Forms

WEB DEVELOPMENT FUNDAMENTALS

QA

Objectives

- Adding a form to a web page
- To understand Form tags
- To use input elements
- Be able to use HTML5 inputs and attributes
- To look at the form submission mechanism

2

The <form> tag

- Defines a form in HTML
- Attributes
  - ACTION: URL to execute when form is submitted
  - METHOD: how the information is passed to server (GET or POST)
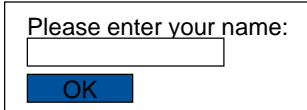 - TARGET: Window to hold results (important when frames are used)

```
<form method="post" action="cgi-bin/subscribe.pl">
…
</form>
```

3

Text and push buttons

- Kinds of push button
  - SUBMIT: send the form information to the server for processing
  - RESET: reset all form fields
  - BUTTON: generic push button
- Single line text field
  - type="text" attribute of <input> tag
  - type="password" as text, but text is not displayed on screen

```
<form method="post" action="scripts/subscribe.pl">
    Please enter your name:
    <br/>
    <input type="text" size="20" name="UsrName"/>
    <br/>
    <input type="submit" name="OKButton" value="OK"/>
</form>
```

Please enter your name:

OK

4

Multi-line text input

- <textarea> .. </textarea> tags
  - Initial text can also be supplied
  - Browser will supply scroll bars if necessary

```
Address: <br/>
<textarea name="UsrAddr" rows="7" cols="24">
     Enter address here
</textarea>
```

Address:

Enter address here

OK

5

Check and radio buttons

- Radio buttons: select from one of a group
  - NAME attribute groups buttons together
- Check buttons: independent yes/no value

```
<form …>
<input type="radio" checked name="RadioDrink" value="Tea"/>Tea
<input type="radio" name="RadioDrink" value="Coffee"/>Coffee
<input type="radio" name="RadioDrink" value="Soup"/>Soup<br/>
<input type="checkbox" name="CheckMilk" value="Yes"/>Milk
<input type="checkbox" name="CheckSugar" value="Yes"/>Sugar<br/>
<input type="submit" name="OKButton" value="Vend"/>
</form>
```

Tea Coffee Soup
Milk Sugar
Vend

6

\<select\> and \<option\>

- Select one from a drop-down lists
- \<select\> tag defines the list
  - SIZE attribute is 1 for drop down list, > 1 for scrolled list
  - MULTIPLE attribute specifies multiple selection list
- \<option\> tags define the contents

```
<select name="Drop2" size="3">
    <option value="2">High</option>
    <option value="1">Medium</option>
    <option value="0">Low</option>
</select>
```

```
<select name="Drop1" size="1">
    <option>Cookies</option>
    <option>Tortillas</option>
    <option selected>Puppadoms (my favourite)</option>
</select>
```

```
High
Medium
Low
```

```
Puppadoms (my favourite) ▼
```

7

HTML5 input elements

- The HTML5 spec started with forms
  - Opera and Safari are the driving force and most complete
- 13 type options to date
- Mostly extend the \<input\> tags with additional type values
  - If a browser does not understand the extension rendered as:
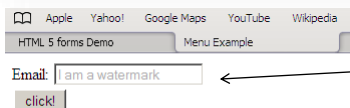
  ```
  <input type="text" />
  ```
- No requirement in the spec for how browsers present
  - Different browsers show different UI and error messages
  - Browsers that do not understand the new types treat them as text
  - Javascript defence is needed for legacy browsers

8

Placeholder attribute

- The placeholder attribute offers default text
  - Gives the user example or instruction for the field
  - Sometimes called a watermark
  - Can only be used for text values
  - Is not a default value

```
<input type="text" placeholder="I am a watermark" />
```

Apple   Yahoo!   Google Maps   YouTube   Wikipedia
HTML 5 forms Demo   Menu Example

Email: I am a watermark

click!

Text disappears as soon as you tab into the box or start typing

9

Required Fields

- You can force a field to be mandatory on the client

```
<input type="text" autofocus="true" required />
```

- On a submit action, an error message may appear:
  - Appears in:
    - Safari 6+
    - Firefox 4.0
    - Opera 9+
    - Chrome 9+
    - IE10+
  - Message will appear differently in each browser

Name:

Email:

Please fill in this field.

Web address

click!

