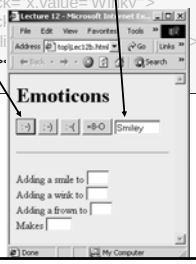
```
<h1>Emoticons </h1>
<input type="button" value=" : -) " onClick="x.value='Smiley'">
<input type="button" value=" ; -) " onClick="x.value='Wink'">
<input type="button" value=" : -( " onClick="x.value='Frown'">
<input type="button" value="=8-O " onClick="x.value='Yell'">
<input type="text" name=x size=8><br>
```

- Event handlers say what to do if event happens … "put 'Smiley' in the output textbox"

Event handlers = mini programs

'onClick' for Buttons

```
<h1>Emoticons  </h1>
 <input type="button" value=" :-) " onClick="x.value='Smiley' ">
 <input type="button" value=" ;-) " onClick="x.value='Winky' ">
 <input type="button" value=" :-( " onClick="x.value='Frowny' ">
 <input type="button" value="=8-O " onClick="x.value='Omagosh!' ">
 <input type="text" name=x  size=8><br><br>
  ...
```



* Notice ...
  - '**onClick**' event does the task: places 'Smiley' in the output textbox

x.value

```
<h1>Emoticons  </h1>
 <input type="button" value=" :-) " onClick="x.value='Smiley' ">
 <input type="button" value=" ;-) " onClick="x.value='Winky' ">
 <input type="button" value=" :-( " onClick="x.value='Frowny' ">
 <input type="button" value="=8-O " onClick="x.value='Omagosh!' ">
 <input type="text" name="x"  size="8"><br><br>
  ...
```

* Notice ...
  - the **value** of a textbox is the contents of the textbox
  - **x.value**

textbox name

'onChange' Event

```
<hr><br>
 Adding a smile to <input type="text" name="x2" size=2
        onChange="x5.value = x2.value + ')' "><br>
 Adding a wink to <input type="text" name="x3" size=2
        onChange="x5.value = ';' + x3.value"><br>
 Adding a frown to <input type="text" name="x4" size=2
        onChange="x5.value = x4.value + '(' "><br>
 Makes <input type="text" name="x5"  size=3>
```

* Notice
  - names
  - + is concatenate

Name A Different Textbox

```
...
<input type="text" name=x  size=8><br><br>
  <hr><br>
Adding a smile to <input type="text" name="x2" size=2
        onChange="x5.value = x2.value + ')' "><br>
Adding a wink to <input type="text" name="x3" size=2
        onChange="x5.value = ';' + x3.value"><br>
Adding a frown to <input type="text" name="x4" size=2
        onChange="x5.value = x4.value + '(' "><br>
Makes <input type="text" name="x5"  size=3>
```

"x.value = x2.value + ')' "

Name A Different Textbox

```
...
<input type="text" name=x  size=8><br><br>
  <hr><br>
Adding a smile to <input type="text" name="x2" size=2
        onChange="x5.value = x2.value + ')' "><br>
Adding a wink to <input type="text" name="x3" size=2
        onChange="x5.value = ';' + x3.va
Adding a frown to <input type="text" na
        onChange="x5.value = x4.value
Makes <input type="text" name="x5"  s
```

"x.value = x2.value + ')' "

Study

- For Monday, read QuickStart to JavaScript, pages 108-113.
- Monday I'll introduce the next project.

Study

- Next week's quiz
  - Review the questions at the end of these chapters:
    - *Fluency* chapters 20, 21, and 22
    - *QuickStart* chapters 1 and 2
- Expect lots of questions on JavaScript!
- JavaScript topics will include:
  - Variables
  - Values
  - Assignment statements
  - Conditionals
  - Functions
  - Curly brackets
  - Relationship to HTML

Schedule Changes

- Monday and Tuesday:
  - Keep working on Lab 7
  - Due at your Wednesday or Thursday lab this week
- Deadline for next project is postponed