CS101 Lecture 6: Web Applications and HTML Forms

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What You’ll Learn Today

– I got the basic HTML thing, and now I want to create the next fmylife.com…

  What else do I need?

– How to take user-input from a web page?
  – How do Web Applications Work?
HTTP

HyperText Transfer Protocol
http://www.ltg.ed.ac.uk/~ht/WhatAreURIs/

HTML Forms

HTML Forms are a way to provide input to the webserver:

Forms are created with the `<FORM>` tag.
HTML Forms

Here is the code that created that form:

```
<form>
  <input name="q"/>
  <input type="submit" value="Ask Google"/>
</form>
```

Rendered Display:

![Search form]

Linking Forms to Actions

HTML Forms send data to the webserver, as specified by a parameter called action:

```
<form action="http://www.google.com/search">
  <input name="q"/>
  <input type="submit" value="Ask Google"/>
</form>
```

action tells the form to which URL to send the HTTP request and data.
Using Google Search as CGI

Google Search responds to HTTP requests with minimal form data:

http://www.google.com/search?q=<value>

action = http://www.google.com/search
q = the query value

HTML Form Fields

We need to specify each form field’s name, type, and value:

type=text

Last Name:
<input type="text" name="lastname" value=""/><br>
First Name:
<input type="text" name="firstname" value=""/><br>
type=radio

<input type="radio" name="sex" value="Male"> Male<br>
<input type="radio" name="sex" value="Female"> Female<br>

- Male
- Female

type=checkbox

I have a bike:
<input type="checkbox" name="vehicle" value="Bike"><br>
I have a car:
<input type="checkbox" name="vehicle" value="Car"><br>
I have a airplane:
<input type="checkbox" name="vehicle" value="Airplane"><br>

I have a bike: □
I have a car: □
I have a airplane: □
<textarea>
Please leave some comments:<br>
<textarea rows=10 cols=100>
</textarea>
</textarea>

I would like more information about:  
<select name="car">
<option value="Subaru">Subaru</option>
<option value="Honda">Honda</option>
<option value="Toyota">Toyota</option>
</select>
<p>
I would like more information about:  
Submit
</p>
More HTML Forms Fields

<table>
<thead>
<tr>
<th>Tag</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;form&gt;</td>
<td>Defines a form for user input</td>
</tr>
<tr>
<td>&lt;input&gt;</td>
<td>Defines an input field</td>
</tr>
<tr>
<td>&lt;textarea&gt;</td>
<td>Defines a text-area (a multi-line text input control)</td>
</tr>
<tr>
<td>&lt;label&gt;</td>
<td>Defines a label to a control</td>
</tr>
<tr>
<td>&lt;fieldset&gt;</td>
<td>Defines a fieldset</td>
</tr>
<tr>
<td>&lt;legend&gt;</td>
<td>Defines a caption for a fieldset</td>
</tr>
<tr>
<td>&lt;select&gt;</td>
<td>Defines a selectable list (a drop-down box)</td>
</tr>
<tr>
<td>&lt;optgroup&gt;</td>
<td>Defines an option group</td>
</tr>
<tr>
<td>&lt;option&gt;</td>
<td>Defines an option in the drop-down box</td>
</tr>
<tr>
<td>&lt;button&gt;</td>
<td>Defines a push button</td>
</tr>
</tbody>
</table>

Reference: [http://www.w3schools.com/HTML/html_forms.asp](http://www.w3schools.com/HTML/html_forms.asp) for more syntax, etc.

Processing HTML Form Fields

The application waiting to process a form is called a Common Gateway Interface or CGI.
- Requires a non-trivial script on the server to process the data.

Some easy CGIs to which we can send FORM data:
- Send a query to Google search, maps, etc.
- Send the form data to email:
  - [http://cs-webapps.bu.edu/util/formmailer.py](http://cs-webapps.bu.edu/util/formmailer.py)
Email form fields

Example: contact form

Here’s an application you can use to send form data to email:
http://cs-webapps.bu.edu/util/formmailer.py
Must include a field named “mailto”, with a value for your email address.

Recall: LAMP Model

The most common structure for web applications uses this configuration:

Linux operating system for a server
Apache web server software
MySQL database software
PHP/Perl/Python scripting language to create dynamic HTML

Scripts are small programs that respond to user input.
What You Learned Today

- HTML forms
- CGI and Form Processing
- Data-driven web applications
Announcements and To Do List

– Readings for this week:
  • HTML Tutorial
    http://www.w3schools.com/HTML/
– Quiz 1 on TUE 9/21
  • Covers Lectures 1-5
  • See section on syllabus about how to prepare
– HW 2 due WED 9/22