10

Autofocus attribute

- It is common to have the first field of a form to focus
  - To have the cursor flashing ready to type
- Previously achieved with JavaScript
  - The markup representation is faster
    - Part of the page rendering rather than code execution
- Supported in all browsers other than IE9 and less:
  - Use JavaScript to support legacy browsers

```
<form>
        <input name="q" autofocus="true">
        <input type="submit" value="Search">
</form>
```

11

Email input type

- Add type value of email
- What happens in the client is not consistent
  - HTML5 spec does not demand it
    - Opera and safari provides submit validation
    - Firefox provides client validation on blur
    - Safari mobile changes the input keyboard
    - IE 9< does nothing
  - Form will not submit until the error is solved
  - Provides a simple input mask to check input
    - e.g. boffin@qa.com
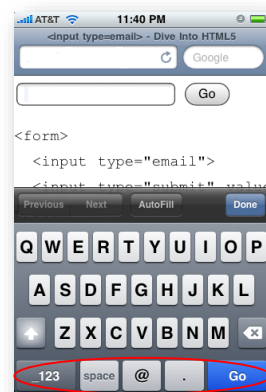
12

Web address input type

- Denotes the input must have schema prefixing an address
  - e.g. http://www.qa.com or ftp://ftp.mysite.com
- Different browsers have different functionality
  - More of an issue than previously due to different functionality
    - Chrome and Firefox 4 force user to add schema
    - Opera prefixes an address with http://
    - Safari mobile provides a different keyboard

- To use effectively combine with a placeholder
  - Users don't really understand schemas

13

Number input type

- Numbers often need to be constrained by range
- New number type provides this functionality
- Four attributes:

  `<input type="number" min="1" max="12" step="2" value="6" />`

  - min - lowest range
  - max - upper range
  - step - what value the control enumerates by
  - value - default value
- Browser support issues
  - Firefox, Chrome and Opera display these as 'spinboxes'
  - No increment/decrement buttons in IE
  - iOS UI widget doesn't consider step, min or max values

14

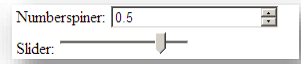## Range input type

- Creates a slider bar in Chrome, Firefox, IE10 & Opera

```
<input name="r" type="range" min="1" max="11" value="9">
```

- Has the same attributes as the Number type

- Only IE10 displays the current slider value
  - In other browsers, you need JavaScript to display the value
    - Obtain a pointer to the slider
    - Subscribe to its change event
    - Add the output to a span

15

Date input type

- A popup calendar is standard for date selection
  - Normally requires a JavaScript framework
  - Around 10% of web users do not support JavaScript
- HTML5 defines six date time types
  - Use UTC in the same way as time element
- Limited browser support currently
  - Chrome, Edge & Opera
  - Nothing in Firefox or IE

- Will not require JavaScript enabled
  - Native support is the ultimate aim
- ECMAScript5 allows you to create dates from UTC

16

Search input type

- Provides a semantic definition for search input
  - Keep to one per page

```
input[type="search"]
{
   -webkit-appearance: textfield;
}
```

- Early webkit browsers have a ui reaction to the type
  - On OS X operating system primarily
    - Consistent feel to search boxes in Apple software

- Disable this quirk with a CSS hack

17

Color input type

- Currently implemented in Chrome, Firefox and Opera
- Returns a six digit hex value
  - In other browsers, it should be verified as a hex value

- On MacOS and Windows returns a colour picker
  - On Linux only the basic colour picker so far
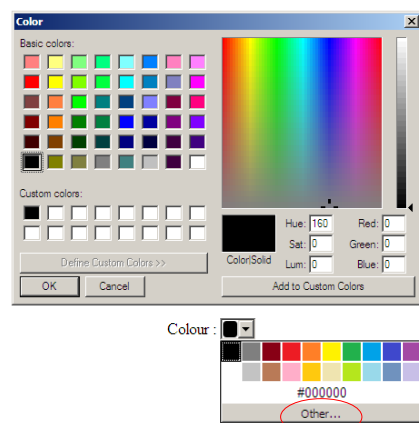
18

Pattern

- The pattern attribute allows use of regular expressions
- Pattern works with the following input types:
  - text
  - search
  - URL
  - Tel
  - email
  - password

```
<input type="text" pattern="[0-9]{13,16}" name="CreditCardNumber" />
```

- Ensure the user understands the regular expression
  - Support with a placeholder

19

Datalist

- The <datalist> tag provides a list of pre-defined options
  - Use the <input> element's list attribute to bind it to the datalist

- Provide an "autocomplete" feature on <input> elements
  - Users see a drop-down list of options as they input data

```
<input list="browsers" />
<datalist id="browsers">
     <option value="Internet Explorer">
     <option value="Firefox">
     <option value="Google Chrome">
     <option value="Opera">
     <option value="Safari">
</datalist>
```

20

Form validation

- As we have seen some browsers ship with validation
  - IE offers no UI implementation in any version
  - Firefox and Opera often the most complete implementation
  - Chrome is pretty good and Safari will get better
    - Some controls have silent errors, not enough UI feedback
- These are JavaScript free client validation

