HTML Forms

CSC 242, Web Programming

The `form` element

- A `form` element is a container for the content of the form

- A `form` element cannot contain another `form` element

- `form` attributes
    - `action`: the URL to send the form data to
    - `method`: the method used to send the data – either POST or GET

```
<form action="URL" method="get">
    Form Controls
</form>
```

Examples of Form Controls

- Text entry
- Submit and reset buttons
- Radio and checkbox buttons
- Pull-down and scrolling menus
- File selection and upload
- Hidden controls
- Dates and times
- Color picker

The method attribute

- The form data is encoded into a sequence of characters representing the values intended to be sent to the indicated URL

- Example:

  ```
  username = Bob B
  email = bob@example.com
  ```

  gets encoded into

  ```
  username=Bob%20B&email=bob@example.com
  ```

The POST and GET methods

- The POST method sends the encoded data in the HTTP request body

- The GET method sends the encoded data in the request URL
  `http://example.com?username=Bob%20B&email=bob@example.c`

The name Attribute

- The name attribute is necessary for any control that needs to send data to the indicated URL

- The name attribute provides a variable name for the control

- The program processing the form data can use this name to refer to the value

  ```
  <input type="text" name="username">
  ```

  will send the value of the text field with the name username when submitted. For example if the value in the text field is Bob then

  ```
  username=Bob
  ```

  is sent to the indicated URL.

Single Line Text Entry

- The `<input type="text">` element is the basic single line text entry control

- Attributes:

    - `name`: required for indicating variable name

    - `value`: default text

    - `maxlength`: sets the maximum character limit

    - `required`: indicates that the field is required to contain text

Multiple Line Text Entry

- The `<textarea>...</textarea>` element is for creating a multiple line scrollable text entry box

- Attributes:
  - `name`: required for indicating variable name
  - `placeholder`: provides a short hint for the user
  - `maxlength`: sets the maximum character limit
  - `rows`: sets the number of visible rows
  - `cols`: sets the number of visible columns

Specialized Text Entry

- `<input type="password">`

- `<input type="search">`

- `<input type="email">`

- `<input type="tel">`

- `<input type="url">`

Submit and Reset Buttons

- The `<input type="submit">` button used to send the form data to the URL indicated by the form

- The `<input type="reset">` resets the form to the default state

- The `value` attribute indicates the text to display on the button

Radio Buttons

- The `<input type="radio">` element indicates a radio button control

- Attributes:
  - `name`: required for indicating variable name, and also binds radio buttons with the same `name` together
  - `value`: the value for the indicated radio button
  - `checked`: boolean attribute indicating that the radio button is selected

Checkbox Buttons

- The `<input type="checkbox">` element indicates a checkbox button control

- Attributes:

    - `name:` required for indicating variable name, and also binds checkbox buttons with the same `name` together

    - `value:` the value for the indicated radio button

    - `checked:` boolean attribute indicating that the checkbox button is selected

Menus

- The `<select>...</select>` element is container for `<option>...</option>` elements
- select attributes:
    - `size`: convert the default drop-down menu to a scrolling menu
    - `multiple`: allows multiple options to be selected
- The content of an `option` element is what gets sent to the form action URL
- Adding a `value` attribute to an `option` element sends that value rather than the content to the form action URL
- The `optgroup` element creates groups of options labeled with a required `value` attribute

File Selection Control

- The `<input type="file">` control allows users to select a file from the hard drive to be submitted with the form data

- When using the file selection control, the `enctype` attribute of the form must be set to `multipart/form-data` and the submit method must be POST

- The `size` attribute sets the character width of the text field

Hidden Controls

- The `<input type="hidden">` control is used to send data that does not come from the user

Date and Time Controls

- `<input type="date">`

- `<input type="time">`

- `<input type="datetime">`

- `<input type="month">`

- `<input type="week">`

Numeric Inputs

- The `<input type="number">` element is for entering numeric data

- `<input type="range">` element is for selecting numeric values within some range

- Both can use the `min` and `max` attributes to specify the minimum and maximum values

- The `step` attribute specifies a step size for incrementing the numeric value

Color Selector

- The <input type="color"> element creates a pop up color picker

fieldset and legend

- The `<fieldset>...</fieldset>` element indicates a logical group of form controls

- A `fieldset` can contain a `<legend>...</legend>` element that provides a caption for the enclosed fields

The `label` element

- The `<label>...</label>` element associates a label with a control

- Can be used implicitly by containing an form control element within it

  ```
  <label>
  <input type="text" name="username">User Name
  </label>
  ```

- Can also be used explicitly by adding an `for` attribute

  ```
  <label for="form-user">User Name</label>
  <input type="text" name="user" id="form-user">
  ```