- Uneven support may be more trouble than benefit
  - You can tell a browser to switch it off
  - Still benefiting from the semantic types

```
<form novalidate>
    <input type="email" id="addr">
    <input type="submit" value="Subscribe">
</form>
```

21

<fieldset>

- Group related form elements together
- Meaningful legend provides accessibility

```
<fieldset>
        <legend>Your details</legend>

        <label for="fname">First name</label>
        <input id="fname" type="text">

        <label for="sname">First name</label>
        <input id="sname" type="text">

        <label for="age">Age</label>
        <input id="age" type="number">
</fieldset>
```
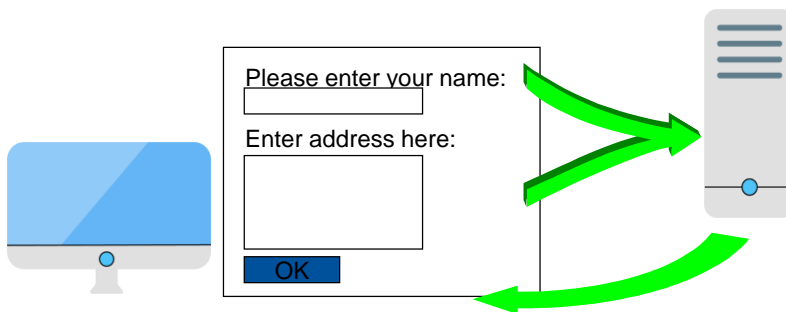
- Can disable all contained elements

```
<fieldset disabled>
    …
</fieldset>
```
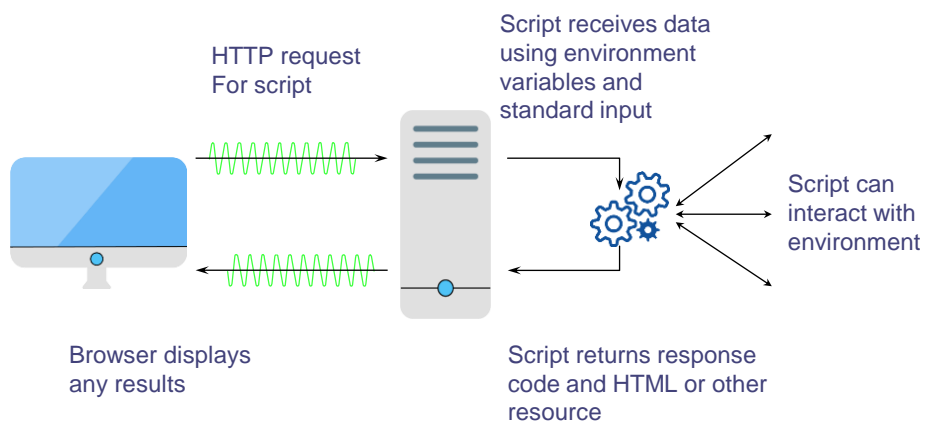
22

11

Submitting the form

- The "submit" button triggers the script
- The values of the form's fields are sent to the server
- Two different mechanisms: GET and POST

Please enter your name:

Enter address here:

OK

23

Server scripting mechanism

HTTP request
For script

Script receives data
using environment
variables and
standard input

Script can
interact with
environment

Browser displays
any results

Script returns response
code and HTML or other
resource

24

Form security issues

- Scripts should check data received from a form
  - Validate all data carefully!
- Data sent from a form is not normally encrypted
  - Unless a secure connection is made (e.g. SSL)

Please enter your name:
Hello

Enter address here:
I'm here

OK
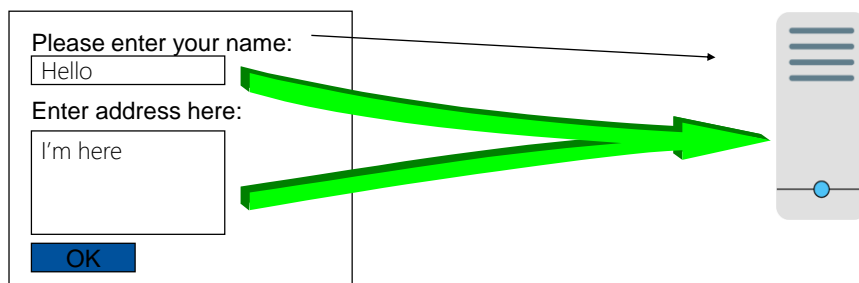
25

Summary

- Adding a form to a web page
- To understand Form tags
- To use input elements
- Be able to use HTML5 inputs and attributes
- To look at the form submission mechanism

26